

THE KEYSTONE PROFESSIONAL



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

APRIL 2001
www.apegm.mb.ca



National Engineering Week 2001

An Evening of Recognition

A reception was held on Tuesday, March 6, 2001 at the Niyakwa Country Club. New members of the Association were welcomed and Mal Symonds, P.Eng., Chair of the Awards Committee, presented the Awards of Merit, Leadership and Early Achievement to the following recipients:

**MERIT AWARD –
presented to James Graham,
Ph.D., D.Sc., FEIC, P.Eng.**



Dr. Graham obtained a First Class Honours Bachelor of Science degree in Civil Engineering from Queen's University, Belfast in 1960 and a Ph.D. from the same institution in 1967. His graduate work was followed by a one-year postdoctoral fellowship at the Norwegian Geotechnical Institute in Oslo. After some years on academic staff in Belfast, he moved to the Royal Military College of Canada in Kingston in 1972. He came to the University of Manitoba in 1975

where he now holds the rank of professor. In 1988, Dr. Graham's research achievements were recognized by the award of a Doctor of Science degree (by thesis) by Queen's University, Belfast. He is now the Keller Visiting Professor of Geotechnics at that university.

Dr. Graham's tenure at the University of Manitoba, where he teaches and researches in the field of geotechnical engineering, has been productive. He is recognized as a world leader in the area of constitutive modeling of soil behavior, unsaturated soil mechanics, and slope instability. Through his pioneering development with his graduate students of advanced testing equipment, he is able to subject soils to unique environmental conditions including high temperature, high pressure, chemical change and unsaturation that few other laboratories in the world can match.

This research and his reputation in the area of constitutive modeling led to his appointment as technical advisor to Atomic Energy of Canada Limited for examining the use of sand-bentonite "buffer" in the safe underground disposal of nuclear fuel waste, a project of considerable national and international significance. He is also recognized for his research on slope instability, where he has published an innovative review of slope analysis, and on hydraulic conductivity of plastic clays and sand-clay mixtures. This latter work received "Honourable Mention" at the recent annual conference of the Canadian Geotechnical Conference in Montreal.

Dr. Graham has given many invited lectures and addresses in Canada and around the world. He has published more than 200 technical papers in refereed journals, conference publications, and engineering reports.

Dr. Graham has a strong commitment to excellence in education at both undergraduate and postgraduate levels. In 1994, this commitment won him the prestigious H.H. Saunderson Award for Excellence in teaching at the University of Manitoba. Among many other prestigious invitations, he has presented keynote addresses on geotechnical education to Teachers of Geotechnical Subjects in the United Kingdom in 1991, to the Pan-American Soil Mechanics and Foundations Conference in Brazil in 1999 and the Pan-American Conference on Geotechnical Education in Mexico in 2000.

Dr. Graham has a noteworthy list of service to the profession. After serving as President of the Canadian Geotechnical Society in 1998-1999, he is currently its Director General. The Society serves approximately 1250 members and offers more than 100 meetings, conferences, and workshops each year in all regions of Canada. He served as Scientific Editor of the Canadian Geotechnical Journal from 1984 to 1988, and was a member of the Civil Engineering Grant Selection Committee of NSERC from 1991-1993. He was appointed a Fellow of the Engineering Institute of Canada in 1988.

Jim Graham recognizes that these achievements have only been possible through the support of his many graduate students and research partners, and through the love and encouragement of his wife

Jennifer, his three adult children and their partners, and most recently through the pleasure of welcoming his first grandson.

In awarding the Merit Award to Dr. James Graham, the Association acknowledges his outstanding scholarly achievements, including the direct advancement of the profession of engineering in Manitoba.

**MERIT AWARD –
presented to Bo Gulay,
B.Sc., P.Eng.**



Mr. Gulay's distinguished career started in 1955 as a drafter for W.L. Wardrop and Associates. From 1957 to 1962, Bo worked to complete his Bachelor of Science degree at the University of Manitoba and in 1967 he successfully completed the required examinations for registration in the Association of Professional Engineers of Manitoba. On August 3, 1965, after a number of years with another company, he rejoined Wardrop as a structural designer. Bo's value to Wardrop was quickly recognized and he was appointed a Principal in 1970.

In his role as Senior Project Manager from 1970-1980, Bo was responsible for coordinating all project and construction management services provided by Wardrop. In 1980 he became the Manager of the Structural Engineering and Building

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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. Members are also encouraged to submit articles and photos on topics that would be of interest to the membership.

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J.B. Adams (SK)	F. Fawal	D. Mannsfeldt (ON)	N.W. Richardson (SK)
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J.D. Bamburak	D.C. Gairns (BC)	N.C. Mattson	E.A. Schor
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M.F. Blamire (ON)	D.G. Grahame	M. Mihychuk	R.I. Sikorsky
J.A. Blatz	I.T. Hosain	C.L. Navratil (AB)	J.A. Spencer (BC)
L.E. Bonnett	D.G. Illerbrun	I.Neill (BC)	B.G. Stone (UT)
I.G. Bruce (BC)	C.W. Jones	P.C.Y. Ng	A.K. Takyi
P.C. Buddingh (BC)	L.F. Jury	D. Owens	J.N. Thompson (ON)
A.S. Burley	J.M. Kappel (ON)	R.J. Paydli	L. Travica
J.R. Burns	K.C. Kapush (ON)	D.E. Pekeski (BC)	S. Trebic
R.A. Campbell (AB)	G.S. Karp	V.H. Penner (AB)	J.H. Vidal
P. Cerny	D.A. Klassen	G.C. Phipps	H.S. Waldman
L.E. Chackowsky	R.F. Kroeker	A.R. Proulx	R.G. Wright (BC)
L.N.K.R. Chavali	M. Lebeau (QC)	A.P. Pryslak	H.V. Zwanzig
A.J. Eveleigh	M.D. MacPherson (SK)	L.A. Quinn	
		M. Richards (AB)	

Licences Issued January & February 2001

P. Cody (ON) G.G. Grabs (ND)

Members-In-Training Enrolled January & February 2001

R.I. Bacchus	G.G. Chongva	C.G. Flowers	G.A. Martinez	P.V.I. Taiarol
N. Barakat	B.A.	J.L. Gratton	S.C. Minty	M.A.J. Theroux
J.T. Bartley	Christensen	M.E. Hudek	M.P. Morris	P.P. Wertepny
J.J. Bell	M.J. Coss	B.S. Janz	P.D. Neal	C.D. Wiebe
D.W. Bishop	M.D. Desjardine	D.W. Johnson	R.M. Shead	C.Q. Wu
M.M. Bueckert	H. Dong	M.A. Johnson	C.S. Silverman	S.J. Young
A. Buscemi	B.R.T. Dube	S.A. Lepper	C.G. Spence	
W.K. Byczek	J.E.R. Durocher	P.B. Lestition	M.J.J. Stadler	
N. Cao	K.M. Ferguson	W.J.C. Manning	S.K. Strutt	

Additions to Retired at January 1, 2001

W.M. Arnold	E.M.C. Chang	W.O. Kennedy	R.R.L. Renz	Craeynest
W.B. Ashby	T.C.E. Cheng	S.K. W. Keung	J.D. Robertson	T.S. Wauchop
K.R. Bailey	K.F. Chow	M.M. Kostecy	S.A. Sieklicki	D.W.F.
J.A. Bekavac	E.H. Fung	B.A. McFerran	A. Singhal	Widdows
G.L. Brown	T.R. Gledhill	A.F. Ma	R.R. Steffan	H.S. Williams
A.W. Bork	M.A. Harris	A.W. Ptak	B.R. Templeton	M.H. Windsor
W. Brodowski	R.E. Jaques	R.G. Ratcliffe	A.P. Van	G.K. Yuill

In Memoriam

The Association has received with deep regret notification of the deaths of members Allan Jacob Flam, Robert Bruce Hunter and Robert Ian Urquhart.

ATTENTION GOLFERS!

APEGM Annual Spring Golf Tournament

Date: Wednesday, June 13, 2001

Place: Selkirk Golf Course

Mark Your Calendar!

(See Enclosure)

APEGM



President's Message

Alan J. Pollard, P.Eng.

National Engineering Week and the meaning of Engineering and Geoscience

As I stood by, incognito, at St. Vital Centre watching members of the profession use a hydraulic press to pulverize pasta, I reflected on the enduring appeal of the spaghetti bridge contest. It was the first student contest APEGM launched when, a few years ago, we expanded the mall presentation from a static display to a full-blown student competition event. It is the only one of the original contests that is still a part of National Engineering Week. (Shouldn't that be National Engineering and Geoscience Week?) Other contests have come and gone but none has captured the interest of the young people as consistently as has the spaghetti bridge contest. Perhaps it's the novelty and accessibility of building a miniature struc-

ture from a common material. Perhaps it's the mental challenge of using a raw foodstuff as a construction material. I would like to imagine that it is both and neither, but rather that we have caused young people to think about the world in a different way. For a short while they see the extraordinary within the ordinary. Instead of a hearty carbohydrate, they see compression and tension members and instead of Italian food, they see Euclidian geometry. It is the ability to reach past the surface and really understand the basis of that which we take for granted every day that characterizes the Professional Geoscientist or Professional Engineer. It both sets us apart from the rest of the world and joins us inseparably to it. The P.Eng/P.Geo course is to always see a

better way to build something and that is the same force that draws the spaghetti bridge builders back each year. The persistent feeling that there is always a better way, no matter how good it is now, lies at the very core of human endeavour to succeed and to improve. Our members seek not to run faster or jump higher, but to build better. That merging of human nature and human ingenuity is the hallmark of the Engineer and Geoscientist. That we can ignite that

passion in the next generation who will succeed and ultimately surpass us is a tribute to the profession. Thank you to all who have participated in National Engineering Week over the years and to all of you who take time to show the world what it means to be a Geoscientist or Engineer during the other fifty-one weeks of the year. A special thank you to the many geoscientists who support this non-inclusively named week with their efforts. ■

Increasingly, Most of Our Professional Engineers are Home Grown

By: B. Stimpson, P.Eng.

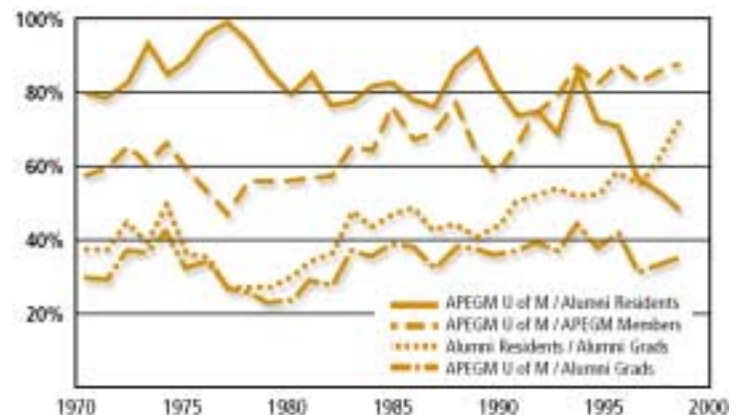
More of the University of Manitoba's (U of M) engineering graduates are staying in the Province than at any time over the last 30 years according to data collected by the Engineering Dean's Office (see graph). In 1998, the figure stood at about 72%, having risen steadily from about 40% in 1990 and from an even lower percentage of 28% in 1980. This trend reflects a healthy provincial economy that is providing more employment opportunities for engineering graduates and suggests that, given such opportunities, Manitobans (the vast majority of graduates) prefer to build careers "at home". In addition, the benefits of living in Manitoba (housing costs, ease of commuting, etc.) relative to provinces such as Alberta, British Columbia, and Ontario, may be gaining greater recognition. The percentage of professional engineers in Manitoba comprised of U of M graduates has also risen to a new high of about 87%. As recently as 1990, the number was only 58%.

An analysis of APEGM data indicates that approximately 1/3 of

the professional engineers in Manitoba will retire during the next decade which may presage a shortage of professional engineers in the province. The lack of civil engineers may be particularly severe as enrollment in the civil engineering program at the U of M has declined by about 50% since 1996. This decline is nation-wide. According to a recent report of the Canadian Council of Professional Engineers ("Canadian Engineers for Tomorrow", December 2000), the number of civil engineering graduates has declined by 28% over the period from 1995 to 1999.

While more of Manitoba's engineering graduates are staying home for their careers, fewer are registering as professional engineers. That number has declined from 91% in 1990 to 49% in 1998. It appears that graduates from the more popular programs, such as electrical- and computer-engineering, are being hired in positions where professional registration is not required, or they are deliberately choosing not to register. ■

U of M Engineering Graduates



Arthur John Carlson – A Tribute

By: V.L. Dutton, P.Eng. (Ret.)

January 29th was a gloriously sunny day. As a result, the windows behind the altar in St. George's Anglican Church on Wilton were a delight to behold. At Art's request, the funeral service in the Book of Common Prayer was used which made things relatively easy, even for non-Anglicans. It also started me doing a bit of reminiscing.

VE Day was May 8, 1945 while VJ Day was Aug. 14, 1945. Realizing that the Faculty of Engineering would soon be registering a great many men returning from the European campaigns, Professor A.E. MacDonald, undoubtedly acting on behalf of Dean Fetherstonhaugh, had recruited Art in August. Then he negotiated an early release for this R.C.E. "veteran" who was soon busy in the Drafting Lab under Art's supervision. In those days "Junior Division", where Memorial Park now stands, was where the first year

Engineering students received their instruction, as had this writer a few years earlier. Drafting classes were held in the brick house to which the other wings of the building had been attached, as a temporary hospital, following the Great War some thirty-odd years earlier. It was a traumatic experience for many of those young men as they adjusted from handling the controls of a Sherman tank, or a Lancaster or Halifax bomber, to manipulating a tee-square and triangles.

After a number of years doing other things, this writer found himself back at the University where Professor W.F. Riddell was now the head of Civil. Following his retirement, Art took over that position where he remained until his own retirement. While clearing out his office, Art gave me two books that still grace my book-shelves. Thanks again for the books, Art – and for the many happy memories. ■

Professional Development

Professional Development Breakfast Meeting – Water Quality in Manitoba

By G.S.Lodha, P.Geo.

The recent incidence and number of deaths related to contaminated drinking water in Walkerton, Ontario was the motivating force for the APEGM-PD Committee to arrange a speaker to talk about water quality in Manitoba. On February 20, Mr. Laurie Frost, P.Eng., a hydrogeologist from the Water Resources Branch of Manitoba Conservation, provided an excellent overview of the various drinking-water systems in Manitoba, regulatory aspects of water quality and the requirements for the long-term protection of our

drinking-water systems. Sources of the province's drinking water are surface water (~ 80% from lakes and rivers) and groundwater (~ 20% from bedrock or sand and gravel aquifers). Drinking water is distributed through either private, semi-public or public water systems. Manitoba's Public Health Act is the regulatory authority governing domestic and public water supplies including wells, treatment plants and distribution systems.

Manitobans are served by 320 provincially and 68 federally monitored public water systems, over

1,500 semi-public water systems (e.g., schools, hospitals, personal care homes, hotels) and up to 50,000 private water wells. The local utilities maintaining public water-systems have a requirement to chlorinate the water, test chlorine levels at least once a day and test for micro-organisms at least once every two weeks. At present, there is no requirement for testing of semi-public and private water systems. The requirement for testing of semi-public systems is currently undergoing legislative change. Owners of private wells are recommended to conduct, as a minimum, annual bacterial testing in addition to ongoing maintenance of their water systems. The province will soon be subsidizing 70% of the cost of bacterial testing for all drinking-water systems and will also have access to these test results.

Health Canada's Guidelines for Canadian Drinking Water Quality are used for setting drinking-water limits with regards to microbiological, chemical and physical parameters. Two of the main health-related concerns are bacterial and nitrate contamination. The maximum acceptable concentration (MAC) for total coliform, fecal coliform and E. Coli bacteria in drinking water is zero organisms per 100 mL. These bacteria all occur in the intestines of animals and human. However the presence of E.Coli bacteria is a strong indicator of recent sewage or animal waste contamination and the possible presence of pathogenic bac-

teria. The MAC for nitrate-N is 10 mg/L. Decaying plant or animal matter, agricultural fertilizers, manure and domestic sewage are all sources of nitrate contamination.

The province has recently been involved in a number of water-quality sampling programs, including:

- Regional sampling of about 1,000 private rural wells: results show that about 40% of the wells sampled tested positive for total coliform bacteria, including 3% for E.Coli bacteria and about 15% of the samples also exceeded the MAC of 10 mg/L for nitrate-N.
- Sampling of semi-public systems: results show that <10% of the wells sampled tested positive for total coliform bacteria, with <1% having E. Coli bacteria.
- Sampling of private wells in rural communities: as a result of total coliform and E. Coli bacterial contamination, Boil Water Advisories were issued by Medical Officer's of Health to the communities of Crystal City, Haywood, St. Adolphe, Ile des Chenes, Anola, Garson, Tyndall and Balmoral. There has been no evidence of the deadly strain of E.Coli 0157 bacteria.

In order to better educate Manitobans about water-quality issues and help improve the overall quality of our drinking water, the following are recommended steps in this undertaking:

- Implementation of the main principles of the November 6, 2000 Drinking Water Advisory Committee Report on the review of the reporting and follow-up procedures for bacterial testing of drinking water in the province.
- Education of Municipal authorities on the importance of well-head protection within their jurisdictions.
- Continue the process of developing and implementing Aquifer Management Plans in the province.

Laurie's talk was followed by a number of interesting questions and discussion. Assistance in preparing the presentation was provided by his colleagues Rod Broadfoot, Don Rocan, P.Eng. and Dr. Art Sparling P.Eng.(Ret.). ■



Trevor Cornell (l) of the P.D. Committee thanks speaker Laurie Frost.

Do you know someone who deserves recognition for significant contributions to, and enhancement of, the engineering or geoscientific professions?

The APEGM is asking for your personal support in promoting the APEGM Awards and also the CCPE Call for Nominations for the Canadian Engineers' Awards. Information regarding the CCPE and the APEGM awards is available on the Associations web site (www.apegm.mb.ca – Professional Practice (Info for Members) – Information for Members – Awards) together with a Nomination Form. Your help in this regard is pivotal to the ongo-

ing success of the awards program, and to ensure that Canada's most worthy professional engineers and geoscientists are recognized for their contributions to our professions and society. Please send your recommendation by mail to the Association office, or fax (474-5960), or e-mail: (jmckinley@apegm.mb.ca), together with as much background information as possible. The Awards Committee will consider all nominations. ■

Meet Your New Councillor – Arnold Permut

By: M.W. Morrison, P.Eng.

Do you ever look at the clean and clear water coming out of your kitchen faucet and wonder, ‘who is responsible for making sure this water looks and tastes so great?’ How about what happens to all of the waste-water that we generate in this city. Who makes sure that it is treated and returned in a safe and environmentally friendly manner? A large part of that responsibility falls under one of our new councillors, Arnold Permut, and the highly dedicated staff working with him at the Laboratory Services Division of the Water and Waste Department of the City of Winnipeg.

Born and raised in Winnipeg, Arnold sees this city and province as an excellent place to live and raise a family. Arnold has shared the last 25 years of his life in Winnipeg with his wife Susan, a Public Health Nurse in the Transcona Community. A couple of the key elements that have kept Arnold and Susan in town all of these years are the affordability of living and the short commutes to work. These are very important

attributes because they allow Arnold to have the maximum amount of time with his family and a comfortable quality of life.

Arnold also thinks of the University of Manitoba as a fine institution where he earned his Bachelor of Science in Civil Engineering in 1974 and made many life-long friends. Although Arnold admits that he did not put his full efforts into his first couple of years at U of M, his daughter, Janie, is showing complete dedication in her first year of science. He has no doubt that she will attain her goal of becoming a pediatrician. Of course, Arnold also did become dedicated to his program and recalls that his most enjoyable and fulfilling learning years were during his Masters of Sanitary and Environmental Engineering program which he completed in 1976.

“Protection of the Public” is Arnold’s idea of the main mandate of Council. He sees this as highly important for a couple of reasons. The first reason is the obvious ethical obligations that engineers hold

towards the public, and the second reason, a spin-off of the first, is the importance of preserving self-governance. Neglecting to ensure protection of the public by the APEGM could result in the loss of self-governance. Arnold represents Council on a number of committees, one of which is the Issues Awareness Board. He finds this to be an important committee for the above mandate, to be on top of emerging issues, such as recognition of software engineers for example, and any inherent impact. As a representative of Council, he will report on any issues from the various committees on which he sits.

Referring to Mr. Permut as a new Councillor is actually an incorrect description, a returning veteran is more accurate. Arnold served on the Council from January 1993 to October 1996 before taking a four-year break. This “break” included volunteering on several committees, including the Registration Committee and the Women in Engineering Advisory Committee. Why does he do it? Because he enjoys it. Arnold



New Councillor Arnold Permut.

claims that to put in the amount of time necessary for Council you must enjoy it. What makes it enjoyable? The other dedicated volunteers, the professionalism, the helpful staff at APEGM and the feeling that you are giving something back to a great profession.

It is great to know that someone with such vast experience with the Council itself, our city government, environmental issues and APEGM has returned to the Council. It was a pleasure to meet Mr. Permut and, by visiting his office at 2230 Main Street, I was finally able to pinpoint the source of a distinct fragrance that I recall from playing baseball at Vince Leah Community Club. ■

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CCPE CEO's Message

Marie Lemay, P.Eng.

Our Future is Students

Two thoughts came to mind as I packed my bags after spending four full – and very rewarding – days at the Canadian Federation of Engineering Students (CFES) 2001 Annual Congress with the future leaders of our profession: ‘What a difference 20 years make’ and, ‘We can make a real difference if we act now’.

Let me explain. Until I walked into the opening reception and banquet, I did not realize how much water has passed under the bridge since my own student days. It had not occurred to me that the Congress delegates would be almost 20 years younger than I am – I still remember my student days and my year as President of the Engineering Students' Society at the University of Ottawa as if it were yesterday. At the outset, I felt a little out of place and not at all certain that I would be able to connect with the students in the room, let alone achieve CCPE's goal of creating a two-way communications link between the students and the profession at the national level.

Those feelings were short lived. As the Congress progressed, I learned that engineering students and the profession are concerned about many of the same issues – including mobility, accreditation, and the public image of engineers – and that we must reach out to students.

The majority of Congress delegates were interested in what we had to say, and asked a lot of questions. But many don't understand what it means to be a professional, or that they are not engineers until they are licensed. They question the value of registering, completing their internship, and getting a P.Eng.

Convincing them to join the profession will require a long-term commitment by CCPE at the national level, and by our member associations/ordre at the provincial and territorial level. We have to learn to speak to students in their own language, show them what it means to be a professional, and convince them that the P.Eng. has value.

Just saying ‘it's the law’ isn't enough.

We need to make them understand that the four or five years of their lives it takes to get an engineering degree, as important as they may seem, only represent a fraction of the time they will ultimately invest in their careers and that the best career-investment they can make is to go the distance and get the P.Eng.

We need to show them that belonging to the engineering profession will benefit them at every stage of their careers, that it will give them access to a support network of their peers as well as international recognition and mobility, that it will demonstrate their commitment to professional ethics and development, and tell the world they are among the elite of their profession.

The messages that seemed to reach students during the Congress were: “Don't close any doors on your future. Once you have your P.Eng. you can go virtually anywhere and work for virtually anyone. The best time to get your P.Eng. is now. It truly is the difference between getting a job and launching a career.”

Conveying those messages requires a commitment that extends beyond CCPE and our member Associations/Ordre. The best way to reach students is through concrete examples. As individual professional engineers, we should take visible pride in who we are and what we do.

Use the P.Eng. after your name. Talk to students and others about what it means to be a professional. Encourage students not to close doors, and convince them to join our very challenging and exciting profession. Help graduates to complete their internship.

Remember, engineering students are the future of our profession, and some of its most important members. As CCPE's Engineering Student Liaison Policy states so well: “The future sustainability of self-governance of the engineering pro-

fession depends on the continued growth of registration of new engineering graduates into our profession.”

CCPE's involvement in the CFES Congress flowed from our new student policy and implementation plan. We will also be front and centre at the CFES Canadian Engineering Competition in March as a Gold Level Sponsor. It's another opportunity to make engineering students more aware of the P.Eng. and its inherent value.

Between our participation at the Congress and in other key meetings, March was a very busy month for CCPE. On March 1, we held our inaugural government-relations event on Parliament Hill. During the two-hour reception, we talked to federal government officials about CCPE, the engineering profession, and public safety in the age of innovation. Our goals are to establish closer ties with the federal government, and to be proactive at influencing federal-government policies that have the potential to affect either

public safety or the profession.

On March 2, CCPE and our partners welcomed young people from across Canada to the national launch of National Engineering Week (NEW) 2001. Honorary NEW Chair Julie Payette, ing. presented the grand prize to the winner of the Great Canadian Space Quest contest, and talked about her experiences as a Canadian astronaut, it was a spectacular event. More information on the launch and the contest may be found on the NEW Web site at www.new-sng.com.

Last but not least, CCPE's Board of Directors met in Ottawa on March 3-4. One of the key agenda items was software engineering. The Board also received the first draft of a report on the relevancy of our profession, which contains recommendations to ensure that we continue to be relevant in the new millennium, and review the next steps in CCPE's ongoing communications campaign to make both engineering students and high-tech employers more aware of the P.Eng. license. ■

Notice of Reunion

University of Saskatchewan, College of Engineering's 90th Anniversary and All-Year Alumni Reunion 2002 is being held in Saskatoon from Thursday, September 12th, 2002 to Sunday, September 15th, 2002. For more information regarding registration, activities, etc. please visit our web site: <http://www.engr.usask.ca/alumni/reunion2002/> ■

Reminder Notice

Certificate Of Authorization

As indicated in the December 2000 edition of *The Keystone Professional*, the Association is accepting applications for Certificates of Authorization for corporations and other entities to engage in the practice of professional engineering or the practice of professional geoscience as is required under section 16 of The Engineering and Geoscientific Professions Act.

Application forms and other details will be available from the Association office and through the Association's website at <http://www.apegm.mb.ca>.

It should be noted that section 59 of The Engineering and Geoscientific Professions Act prohibits contracting with a corporation, or other legal entity, for

any work that requires the services of a professional engineer or professional geoscientist unless that corporation or entity holds a Certificate of Authorization. Section 59 does not apply if the work is being contracted with an individual professional engineer or professional geoscientist operating as a sole proprietorship. However, by-law 14.2 requires that each professional member before undertaking to provide professional services to a client in such circumstances must either have professional liability insurance coverage or must notify the client that he or she does not have such coverage. If not so insured, he or she must also obtain written authority from each client to provide those services without insurance.

David A. Ennis, P. Eng., Executive Director & Registrar

Council Reports

Tuesday, January 9, 2001

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

COUNCIL SETS A SPEED RECORD

The meeting was scheduled to begin at 1:00 PM according to the meeting cover-sheet. As it turned out this was a typographical error, and the real intention was to have the regular 12:30 PM start time. When it appeared that everyone who was coming was present, President Pollard opened the meeting at 12:50 PM, so on average, the meeting began nearly on time.

First off was a review of the Issues and Activities report, affectionately known as the "limbo list." Council decided to hold an outside Carver governance session on February 3, and to print professional development brochures which would drop the word "voluntary" from the title. At this time Executive Director Dave Ennis asked the Council if they felt the Issues and Activities report was useful to them - it required a lot of his time to prepare - yes, the Councillors wanted it to continue.

When it came time to approve the minutes of last month's meeting, President Pollard apologized for a mis-print which listed Councillor Syme as Councillor Same. Mr. Syme was ready for it when he replied "It's all the same to me." Council approved the minutes with that correction and a good laugh.

Next, Executive Director Dave Ennis guided Council through his own report. Mr. Ennis said that changing the date of the Annual General Meeting, i.e. making it a month earlier, would necessitate a corresponding change in the fiscal year. Council approved a change for the fiscal year to end on June 30.

Again, Council grappled with choosing a President-Elect, the person who will assume the mantle of President next Fall. They had gone through the exercise several times before, not an unusual occurrence, as it takes time for someone to commit to the time-consuming task of leading our profession. Council was looking for nominees so paper ballots were passed around the long table and the 'election by attrition' began. After the small papers were counted Councillors Barakat, Bogan, Ball, Hamilton, Poetker, and Syme were chosen by their peers. After polling the nominees for their willingness to stand for election, all declined outright except for Councillor Hamilton, who said he would think about it. Since Councillor Barakat was absent, President Pollard said he would consult with him before the next Council meeting.

Tuesday, February 14, 2001

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

MEET THE NEW PRESIDENT-ELECT

A new time, a new day was the theme for this meeting. For the first time in years Council was meeting on a Wednesday and at 1:00 PM. Everyone seemed to make the transition successfully.

When Executive Director Dave Ennis prepared the meeting package he drew up a 'standard' meeting agenda, one whose format was established years ago. As a taste of things to come, he included also a sample 'Carver' agenda. When Council saw the Carver agenda they decided immediately to take it for a test-drive, somewhat to Mr. Ennis's surprise. (Remember the name Carver; you'll be hearing much more about it. In case you didn't know, it's a system of governance used by non-profit organizations. The Policy Governance® model emphasises that the Board provides leadership to the organization by clearly defining what human needs are to be met, for whom, and at what cost.)

When President Pollard reached the agenda item on The Engineering, Geosciences and Architecture Inter-Association Relations Joint Board, he said he was very, very, very pleased with the way the board was operating. Since Past President Britton was stepping down from the joint board at the end of March, a replacement was needed. Councillor Bogan offered his ser-

vice and became the APEGM 'connection' to the board, without representing APEGM in an official capacity.

More personnel matters followed when Council discussed the recruitment of appointed Councillors. This is where we invite non-engineers to sit on Council to ensure that we are accountable to the general public. During the past few years we've had some excellent people. A few moved away, a few served out their terms, and now it was time to fill a few vacancies. Council began by listing the attributes that a prospective appointed Councillor should have; service to the community, service to their profession, adequate time to attend meetings, and a taste for sandwiches. Someone even suggested that we ask an architect. Councillor Ruff, an appointed Councillor himself, said he would ask around as did Past President Washchshyn. Executive Director Ennis said he would e-mail other past-presidents for suggestions.

The term 'software engineering' has stirred great controversy in the recent past. It has precipitated disputes between professional groups right down to the very elementary issue of who controls the terminology. Some heat was converted to light with 'The Report on the Use of the Term "Software Engineering" in the Undergraduate University Community' put together by an inter-disciplinary panel. The central recommendation of the panel was to create a Software Engineering Accreditation Board which would be responsible for certifying software engineering programs. Now Council had before it a letter, from the Professional Engineers of Ontario (PEO), which questioned the need for a separate board. PEO's feeling was that the engineering profession should have control over software engineering. Council embarked on a wide-ranging discussion of the matter and agreed that as long as the basic engineering criteria were maintained they were willing to make changes to accommodate software engineering. Since this was a pure discussion item, there was no motion.

In order to pay its bills APEGM issues many cheques which require the signature of an Executive Committee member and (usually) the Executive Director. To simplify issuing cheques for routine items Council decided that S. M. Matile, P. Eng., K.A. Buh, P. Eng., and Joan C. McKinley provide one signature and Executive Director Ennis provide the second. An important corollary was that no one could countersign a cheque payable to themselves. In addition to paying the bills promptly, Council noted that the new procedure also implemented Carver principles by assigning a staff function to staff.

The meeting started to wind down when Council found a replacement for Councillor Hamilton, whose term on the Nominating Committee had run out. Without much fuss or bother Councillor Ferchoff agreed to take the job. After that Council turned to the consent agenda and informational items, none of which required motions. The big clock over the door read 3:02 PM when the meeting adjourned - the shortest Council meeting ever, in this reporter's experience. Are we seeing the benefits of Carver? ■

vices and became the APEGM 'connection' to the board, without representing APEGM in an official capacity.

Council reviewed a letter from the Association of Professional Geoscientists of Ontario (APGO) in which they referred to a recent visit of their Vice-President, John Bowlby, to APEGM. APGO and APEGM were attempting to develop common approaches to registration and administration. APGO stated that the profession needs an Incidental Practice Agreement which would allow geoscientists to work for short periods of time in each other's jurisdiction. Much of the work of geoscientists involves short periods of activity in many places. To deal with these issues, APGO suggested that they develop a formal reciprocal relationship. Executive Director Dave Ennis said that Council needed to make a decision by the May meeting.

A good portion of the briefing papers for this meeting were made up of draft APEGM governance policies. Ralph Eschenwecker, a former Councillor, attended the meeting to shepherd these newly minted documents through Council. President Pollard congratulated Mr. Eschenwecker and his committee on their fine work in developing the policies and said they couldn't have done it without him. Council worked through the policies one-by-one and several people around the table commented on the negative tone of many policies. They were written as "Council shall not..." or "the Executive Director shall not fail to..." Apparently this was the accepted way to draft

Evening of Recognition

Continued from page 1

Science Services Department. He was appointed a Director in 1990 and Vice-President and General Manger of Wardrop's Manitoba Division in 1993. Since 1996, Bo has served as the President of Wardrop Engineering Inc., leading Wardrop to record growth and expanded markets in engineering, environmental services, business solutions, and information technology.

Throughout his career, Bo has been a tireless crusader for improved delivery methods of construction projects, building-envelope science, project management, quality assurance, and value engineering, as well as the development of the consulting engineering profession as a whole. He is the Founding Chairman of the Manitoba Building Envelope Council. He is also a Member of the Manitoba Chapter of the Canadian Construction Research Board, where he served as Chair from 1987-1989 and Vice Chair from 1989-1991. Bo also served for a number of years on the APEGM's Safety Committee as well as several subcommittees. More recently, Bo has contributed as a member of the Alternative Service Delivery Subcommittee of the Strategic Infrastructure Renewal Policy for the City of Winnipeg and over the past year Bo has served as the President of the Consulting Engineers of Manitoba. Yet for all his time spent serving his profession, Bo has always been able to find time to support local community services including being a past Director of the Multiple Sclerosis Society of Manitoba.

Of all his achievements, however, Bo is most proud of his 38-year marriage to his wife Bev, his two children Chuck and Sheri, his six grandchildren, and all of the

friendships that have developed throughout his career.

In awarding the Merit Award, the Association acknowledges Bo Gulay's significant contributions as an outstanding engineer and his commitment to family, community, and friends.

EARLY ACHIEVEMENT AWARD – presented to Robin L. Hutchinson, Ph.D., P.Eng.



Dr. Robin Hutchinson received her Bachelor of Science and Masters degrees in Civil Engineering from the University of Manitoba in 1988 and 1990, respectively. Robin registered as a practicing member with APEGM in August 1991 after beginning her engineering career with Crosier Kilgour and Partners in January 1990. Robin worked with them for several years and was involved with building design in Manitoba and Ontario, and the seismic retrofit of buildings in British Columbia.

In 1996, Robin returned to the University of Manitoba to pursue a Ph.D. Her research was groundbreaking and innovative. She examined the use of carbon fibre reinforced polymer (CFRP) sheets for shear strengthening of pre-stressed concrete bridge girders. Her research is being used by ISIS

Canada and ACI in the development of design codes, and is the basis for the unique field-application of CFRP sheets being used to provide shear reinforcement for the Maryland Bridge in Winnipeg, Manitoba, and the John Hart Bridge in Prince George, BC. Robin is directing this work as a project leader for ISIS Canada Network of Centres of Excellence, and is also project leader for the ISIS project entitled: "Repair and Monitoring of Timber Piles in the Arctic Using FRP and Fibre Optic Sensors".

During the completion of her Ph.D., Robin received numerous awards for her academic excellence. These include a Natural Sciences and Engineering Research Council (NSERC) postgraduate scholarship, a University of Manitoba Scholarship for Academic Achievement, a University of Manitoba Graduate Fellowship, and an ISIS Canada Research Scholarship for Women in Engineering. Robin also received the Precast/Pre-stressed Concrete Institute Research Fellowship and Canadian Institute of Steel Construction Scholarship during the completion of her undergraduate and Masters degrees.

Robin began her academic career as a faculty member of the Department of Civil and Geological Engineering at the University of Manitoba in 1999. She is an excellent teacher and is actively sought by students. In the short period of time since Robin started, she has supervised six undergraduate theses and currently supervises three graduate students. Robin has developed three undergraduate courses and a graduate course as well as assisting Dr. Ron Britton with Engineering Design.

Robin's research has been presented both nationally and at international conferences, with more than ten presentations to date. In addition, Robin has published her

research in refereed journals and technical reports. Robin is a project leader with ISIS Canada and has received two research grants from ISIS Canada, as well as a four-year grant from NSERC. Robin was one of the few faculty members to receive funding from the Canadian Foundation for Innovation in 1999.

Robin is an active member of the structures community. She is a member of the Executive Board of the American Concrete Institute (Manitoba Chapter), a member of Women in Engineering Advisory Committee of APEGM, and a member of WISE (Women in Science and Engineering).

In awarding the Early Achievement Award to Dr. Robin Hutchinson, the Association acknowledges her significant contributions and enhancement of the engineering profession and the community in the early stages of a promising career.

LEADERSHIP AWARD – presented to Ed Van Humbeck, B.Sc.(Electrical), P.Eng.



Mr. Ed Van Humbeck, Chairman of the Board of Vansco Electronics, started his company with a vision 22 years ago. He perceived a growing need for electronics in industry as manufacturers and end-users demanded more performance from their machines. With his wife Terry as an active partner, he started Vansco out of his house, initially supplying electronic solutions to local equipment manufacturers. Some of his first products were highly reliable electronic turn-signal flashers, computerized controls for robotic machines, and environmental controls for plant growth rooms used in laboratories.

As the use of electronics continued to become more pervasive, Ed Van Humbeck positioned the company to take advantage of



New APEGM members.

Continued on page 14

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Meet your New Councillor – Jerry Bogan

By: M.E. Baril, P.Eng.

This is a little weird writing about a fellow member of the Publication Committee knowing he will be reading and editing this article once it is done, but it gave me a chance to learn more about Jerry than I had in three years of monthly lunch meetings preparing this publication.

Jerry is a Winnipegger born and bred. He grew up in the North End and met his wife Debbie through mutual friends between high school and university. Debbie works for the Canadian Diabetes Association. They have been married now for 23 “freakin wonderful” years (the Minnesota Vikings made the playoffs while the Green Bay Packers did not and Debbie must have been rubbing it in) and have a 19 year old daughter, Lauren, who is attending her second year of Arts in preparation for a career in teaching at the elementary level.

Jerry attended the University of Manitoba and graduated with his degree in Civil Engineering in 1979, joining Dominion Bridge that same year. He worked there for five years

as a design engineer on a variety of projects before joining CN Rail in 1984. He worked with their Bridges and Structures Department as a planning and inspection engineer, including eight months in Edmonton. In 1991, Jerry joined the world of the consultant engineer when he began working for DS-Lea Consultants (now ND-Lea), once again as a design engineer, becoming an associate in 1995. In the fall of 1999, Jerry left DS-Lea to start his current employment as Manager, Engineering and Design, at Dominion Construction.

Jerry joined APEGM (then APEM) in 1981 and started serving on the Publication Committee in 1986 (currently the longest serving member of this committee at 15 years). He is a former Chair of the committee, and currently serves as the Vice-Chair. He is also currently a member of the APEGM Task Group dealing with the Manitoba Architects Association (MAA), which he joined in 1999. One of Jerry’s objectives as an APEGM councillor is to assist Council in understanding the

issues facing engineers practising building-design and help resolve the current situation in regards to the definition of the relationship between the engineer and architect as it pertains to the Building Code. Other goals for his term as councillor include enhancing our public image, seeking new initiatives for the Association, encouraging participation of APEGM members in activities of the various Chapters outside of the Winnipeg area, and to ensure that any Professional Development Program implemented is effective and recognizes member expectations.

Away from the office and his duties to the Association, Jerry has developed a passion for golf. He gets out once or twice a week, usually on the weekend, for a round of golf. His other passion is watching the aforementioned Green Bay Packers. As I mentioned earlier, Debbie and her family are fans of the much-despised division rival Minnesota Vikings, and weekends when the two teams meet are greatly anticipated around the Bogan house-

hold. Jerry’s NFL passion was hindered this past year thanks to his home’s location on the west side of the Red River (Videon did not carry NFL ticket this year).

When I asked Jerry where he sees himself ten years from now, he would like to still be managing an engineering department, but does not want to be completely removed from either design or project management, as he still enjoys both aspects of engineering. Having seen the organization and commitment he brings to the Publication Committee first hand, I have no doubt that he will fulfill his goals in both his term as a Councillor and his career. Go Broncos! ■



New Councillor Jerry Bogan.

Message for Designers of Access-Scaffolding

By: APEGM Safety Committee

APEGM members involved with the design or use of access scaffolding should be aware of changes to the regulations under the Workplace Safety and Health Act.

Background

As a result of a comprehensive review of existing regulatory requirements following the failure of a scaffold system at the Health Sciences Centre Complex in 1996, changes were made to Manitoba Regulation 189/85 to further enhance worker safety in regards to scaffold design and erection.

Engineering Design Approvals

Every employer (contractor) shall ensure that all open access scaffolding in excess of 15 metres (50 ft) in height is designed by a professional engineer and erected, used and maintained in accordance with the

engineering design.

If the scaffolding is to be enclosed or hoarded and is greater than 7.5m (25 ft.) in height, a professional engineer must be engaged by the contractor for the design and erection of the hoarded scaffolding.

The drawings and specifications for scaffolding designed by a professional engineer shall include complete information on such details as tie-back specifications, design load and wind loading criteria, and foundation details. The design must include all design details related to the application of the scaffolding system. For example, if the scaffold is to be tied-back to the structure, it must be clear whether the tie-back design includes provision for the hoarding of the scaffold.

Designers should also advise their clients that changes to the design must not be made without

the pre-approval of the professional engineer.

Inspection by Professional Engineer

The contractor shall ensure that the engineered scaffold system is inspected, by a professional engineer, after each time it is erected and prior to worker use. This is to ensure that the scaffold has been erected in accordance with the design specifications. A copy of the design drawings must be kept at the project site and a written record of the engineer’s inspection provided to the employer.

CSA Standard

The applicable reference standard for access scaffolding is CSA S269.2-M87 “Access Scaffolding for Construction Purposes”. This standard provides detailed criteria for the design of access scaffolding, including loads and forces, structural analysis and design, erection, dismantling, safety requirements, maintenance and test procedures.

For more information, visit the WSH Division Web Site at: www.gov.mb.ca/labour/safety ■

Ode to the Spell Chequer

Anonymous

Eye half a spelling chequer
It came with my pea sea
It plainly marques four my revue
Miss steaks eye kin knot sea.

Eye strike a key and type a word
And weight four it two say
Weather eye am wrong our write
It shows me strait a weigh.

As soon as a mist ache is maid
It nose bee fore two long
And eye can put the error rite
Its rare lea ever wrong.

Eye have run this poem threw it
I am shore your pleased two no
Its letter perfect awl the weigh
My chequer tolled me sew. ■

THOUGHTS ON

Design

Re-thinking the System

By: M.G. Britton, P.Eng.

Billy Vaughn Koen has defined the Engineering Method as “the strategy for causing the best change in a poorly understood or uncertain situation within available resources”. To my mind, this presents a very efficient statement of the approach that distinguishes Engineers from other professionals. From this point it is a short step in logic to make the argument that design engineering is the application of the Engineering Method.

This provides the basic philosophy upon which the first year Engineering Design class at the University of Manitoba has been developed.

When you examine Koen's definition, four distinct, but interdependent, elements emerge. The Method is said to be a “strategy” that causes the “best change” to an “uncertain situation” under the constraint of “available resources”. It may not be Shakespearean, but it beats any dictionary definition I've ever seen.

These four elements deserve further study. First, consider the suggestion that the Engineering Method, and by extension the design process, is a “strategy”. Most of us think of design as related to some physical end-product. There is almost always a design “qualifier” that links the term to some specific action with some specific end-product. So structural design relates to the selection of beams, columns and connections while circuit design relates to the selection of resistors, transistors and capacitors – seemingly very different processes if we focus on the end product and the specific scientific and technical skill-sets required to deliver those end-products.

However, if we consider design as a “strategy”, the focus shifts from “what” to “how”. It becomes a thinking process that is independent of the end-product. All engineers share this approach to problem solving, regardless of the sort of prob-

lems we address. Even without the benefit of an in-depth understanding of the technical details, most engineers can follow the logic pattern that leads from problem to design solution. We intuitively understand how the design evolved.

A number of year ago, when Gary Filmon was Premier, I had a meeting with one of his Ministers. The Minister, a lawyer, suggested to me that he now had a better understanding of how our profession works because he “worked for an engineering firm”. As an engineer, Gary Filmon approached problems differently than those who reported to him. His “strategy” came from a different view of how to get from here to there, from an engineer's view. He was creating a “design”, in spite of the fact that he was not producing a specification for physical end-products. We can, if we wish, debate the details of his design decisions, but the process was unmistakable.

So where does this leave us? If, the Engineering Method is indeed a “strategy”, it goes beyond the creation of physical responses to physical questions. Those engineers who

move into the ranks of “management” continue to apply their design skills in their day-to-day work-environment. Indeed, they may be in those positions precisely because of their design skills. Marketing, accounting and personnel management notwithstanding, it is the application of the Engineering Method that gets the job done. ■

Koen, B.V. 1985. The definition of the Engineering Method. American Society for Engineering Education, Washington D.C.

Engineers in the News

Dr. Hilmi Turanli, P.Eng. has been selected by the Engineering Institute of Canada (EIC) to be designated Fellow of the Institute.

A maximum of twenty Fellows may be recognized each year amongst 35,000 members of the Canadian engineering technical societies associated with the EIC. Fellows are identified for their excellence in engineering and their service to the profession and Canada.

Hilmi is currently the Chair of APEGM's Professional Development Committee. Congratulations, Hilmi! ■

Meet Your New Councillor – Ric Syme, P.Geo.

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

Ric Syme is the first geoscientist ever elected to the APEGM Council. He has only attended a few meetings, but is already very impressed with the way Council meetings are run, and with the hospitality and sincerity extended by the engineers to the geoscientists.

Ric (short for Eric) became registered as a P.Geo. in January, 2000. He was immediately recruited to serve on the Professional Development Task Force – a group charged with the task of developing a voluntary professional development program for the engineers and geoscientists of this province. He was subsequently sought out by the Nominating Committee as a potential councillor. He agreed to let his name stand, thinking he might be able to help facilitate the registration of geoscientists and help communicate to the Association the concerns

unique to the geoscience community. And the rest, as they say, is history.

A native of Regina, Ric graduated from the University of Saskatchewan with a B. Eng. in geological engineering in 1971. (They told him if he wanted to be a geologist, getting a bachelor's degree in geological engineering was the way to go. He actually studied more geology courses through engineering than he would have in the science department!) After graduating, he worked for Inco for a couple of years as a project geologist in various remote locations in northern Ontario before returning to the University of Saskatchewan where he obtained his M. Sc. in geology in 1975. That same year, he registered with APEGS (then APES) as a professional engineer, and married Zoria. Together, they moved to Manitoba in 1976 so that

Ric could take up the position of Precambrian Geologist with what is now called the Manitoba Geological Survey.

Despite many departmental name changes and reorganizations, he's still with the Survey, which is now part of Manitoba Industry, Trade, and Mines. He became Chief Geologist of the Precambrian section of the Survey in 1996 and Acting Director in January 2000. For the time being, he's doing both jobs, and looking after a staff of 47. Fortunately, many of his staff members are geologists who, he is pleased to report, need very little in the way of management – so he is able to find the time to serve as a member of the Council.

Now that the “grandparenting” of geoscientists is over, Ric would like to focus on the issue of the mobility of geoscientists across

Canada. He is particularly concerned about incidental practice, since most geologists work for short periods of time in many jurisdictions in any given year, and registration with six or seven provincial or territorial jurisdictions could be prohibitively costly. He is also working with other concerned geoscientists on a committee to resolve the problem of liability insurance for exploration geoscientists – a requirement

Continued on page 14



New Councillor Ric Syme.

The Power of Spaghetti

By: A.A. Poulin, EIT

Saturday, March 3, 2001 marked the 7th annual Spaghetti Bridge Competition, held this year at St. Vital Shopping Centre, as part of National Engineering Week activities. Once again there was tremendous interest and support for the students and their bridges. Anxious onlookers with competitive spirit, along with encouraging friends, teachers and family, sparked public interest and generated a lot of excitement at the event despite technical difficulties which started the morning with anxiety as to whether or not things would pan out, and put the organizers to the test!

The technical difficulties occurred during setup with the equipment used to communicate read-outs from the load cell to a computer program. While organizers tried to fix the problem they contemplated their options, including how to quickly set things up in the "old-fashioned" manual way to load the bridges. Then Joe Begin, P.Eng. (of I.T.C., equipment sponsor/provider) was called to the rescue bright and early that Saturday morning. A new computer was taken to the scene but, alas, no real progress was made. Finally, as we all know

engineers are diehard problem-solvers, the nagging suspicion that it was a power problem caused organizers to find a voltmeter (provided by Radio Shack), and they determined that indeed there was no power being supplied to one component of the system. A new power supply was installed and we were back in business with the first bridge being broken at 11:30.

The competition was open to students from grades one through 12. The Goal: to build the bridge that could withstand the highest load. The Criteria: build a bridge from spaghetti and white glue, spanning 300 mm, and weighing no more than 350 grams. Prizes of \$40.00 were awarded for each grade winner with a Grand Prize of \$150.00 for the overall winner, and this year APEGM also threw in tickets to the IMAX presentation of Super Speedway for each of the winners.

Two brothers, who were in grades 1 and 3, were shining examples in the competition. These two keen competitors, dressed alike,

proudly showed off their bridges and both won in their respective grade-categories.

Attendance was up again this year, a mix of individual and team entries, to a total of 107 bridges tested! We had entries from some schools for the very first time, and an overwhelming participation from students in grade eight. The grand-prize winner was a grade 12 student, Chris Putaro, from Crocus Plains Regional Secondary School in Brandon, whose bridge reached 84.09 kg (or 185 lbs.). Megan Poetker's Grade 8 team from Springs Christian Academy failed to meet the requirement for length. However the bridge was tested and carried 192.17 kg (423.662 lbs.!) Our congratulations go out to all the winners, and to all competitors for their superb efforts!

Once again, the Spaghetti Bridge Competition proved to be a successful event for organizers Shane Mailey, P. Eng., Don Spangelo, P. Eng., and Glenn Penner, P. Eng. Of course, the day couldn't have been pulled off without the much-appreciated help from our volunteers: Robin Taylor, Tarik Khan, Paul Fazio, Adnan Ghanem, Daljit Singh, Shane Dew, Val Yereniuk, Ian Edwards, and Adele Poulin. ■

February Council Report

Continued from page 7

governance policies under Carver. President Pollard pointed out that all our laws were cast in the negative, or what we are not to do. Seen in this light, the wording of the policies made sense. After Council reviewed and approved the policies they disbanded the task force. President Pollard said that next Council would have to decide how our numerous committees would fit into the new governance universe.

Council has grappled with the task of finding a President-Elect at every meeting since the October elections and they returned to that chore yet again. As it stood, Councillors Barakat and Hamilton were nominated from a previous meeting. The little slips of paper were passed out, this time to find additional candidates. When the results were in, Councillors Ball, Permut, and Syme were added, by their peers, to the list of candidates. But before the vote was held, the candidates were asked if they would stand for election. Only Mr. Barakat and Mr. Hamilton agreed, so the election was underway in earnest. More of Executive Director Ennis's handcrafted ballots were passed out and after a brief pause for the count, Dr. Moe Barakat was declared President-Elect. Thankfully, no one asked for a recount and no ballots had hanging chads. ■



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.

EIT/GIT News

In the October 2000 issue of the Keystone Professional, APEGM's Director of Admissions Shirley Matile announced the formation of a Members-in-Training ("MIT") Committee. The Committee consists of 6 volunteer members (5 EITs [including a U of M graduate student] and 1 GIT), representing the interests of all MITs. The members of the Committee are:

- Fariborz Hashemian, EIT (Chair);
- Sam Arkia, EIT;
- Karen Mathers, recently registered P. Geo;
- Chad Silverman, EIT (and U of M Engineering Grad Student);
- Bob Stark, EIT; and
- Brian Wilcox, EIT.

The Committee has now been operating for six months (meeting monthly) and has been focussing on a number of topics brought to

APEGM's attention at the first MIT Meeting (June 2000). The topics reviewed to date include:

- Expansion of the full requirements of the Professional Service/Professional Development ("PS/PD") program;
- Penalty for non-compliance with PS and PD requirements for MITs;
- EIT/GIT Titles;
- Streamlining Supervisor and EIT/GIT progress reports; and
- Student Awareness of APEGM and EIT/GIT registration and Student Membership.

The Committee is in the process of presenting proposal(s), regarding some of the above topics, to the Experience Review Committee ("ERC") and will report our progress in the Keystone Professional.

The MIT Committee now seeks EIT and GIT involvement/participation. It has come to the attention of the Committee that some MITs are dissatisfied with the title "Engineer/Geoscientist-in-Training". They feel it can be misconstrued (particularly by those unfamiliar with the Engineering and Geoscientific Profession) to indicate a level of inexperience. A number of EITs and GITs have further indicated that they will not use the title when referring to themselves for this reason. A change in the title is not a simple task because it involves a change to the present legislation. The purpose of the MIT Committee is to address issues that are important to MITs and, therefore, the Committee needs to know the amount of importance you place on this issue. If you have an opinion about the title "EIT" or "GIT" (good or bad) and/or an alternative title suggestion, we want you to e-mail mitcommittee@apegm.mb.ca

In the coming months, the Committee anticipates the need for volunteers (worth valuable PS points!) able to provide input on various proposals to the ERC or able to serve on task forces tackling topics of importance to MITs. The Committee cannot rely on announcements and input requests solely in the Keystone Professional due to its bi-monthly publication and wishes to develop a contact database of volunteer EITs and GITs. If you would like to register as a volunteer for the MIT Committee, please contact us at mitcommittee@apegm.mb.ca. All MITs listed on the contact database will receive periodic broadcast messages (via e-mail) from the MIT Committee regarding volunteer opportunities. ■

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HEAD CIVIL ENGINEERING

Applications and nominations are invited for the position of Head of Department.

The Department offers a broadly-based undergraduate program and specialized graduate degree programs in Civil Engineering. The Department currently comprises 20 academic staff, 125 undergraduate students in both regular and co-op streams, 75 graduate students from the Masters to the Ph.D. level, and a number of postdoctoral fellows and visiting scholars. There are well-equipped undergraduate and postgraduate laboratories in the areas of Applied Mechanics, Environmental Engineering, Geotechnical Engineering, Structures, Transportation and Water Resources.

The Faculty of Engineering graduates approximately 220 students per year with degrees in Biosystems Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. It has the largest Endowment Fund on Campus and is a leader in securing NSERC strategic operating and major equipment grants, and industrial contracts. The Faculty is committed to enhancing equity and accessibility, which is demonstrated by its highly effective Engineering Access Program for Aboriginal students, the most successful program of its kind in Canada.

The University of Manitoba, located in Winnipeg, is co-educational and non-denominational. Winnipeg is a city of 600,000, noted for its theatre, orchestras, international sports, and ethnic diversity. There is an abundance of housing at reasonable prices in vibrant neighbourhoods, and an excellent school system. Daycare is available on campus.

The successful candidate for this position will have the ability to provide strong leadership and sound administration and will have strong communication and interpersonal skills. He or she should have a Ph.D. or equivalent qualifications as demonstrated by significant experience in engineering design and/or engineering education and/or administration. Registration or eligibility to register in the Association of Professional Engineers and Geoscientists of the Province of Manitoba is a requirement. The appointment to Head of Department will be for a five-year term, effective July 1, 2001 or soon thereafter, with a continuing tenured academic position. The appointment as head is renewable, in accordance with University policy. Salary and rank will be dependent on qualifications and experience. The Head of Department is supported by an Associate Head and an Administrative Assistant, and reports to the Dean of the Faculty.

The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, Aboriginal peoples, and persons with disabilities. In accordance with Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Resumes and a list of three referees should be addressed to: **Dr. D.W. Ruth, Dean of Engineering, University of Manitoba, 349 Engineering Building, Winnipeg, Manitoba, Canada R3T 5V6, E-mail: ppratt@ms.umanitoba.ca Please refer to Position No. ABW 692 in all correspondence.**

The deadline for application is May 15, 2001

Advertisement

Water Service Notice

APEGM Safety Committee

A number of instances have been reported to the Association where failure of a buried water or fire-service main resulted in release of water inside a building. Failures of this nature can obviously give rise to significant disruption to building operations, and the cost of cleanup and repair, and possibly mould remediation, can be substantial.

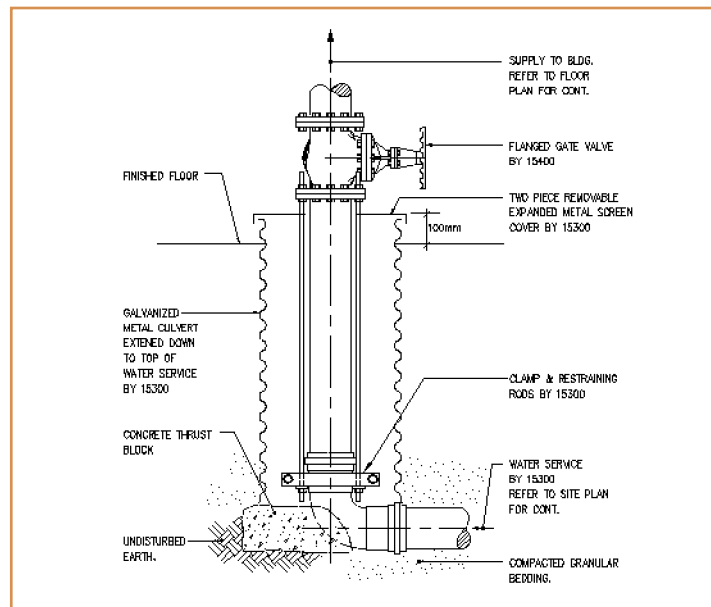
The Association has not undertaken a detailed review of failure modes, however it appears that corrosion of steel restraining-rods and/or clamps securing the vertical service-riser to the buried water main may have been a contributing factor. This type of mechanical restraint is typically used on fire or water services 4" diameter and larger. Some of these failures have occurred after only 10 to 15 years of service.

Mechanically restrained connections of this type are relatively common and appear to have been used successfully in many locations for a number of years. The corrosion potential at any particular connection could be influenced by a number of site-specific factors, including:

- Material used for rods, clamps, etc.
- Application of galvanizing or other protective coatings
- Chemical properties of the back-fill material

- Degree of dampness of backfill material
- Use of an outer conduit (frost box) vs direct-buried
- Electrical grounding or bonding connections

Current practice in the industry is based on the use of corrosion-resistant materials, such as stainless steel, and vertical risers are usually installed in an outer conduit (frost box) rather than direct-buried. In the past mild-steel components were also used in this type of restraint, sometimes direct-buried.



Typical detail of water service & frost box.

Unprotected mild-steel components, particularly if direct buried in a damp environment, would be more susceptible to corrosion-failure.

Members involved in the design or installation of building water or fire-service mains, or the assessment of the condition of existing building services, should be aware of the potential for corrosion-failure in this type of connection.

APEGM also encourages building Owners to review incoming fire and water services using this type of mechanical restraint. Detailed investigations and/or remedial measures should be implemented where warranted based on an assessment of the risk factors listed above. ■

New Councillor Ric Syme

Continued from page 11

under the new Certificate of Authorization. The committee is charged with the responsibility of addressing the issue and recommending a solution that will be cost-effective for those involved while satisfying the Engineering and Geoscientific Professions Act.

Shortly after his election to Council, Ric agreed to serve on a Council Admission Policy Review Task Force. This Task Force has only just commenced its work, but Ric sees his role as one of ensuring that the Association's Admissions policy is as inclusive and streamlined as it can be. He believes in inclusivity, and would rather see geoscientists registered and constructively assisting the Association from within than not registered and criticizing the Association from the outside. Meanwhile, he still serves on the Voluntary Professional Development Task Force. While it has completed the task of developing the program, the next job for the Committee is the more difficult task of promotion.

Ric is interested in archaeology, and enjoys reading and cooking. He claims that all geologists, out of necessity, become good cooks (which is certainly news to me!!). He shares an interest in Asian and South Asian cooking with Zoria, who is a grade one teacher in the Fort Garry School Division. Ric and Zoria enjoy travelling, although, given her vocation, and the fact that his career is most demanding during the summer months, they have had to do much of it vicariously: through their son, Ryan (a civil engineering graduate now playing cowboy in Australia) and daughter, Heather (a management student at the University of Manitoba with a particular fascination for France). When they do travel, the Symes like to be spontaneous, really spontaneous. Like the time they packed up the camping equipment for a month, drove to the Perimeter Highway, and then decided whether they were going east or west! Ric loves the mountains, and it certainly works to his advantage that his brother is the Chief Warden at Banff National Park!

Ric Syme is clearly conscientious, and dedicated to the geoscientists' cause, and I am sure he will be an exemplary spokesperson for the geoscientific viewpoint on this Association's Council. ■

Evening of Recognition

Continued from page 8

the growth potential. In 1980, he expanded out of the house and, since then, has continued to grow Vansco by more than 30% per year. This was accomplished by building up a world-class engineering group and a marketing team that now serves customers throughout much of North America and Europe. Vansco has always focused on new and innovative solutions for original equipment manufacturers. Its primary business has been in the agricultural, construction, bus and truck industries, but Ed has not been averse to exploring other opportunities.

In 1988 Vansco contracted with Manitoba Hydro to complete the development of a Power Line Monitor that the (then) Microelectronics Center of Manitoba was developing.

Ed seized on this opportunity and it soon led to further work with Manitoba Hydro on a PC-based platform for the control and protection of high-voltage transmission systems. In 1995 it was determined that the PC-based system was too expensive for widespread commercialization, so a team was assembled to develop a low-cost, hardware and software platform, around which a broad line of electrical power control products could be created. The team's vision was to take advantage of next-generation technology to leapfrog its competitors and provide electric utilities with advanced protection, monitoring, and information systems that significantly improve performance while minimizing the costs of planning, operating and maintenance. Some twenty utilities from across the Americas are already benefiting from this technology.

Another exciting innovation at Vansco Electronics is its advanced Multiplexed Control System for use on buses and highway coaches. Ed points out that the Vansco Multiplex Module (VMM) system, created by a specially formed team, provides several advantages to bus manufacturers and to the transit authorities and fleets who run the buses. Several bus manufacturers have already put VMM's on test vehicles.

Currently Vansco employs 675 people, and has an engineering team of approximately 120 that includes a large contingent of University of Manitoba engineering graduates. Ed Van Humbeck's vision has allowed Vansco to grow into a world-class engineering and manufacturing company – a "Made in Manitoba" success story. ■

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How Much Protection Does Your Family Need?

A Buyer's Guide to Life Insurance

By G. Pickard
Product Manager,
Manulife Financial

Life insurance can be one of the most important purchases you make for your dependants. Your own family's circumstances have to be taken into account when deciding how much coverage is required. To assist in determining how much coverage fits your family's needs, here's a step by step approach based on advice from the insurance experts at Manulife Financial.

First, consider your family's immediate needs. How much would they need to pay for funeral expenses, medical expenses, will probate costs and estate taxes? Second, add the amounts necessary to pay your family's outstanding debts, including the mortgage, car and personal loans, and credit card balances. Third, add an amount to cover your family's future needs, estimating the income necessary to allow your dependants to maintain their standard of living.

Subtract from this total the income your family should have available after you are gone, including cash savings, real estate, RRSPs and investments. Finally, subtract the benefit amount of any life insurance you currently have. Any amount left over is the shortfall your family would be facing.

To get you started on determining how well you have prepared for your family's future, try the interactive worksheet on Manulife's Web site dedicated to the CCPE sponsored life insurance plan. Go to www.manulife.com/ccpeneeds and follow the links.

There is no universal rule of thumb for determining how much life insurance is enough. Nevertheless, if you are providing financial support for others who depend on you, you should insure your life ... and purchase your insurance with a clear understanding of your family's future needs.

University News

Biosystems Engineering

Congratulations to:

Digvir Jayas, P.Eng. (former Biosystems Head) will replace Dr. Gary Glavin, Associate Vice-President (Research) effective May 1, 2001 (to June 30, 2003). Dr. Gary Glavin has taken a position of Deputy Director of Health Canada's National Microbiology Laboratory in Winnipeg.

Civil and Geological Engineering

Congratulations to:

Jay Doering, P.Eng. on receiving a grant in the amount of \$122,438 (over 3 years) from Natural Sciences and Engineering Research Council in support of his project, "A Laboratory Study of Frazil and Anchor Ice Processes" that he is working on with Manitoba Hydro.

Jan Oleszkiewicz, P.Eng. on receiving a grant from the City of Winnipeg in the amount of \$20,000 in support of his project "Treatment of Landfill Leachate in Simulated

North End Water Pollution Control Center Anaerobic Sludge Digesters."

Daryl McCartney, P.Eng. on receiving a contract in the amount of \$5,000 with Manitoba Green Procurement Network covering his project "Green Building Guideline" for the University of Manitoba.

Electrical & Computer Engineering

New Staff Member. **Dr. Ekram Hossain**, who completed his Ph.D. at the University of Victoria, joins the Department in the area of wireless networking.

Congratulations to:

Ani Gole, P.Eng. on receiving a grant in the amount of \$27,237 (over 0.75 years) from Manitoba Hydro in support of his project, Facts and Power Conditioners.

Peter McLaren, P.Eng. on receiving a grant from RTDS Technologies Inc. in the amount of \$5,000 (over 0.42 years) in support of his project "Continuation of Benchmark

and Teaching Case Library for the RTDS Simulator", (working with E. Vasquez).

Maddakere Raghuvver, P.Eng. received \$32,400 for 2 years from Manitoba Hydro in support of his project "Modelling the Impact of Direct Lightning strikes on Buried Power Distribution Cables Through Intervening Soil".

Mechanical & Industrial Engineering

Congratulations to:

Professor Emeritus Ostap Hawaleshka, P.Eng. (Ret.) was awarded an Honorary Doctor of Science by the Scientific and Academy Board of the Institute of Metal Physics of the National Academic of Sciences of Ukraine.

Raghavan Jayaraman on being selected to receive the Rh Award for Outstanding Contributions to Scholarship and Research in the Applied Science category.

Rob Derksen, P.Eng. on receiving a two-year grant in the amount of \$33,000 from Manitoba Hydro to support his project, "Fast and Effective Optimization for Fan Blade Design." A second grant in

the amount of \$20,400 (over one and a half years) from NSERC in support of his project "Accurate Calculation of Friction Forces on Aerodynamic Bodies" (over one and a half years).

Mahesh Chaturvedi, P.Eng. on securing a contract with NRC in the amount of \$20,000 for six months in support of his project "Weld Repair of Single Crystal and DS cast Superalloys." Further funding from Research Grants Committee in the amount of \$13,750 in support of study/leave research project, "Joining and Processing Aerospace." ■

Automobile Racing – For Women Only

Julie Lafontaine, P.Eng., earned her B.Sc. in Industrial Engineering in 1996 and now works for Arthur Andersen. Next April, accompanied by Line Farineau, C.A., she will be racing across Morocco in the automobile rally known as the "Trophée Aïcha des gazelles". This is a 2,500 km race for women only. For navigating, only a map and a compass are permitted. For more, see www.goju-line.com ■

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