Publications Mail Agreement Number 1693700

THE KEYSTONE PROFESSIONAL

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

FEBRUARY 2001
www.apegm.mb.ca

Professional Development Breakfast Meeting

"Managing the City of Winnipeg's Infrastructure"

By: D.R. Swatek, P.Eng.

See a pothole: fix a pothole – not good enough anymore! In today's world the public is demanding more accountability and effectiveness in the management of the public infrastructure. Managers face the challenge of objectively determining and communicating to political leaders and the public the current and future condition of the infrastructure — like the roads, bridges, and water and sewer lines. The City of Winnipeg, along with Vemax Management, is in the process of implementing an asset-management system with the Streets Division of Winnipeg Public Works. Mr. Aubrey Hope, P.Eng., City of Winnipeg, and Mr. Gordon Dewald, Senior Consultant with Vemax Management, were on hand at the APEGM November 15, 2000, Professional Development Breakfast Meeting to provide an overview of asset-management – and where the Public Works Department is today.

Mr. Hope opened the talk by explaining, in general, what is meant by an asset-management system. In brief, it should provide a means for management to change from a reactive maintenance style, in which budgeting is based on historical levels, to a more proactive system in which decisions are based on the objective assessment of general infrastructure conditions, the costs of remedial action, and measurable outcomes. For example, what are the costs of repairing pavement in good, fair, and poor condition in relation to the time required to return the street to its original condition? We could never repair everything that needed to be repaired in a single year; hence there is an infrastructure deficit. An asset-management system provides a means for the rational quantification of this deficit, thus permitting strategic infrastructure investment based on measurable outcomes.

Aubrey Hope gives presentation on asset management.

Mr. Dewald discussed models of asset-management systems. By way of a "diamond chart", he demonstrated the various relationships between the community benefits, the asset features, conditions, and uses, the physical options, and the management of use (e.g. traffic signals, weight restrictions, etc…) as they contribute to the overall asset-management system. The vast amount of collected information is organized in a hierarchical fashion, with day-to-day operational data on the bottom and performance and reliability indices on the top. Mr. Dewald stressed the value of both objective public input and past experience.

Mr. Hope closed the presentation with a discussion of the work done to date under the asset-management system. Implementation has begun in Winnipeg's south end. This includes: work-tracking, the completion of work-activities guidelines (based on resources and life expectancy), and the rating of surface conditions. Local streets have been segmented based on assessed conditions and all of this information becomes data for the asset-management system. What remains is the analysis of this south-end data and the gathering of similar data in the north and east ends of the city.

In the end, an asset-management system should equip the City with the means to identify needs and demonstrate impacts, thus permitting effective decision-making, good outcomes, and the rational management of our infrastructure deficit. ■

What is a Geoscientist?

Part 1 – The Definition

By: J.W.P. Lengyel, P.Geo.

This question arose at an increasingly distant APEGM Communications Committee meeting and I volunteered to answer it. After numerous attempts I offer the following definition, not as the final word, but as a starting point for further discussions.

There are definitions of geologists, geophysicists, and geochemists, but few that would answer the question 'What is a geoscientist?' Most of the geoscientist definitions are from the various provincial Acts. These definitions are both vague and all-encompassing, which I assume stems from attempts to create a legal definition of geoscience activities. However, I do not consider them to be a simple answer to a simple question.

A geoscientist is someone who applies knowledge of naturally-occurring minerals, resources, and materials toward the study of, exploration for, or development of those same minerals, materials, and resources. The knowledge requires an understanding of hundreds of thousands of existing minerals and rock types, an understanding of the hydrocarbon and water resources within the earth, and an understanding of how unconsolidated and consolidated rock-bodies relate to human development. The minerals, resources, and materials were formed and modified by complex geological processes and events. These geological processes and events occur on scales from the microscopic to the planetary and across time-spans that dwarf human frames-of-reference. The complexity and scale of geological processes often require that the knowledge be gained by direct and indirect methods with varying margins of error.

The differences between a geological engineer and a geoscientist might further illustrate the definition. The differences are clearly expressed in the definitions of the practices of engineering and geoscience in the Engineering and Geoscientific Professions Act of Manitoba ("Act"). The Act's description of the practice of engineering suggests deliberate deductive reasoning and actions in a linear fashion centred on a theme of accuracy, while the practice of geoscience involves both deductive and

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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.

Publications Mail Agreement Number 1693700

New Members Registered November 2000

A.S.M. Desgroseilliers	M.B. Gordon	D.R.S. Koschik	J.M.E. Webb
C. Duke	A.R. Gutheil (SK)	M.P.B. Nicolas	T.G. Whiting
K.G. Ferens	G.M. Hughes	G.W. Shand (AB)	D.E. Whynot
	D.D. Isliefson	L.B. Steranko	

Licences Issued November 2000

L.O. LaBere (ND)	M.A. Schor (ON)	C.W. Walker (WI)

Retirements at January 1, 2001

V.L. Abdel-Magid	T.A. Davenport	R.J. Karras	P.U. Prabhu
J.C. Aitken	F. De Luca	B.M.J. Keady	C.M. Quinn
M.M. Alam	C.R. Dube	J.G. Kelly	R.J.C. Reid
A.A. Ali	T. Duff	J.V. Kelly	W.A. Reid
L.A. Anderson	B.L. Earl	B.P. Kendall	R.J.A. Roper
C.H. Au	M.I. Elnaggar	J.H. Kennedy	O.S. Roscoe
J.D.Y. Au	A.H. Erlund	S.D. Koetke	D.H. Ross
W.R. Bailey	R.A. Feeney	C.N. Kohuska-Manin	G.H. Roziewski
L.E. Baker	E.S.K. Fekpe	K.D. Kompauer	E.M. Scott
J.A. Bakker	G.F. Fisher	J. Koo	L.D. Serrano
D.A. Baldwin	A.H. Francis	J. Kovacs	F.P. Shum
D.A. Banks	D. Free	M.A.F. Kraya	K.W. Shoshkewich
F.P. Barlishen	E.J. Friesen	R.N. Kummen	J. Slivinski
I.N. Bassin	R.J. Friesen	A. Kwok	R.S. Solmundson
M.J. Bender	W. Friesen	E.D. Laing	H.D. Spenst
R.R.J. Berard	J.L. Fugate	B.G. Lawlor	D.R. Stevenson
D.H. Bishop	R.R. Garden	P.E. Lawrence	P.J. Stewart-Hay
W.M. Boerner	W.C. Gilraine	W.J. Lewis	R.F. Taylor
J.N. Botsford	R. Girulski	G.K. Lovatt	N.B. Thomas
M.L. Brownstone	R.A. Gonzalez	C.M. McKenzie	R.H.R. Tide
G.S.W. Bruce	I.C. Goulter	J.W. McLean	M.D. Tilley
J.M.I. Bruce	S.W. Granger	J.S. McLeod	R.L. Tinkess
G.N. Bucholtz	W.R. Grieef	J.R. Mackenzie	R.J.Y. Tseng
M.L. Burggren	M.E. Gubbels	J.M. Magro	W.R. Vaananen
R.M. Calderon	D.W. Gunter	K.W. Major	E.K. Vagasi
G.M. Campbell	E.M. Halliday	K.J.L. Martens	M. Varol
K.W. Campbell	J.W. Haluck	S.A. Mayman	K.B. Watson
M.A. Carlson	A.E.A.M. Hammad	M. Mindess	A.M. Wilson
A.B. Castlehow	O. Hawaleshka	J.T. Moss	D.J. Wilson
J.C.S. Chan	L.E. Henderson	L.V.V. Oman	A.S. Wojcik
A. Chawla	D.M. Heys	R.C. Parkinson	R.C.H. Xue
M.L. Choi	J.D. Hintsa	F. Penner	S.S. Yoshino
J.F. Church	J.M. Hobbs	N.W. Peters	S.P. Yun
D.D. Clark	H.M. Huang	C.S. Phan	F.P. Yungwirth
W.P. Clement	B.E. Hulvershorn	J.P. Phimister	W.A. Zemlak
C.L. Cohen	H.R. Hulvershorn	L.J. Porosky	
R.J. Cymbalisty	M. Husain		

Resignations at December 31, 2000

D.M. Aasberg	R.T. Bjarnason	G.W. Brodland	G.M. Feldmann
B. Alexander	G.L. Bernardin	S.M.W. Brown	J. Ferguson
H.W. Armstrong	W.H.C. Bobyk	G.P. Burgess	M.E. Fouillard
R.S. Azad	C.W. Bolton	D.H. Burn	R.S. French
P.C. Baracos	J.A. Brereton	R.W. Burton	B.G. Friesen
		J.T.K. Chan	T.J. Fujino
		N.K. Chopra	L.M. Galajda
		R.J. Crawley	E.H. Geres
		J.F. Cullen	J.R.D. Gervais
		R.W. Cumming	A.W. Gilliland
		P.E. Davies	D.B. Gosse
		D.L. Delgatty	E. Grano
		A.B. Dlugan	V. Guvanasen
		P.E. Dullerud	E.P. Hain
		J.H. Fairfax	G.B. Halverson
		B.A. Farmer	C.E. Hayward
		G.P. Fejes	

In Memoriam

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

Samuel Glover Anderson

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President's Message

Alan J.Pollard, P.Eng.

Re-Engineering

One of the major goals for this millennium year is to make several basic changes in the way APEGM meets its obligations to the public and to its members.

In the past few years some new methods of operating, that are well suited to non-profit organizations, have been developed. Many of these are derived from the works of John Carver, who articulated these principles under the name "policy governance".

Several professional bodies in Manitoba and Canada have altered their governing model to use these principles. At a recent CCPE meeting in Ottawa, I had the opportunity to talk to other engineering associations who have made, or are making these changes, and to learn from their experiences. They all felt that the change was worthwhile, and I was pleased to hear this, especially from the Atlantic Provinces that I feel are closer to APEGM in both size and outlook.

Their councils spend their time dealing with the important policy issues directly, rather than making individual policy-affecting decisions. The result is more open and better articulated policies that guide the Executive Director and the staff in day-to-day operations. I hope these clear and concise policy statements will lead to better communication between the Council and the membership on the fundamental principles upon which APEGM is based.

Activities are underway to bring these changes about and both Council and a contingent of committee members are at work.

Because the registration of members is probably the single most important activity of the Association, Council has struck a special committee to examine the registration process as a whole, to understand it well enough to guide Council in the creation of the registration framework and to clearly articulate the principles that are at the core of this process. It is critical to our long-term success that we encourage admission to the profession, of all qualified individuals. A carefully considered and comprehensive set of criteria for admission to the APEGM will greatly assist us in achieving this goal.

As more members of the geoscience community join with us, we must make adjustments to the organization to reflect the registration and the support of those members. I have had the privilege of meeting many of them and working with them on items of interest to this new community. In the new millennium, we will no doubt have other branches of Engineering or Geoscience either emerge or join us and we need to establish guiding principles that will make APEGM able to adapt quickly to the changing times. The current activity in Software Engineering is but one example. Your Council and CCPE are at work to bring this long overdue designation to full professional partnership. Software is a particular challenge as it, like some other fields, overlaps with more traditional sciences both at the university and in the workplace. A basic set of guiding policies will set the groundrules by which we add new branches of geoscience or engineering to the APEGM.

Council is also reviewing other aspects of the way we do business. The process by which we budget and spend out members' money is also being converted to one which focuses on the objectives of the organization. This should allow us to better understand where the money goes and ensure that we have aligned the expenditures and the goals of the organization.

This year of transition will be an interesting one, in all the senses of the word. I hope to leave next year's President a legacy of new order and renewed vitality, not to mention shorter Council meetings and more time to focus on the important things. ■

Your New Council – 2000/2001

Back Row (from left): Greg Hamilton, Jerry Bogan, Allan Ball, Kelly Gilmore, Wayne Ruff, Ric Syme, Moe Barakat, Arnold Permut and CCPG Director Alan Bailes. Front Row (from left) CCPE Director Peter Washchyshyn, John Hosang, President Alan Pollard and Executive Director Dave Ennis. Missing: Lawrence Ferchoff and Alf Poetker.

Woodbridge Company Fined for Violating Professional Engineers Act

A Woodbridge, Ontario, company, Sevenwood Management Consultants Limited, was fined $20,000, plus a Victim's Fine Surcharge of $5,000 in Newmarket Provincial Court, for illegal use of the seal of a professional engineer in providing engineering services in connection with the design of a Burlington, Ontario, restaurant.

The Court heard that Sevenwood Management Consultants Limited, a company owned by Vincent Fulgenzi, had provided mechanical and electrical engineering services in connection with a proposed restaurant in the Burlington area between December of 1997 and July of 1998. Sevenwood Management Consultants Limited did not hold the required Certificate of Authorization under the Professional Engineers Act of Ontario to do such work and its principal, Mr. Fulgenzi, was not licensed as a professional engineer. Sevenwood forged the seal and signature of a professional engineer when it submitted the design drawings to the Burlington Building Department.

His Worship, R. Leggete, convicted the company, and imposed the above fine, after the company had pleaded guilty to a charge under the Professional Engineers Act of illegal use of the seal of a professional engineer without being properly licensed to do so by the Association of Professional Engineers of Ontario (PEO). ■

Manitoba Mining and Minerals Convention 2000

By: C. Steffano

The annual Manitoba Mining and Minerals Convention, held at the Winnipeg Convention Centre from November 16-18, 2000, continued its streak of successes by attracting over 800 delegates eager to discover what's new on the Manitoba exploration and mining scene. The final tally had over 177 trade-show, mineral property and technical poster displays, and 36 presentations.

The event kicked off with Thursday night's Welcoming Reception sponsored by Manitoba's mining communities. The Honourable MaryAnn Mihychuk, Minister of Industry, Trade and Mines, welcomed the delegates. Mayors from Manitoba mining communities also spoke briefly on the exploration and mining opportunities available in their regions.

The program schedule began on Friday morning with opening remarks by Minister Mihychuk and a technical overview by Geological Survey Acting Director Ric Syme. The remainder of the Conference Program followed two parallel streams of technical and business-related sessions. In the Technical sessions, Manitoba Geological Survey staff and colleagues from other agencies described the results of recent geological investigations. Talks by exploration geologists added a much-appreciated economic aspect to the technical talk program. In the Business sessions, presenters focussed on a wide gamut of issues that affect the Mining industry in Manitoba and elsewhere, including updates on current mining activities, commodity outlooks, and environmental, aboriginal, mining-community and other stakeholder issues.

Talks during the session on "Emerging Exploration Opportunities in Manitoba" dealt with the potential in Manitoba for diamonds, 'Prairie-type' disseminated gold, Mississippi Valley-type carbonate-hosted lead-zinc, and red-bed copper deposits. Not surprisingly, the talks that sparked particular interest in this session involved diamonds. Dr. Mark Fedikow of the Manitoba Geological Survey presented the results of a multimedia geochemical and mineralogic sampling program at Knee Lake. This program has helped fuel the recent rush of diamond-related permit applications in the Superior Province, now totaling 51 separate permit areas representing over 15,000 square kilometres. Dr. Larry Heaman of the University of Alberta showed how the Great Meteor hot-spot track, and related kimberlites, grazed northern Manitoba through Hudson's Bay.

Presentations during the "Magmatic Ore Deposits in Manitoba" session emphasized new or developing exploration ploys related to these deposits, which are a mainstay of base-metal production in Manitoba. New and exciting nickel and platinum group metal exploration programs in the Fox River Belt, part of the Superior Boundary Zone in Manitoba, were the focus of talks by Dr. David Peck of Falconbridge and Guy Desharnais of the University of Manitoba, while other presenters focussed on the challenges inherent

Keynote Speaker Dr. Harvey Thorleifson.

in modern nickel exploration, the genesis of Thompson Nickel Belt mineralization and the outlook for platinum-group metals in Manitoba and beyond.

During the "Open Session" a wide variety of technical topics were addressed, including state-of-the-art geological and geochronological techniques applied on some of the oldest rocks in Manitoba, a dendrochronologic study of the past flood history of the Red River, and an examination of recent field investigations and GIS analysis of shear-hosted gold deposits at Lynn Lake. Particular interest was shown for a talk by Dr. Chris Böhm of the University of Alberta, in which he discussed the nature of newly-discovered ancient crust in the Assean Lake area, potentially including some of the oldest supracrustal rocks in the Superior Province.

A session titled "The Rice Lake and Red Lake Greenstone Belts Revisited" highlighted the results of recent geological investigations initiated in the Red Lake and Rice Lake greenstone belts under the joint federal-provincial Western Superior NATMAP project. This five-year collaborative project, involving the Geological Survey of Canada, the Ontario Geological Survey and the Manitoba Geological Survey, is providing new insights into a vast region stretching from Lake Nipissing in northern Ontario to the Thompson Belt in Manitoba.

The Business symposia focused on the economic aspects of the industry. "Rising to the Challenges" discussed issues such as land tenure, environmental and First Nations interests, and the shift of investment

Continued on page 9

The Honourable Mary Ann Mihychuk, Minister of Industry, Trade and Mines, chats with convention delegates.

NOTICE

By-Law Changes

This is Notice that the by-law proposals dated November 10, 2000, have been ratified by the letter ballot. The ballots were counted on December 14, 2000. 3828 ballots were mailed and 613 were returned, of which six were spoiled. Of the valid ballots, all members did not vote on each of the proposals.

The results are:

By-Law Sections	Favour	Opposed
Code of Ethics – 13.0	532	74
Certificate of Authorization – 8.1, 8.2, 8.3	480	121
Fees and Dues – 9.1.5, 9.2.4	466	137
Certificates Seals and Stamps – 12.1.4, 12.3.1, 12.3.2	475	126
Liability Insurance – 14.1	461	141

MTS Expands ADSL Service

By: L.L. Douglas, EIT

On September 22, 2000, Manitoba Telecom Services announced an investment of $300 million dollars over three years to expand their ADSL service. ADSL is a high-speed internet service which will increase the speed of your internet connection by up to 50 times as compared to a conventional 28.8 kbps Modem, and five times faster than any other service offered in Winnipeg or Brandon. MTS currently uses a 1 MB Pulsecom modem which allows you to download in less than a minute what would take an hour on a normal modem. This speed will increase as faster ADSL modems come into the marketplace.

In addition to this, the user can browse the Internet and talk on the telephone at the same time. This is possible by using DSL (digital subscriber line) and fibre-optic technologies. DSL piggybacks on MTS's copper and fibre-optic infrastructures allowing users to enjoy high-speed secure service which is not affected by the number of customers using the ADSL network simultaneously.

Under this initiative, MTS plans to give access to the ADSL service to 85% of Manitoba businesses and residential customers. Since e-business is not geographically dependent, developing the infrastructure required to compete through the Internet is detrimental to leveling out the playing field, not only for large urban centers but also for rural areas.

MTS will focus on bringing this next evolution of high-speed broadband services to select industrial parks, hotels and major office buildings. This will allow them to have communication speeds well into the gigabits, speeds which were only seen in research-and education-institutions in the past. Not only will this put Manitoba in a better position to attract e-commerce, but it will also provide extra revenue, in the form of sales tax, to the provincial government, thus adding to the half-billion dollars MTS currently contributes to the Manitoba economy annually.

"This announcement represents one of the most significant investments in the company's 90-year history," said Bill Fraser, President and CEO. "This project will have a profound effect on the economy, enabling Manitoba businesses to compete head-to-head with major centres around the world." ■

Sources
MTS Web Page News Release ***www.mts.mb.ca/news/nr_2000_ngen_sep22.html***
Powerland Computers Web Page ***www.powerlandcomputers.com/info/ads11.php***

CCPE Welcomes Approval of New Section 11 Guideline

The Canadian Council of Professional Engineers (CCPE) recently issued a notice of approval for Transport Canada's decision to adopt and publish a new guideline intended to clarify Section 11 of the Railway Safety Act.

CCPE and Professional Engineers Ontario (PEO) assembled a group of stakeholders last year, at the request of Transport Canada, to develop a guideline on the roles and responsibilities of all parties involved in railway works encompassed by Section 11 of the Railway Safety Act. The draft guideline developed by the stakeholders was adopted and published by Transport Canada this fall.

"The adoption of the guideline completes more than a year of work by CCPE and PEO to ensure that all engineering work related to railway works is undertaken in accordance with sound engineering principles, safety, and environmental principles, under the direct responsibility of a professional engineer," said Marie Lemay, ing., CCPE's Chief Executive Officer. "The engineers who volunteered their time to draft the guideline did an outstanding job."

In addition to providing definitions of "engineering work," "railway works," and other relevant terms, the guideline sets out the roles and responsibilities of all parties who are responsible for, or may affect, railway works. It requires railway companies, utilities companies and road authorities to "ensure that resources are made available for the prudent implementation of engineering work related to railway work in accordance with sound engineering principles, safety, and environmental principles," and to retain professional engineers in order to comply with the provisions of Section 11 of the Railway Safety Act.

CCPE submitted a detailed brief on Section 11 to the House of Commons Standing Committee on Transport. The recommendations contained in CCPE's brief were ultimately accepted by the Committee and incorporated into the final draft of Bill C-58, which was approved by the House of Commons last fall.

The full text of the guideline is available on Transport Canada's Web site, at ***www.tc.gc.ca/railway/RSA/RSA_Section_11_english.htm.*** ■

What is a Geoscientist?

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inductive reasoning that is centred on the themes of data collection, analysis, and interpretation. Engineers apply thoroughly-understood formulas to specific physical tasks with the expectation of an outcome within a calculated margin of error. At times Geoscientists do the same but, because of the nature of the data, they are also required to assimilate information with varying, and often larger, margins of error and then interpret generalities from those data. The differences come down to a matter of temporal and physical scale, and to a difference in the degree of accuracy.

With some luck, the differences between geoscientists and geological engineers help better understand the basic definition provided at the beginning of the article. A follow up "Part 2" article on geoscientific communities in Manitoba is planned to further complement this first attempt at defining "What is a Geoscientist?" ■

Resignations at December 31, 2000

Continued from page 2

H.R. Heidrich
J.S. Heuvel
J.K. Holland
J.D.P. Hrabliuk
G.P. Hrabowych
M.E. Hudson
G.P. Hughes
A. Ittipiboon
B.M. Jacobs
H.B.H. Janzen
A.E. Jerome
X. Jiang
B.A. Jonah
A.F. Joyce
J.J. Knight
R.J. Kohar
M.E. Lavack
N.R. Lee
T. Leung
A.P. Livingston
E.G. Lopez
G.H. McLachlan
S.K. McMillan
E.F. Mackenzie
J.M. MacLeod
H.J. Margolis
D.S. Marion
K.H. Marriott
J.S. Mitchell
D.J. Moffat
G.R. Nayler.
Gerhard H. Neufeld
J. Parkitny
M.P. Patel
C.J. Pentilchuk
E.R. Pentland
D.D. Phelan
R.G. Pippert
V.S. Platek
R.A. Pollock
R.K.N.D. Rajapakse
J.A. Remington
G. Richters
P.A. Rogers
P. Salvian
D.B. Sanderson
T.V. Sanderson
B.K. Sareen
N.W. Scheier
P.W. Shapton
A.B. Sharratt
S.P. Simonovic
M. Singh
M. Sommerstein
R.G. Stanger
T. Stevens
D.E. Svanhill
W.R. Swan
H. Swartz
M.R. Taylor
J.P. Theriault
D.H. Thomas
J.E. Tilsley
C. Valeo
R.C. Wharton
E. Wilson
C.H.T. Woo
B.J. Wopnford
E.A. Zaleski
K.R. Zurek

EIT/GIT Resignations at December 31, 2000

L.J. Brown
S.J. Frederiksen
C.J. Gentile
J.E. Kilayko
D.M. Kowbuz
T.R. Schick
Z. Teclemariam
L.N. Weslowski

Members-In-Training Enrolled November 2000

I.W. Bertram
G.D.H. Chung
Y.F. El-Madhoun
P.C. Fazio
L.L. Hathout
R.L. Hvizdos
M.L. Maxwell
R.J. McMillan
C.E. Osiowy
C.L.P. Searcy
M.P. Szmon

Pay Your Dues!

Dues invoices have been mailed to all members, EITs and GITs. If you have not received yours, please contact the APEGM office.

All payments received in the Association office after February 28, 2001 are subject to the late payment fee of $54.00.

FINAL PAYMENT DATE – MARCH 31, 2001.

All payments received in the Association after March 31 will be returned to the member or EIT/GIT.

ALL MEMBERS, EITs OR GITs WHOSE DUES PAYMENTS ARRIVE IN THE APEGM OFFICE AFTER MARCH 31, 2001 WILL BE DE-REGISTERED OR REMOVED FROM EIT/GIT ENROLLMENT. ■

Memorandum of Understanding with the Land Surveyors (AMLS)

On April 24, 1998, a Memorandum of Understanding between the two professions was signed by the presidents of each Association. The Memorandum ultimately created a Joint Committee whose focus will be to serve the public interest and promote a mutual respect for Public and Private Property Rights.

The purpose of the Committee is to:

- Carry out the functions assigned to it by the Memorandum of Understanding;
- Monitor the implementation and honouring of the Understanding; and
- Provide recommendations to the Associations on matters of inter-professional practice and inter-Association relations.

The terms of reference for the committee include the consideration of complaints as to practice between the members of each Association or any matter respecting relations between the two Associations. Accordingly, the Joint Committee is advising that any complaint must be directed in writing to the Committee, or to the Secretary Treasurer, or Executive Director of the Associations. The Committee will review each case and report to the Associations on:

- The nature of the matter, complaint, or inquiry;
- The resolution thereof; or
- The fact that no resolution was forthcoming; and
- When judged appropriate, refer the matter to the disciplinary process of the applicable Association.

The two resolutions which have been signed by the respective presidents of each Association include:

1. Members of each Association shall conduct their affairs to protect the Survey Infrastructure from harm by adhering to the applicable provisions of the Surveys Act and advising their clients of their obligations under the Surveys Act;

   and

2. The respective Associations do not claim exclusive rights to the areas of geodesy, photogrammetry, remote sensing, geographic information systems and cartography and members of both Associations may continue to provide services in these fields to the public.

If your require any additional information please contact any one of the current Joint Committee members:

APEGM

Don Mulder
Darwin Kupskay
Jim Thomson

AMLS

Steve Bossenmaier
Gary Fraser
Doug Pratt ■

Manitoba Engineering in Africa

By: T.G. Sims, P.Eng.

The Ghana Water and Sewage Corporation Assistance Project (GAP) was initiated by the Canadian International Development Agency in 1990 as a direct response to Government of Ghana (GoG) priorities in extending social infrastructure to the urban poor. The project targeted the rehabilitation and limited expansion of mechanized water-supply systems in 34 small towns and the stabilization of water supplies in four major towns located in the three regions of Northern Ghana. The improvements were designed to benefit 690,000 beneficiaries at the 2010 planning horizon.

Wardrop Engineering Inc. was contracted by the Canadian International Development Agency to implement the GWSC Assistance Project (GAP). The project began in 1990 and was completed in March 2000.

Filter units at Yendi treatment plant, with the backwashing tank in the background.

The project area covered the northern 40% of Ghana (238,540 sq. km). Compared to the 650,000 sq. km of Manitoba, Ghana's land area equals approximately 40% of Manitoba's. Previously known as the British Gold Coast, the country gained independence in 1957. Road infrastructure in the project area is generally poor, with gravel- and dirt-road access varying with weather. Some areas are 4x4 accessible during rainy weather. The Government of Ghana has undertaken an aggressive rural electrification program in the last two years so most of the towns will be electrified in the next year if they are not already. The north of Ghana is culturally diverse with some 20-odd distinct languages and dialects spoken.

These 34 towns have populations between 5,000 and 40,000 people. All the towns in the project area have mechanized and piped water supply. There is a mixture of surface-water treatment and ground-water extraction. None of the towns have sewage systems, and most of the consumers do not have private connections to the distribution system. Water is distributed through public stand-posts where consumers, usually women, collect water in buckets and carry it back to their homes for domestic purposes.

An extensive borehole drilling program was undertaken to increase ground-water sources to the water systems. This allowed the conversion of eight of the towns from surface-treatment plants to ground-water sources. The drilling program also discovered sufficient ground-water capacity to meet the demands in these towns to the 2010-planning horizon based on extrapolated population figures. Ground-water has considerable advantages over surface water as it does not generally require treatment in these areas, and surface-water treatment has more operation- and maintenance-problems associated with it.

When the project started, many of the systems were operating sub-optimally and were under-sized for the existing population. This situation was further exasperated by a generally non-paying consumer and a cash-strapped government-run service-provider (Ghana Water and Sewage Corporation GWSC). Rather surprising to the Canadian water user, at the inception stage of the project several of the town water supplies had been shut down for non-payment of water bills, and one had not been operating for 10 years due to mechanical failure. This vicious circle of the public being unwilling to pay for a service they did not receive, and the service-provider not being willing to provide water when there was no payment forthcoming, was broken by creating managed systems, which included consumer bills that covered the cost of the water produced.

Functioning systems were operating for, at most, eight hours per day. Where insufficient capacity to deliver water existed, the system operators would deliver water on a "batch" basis to different zones in a town. In some cases water would be available for one day in two or three days in a given zone. In response to this problem, the project designed the rehabilitation and expansion of the systems to operate on a "full pipe" basis. Once upgraded, some resistance was encountered with operators who were used to the old operating method.

Many of the existing systems were operating on package-plant-style treatment, and the remainder on ground water extracted using submersibles or mechanical drive pumps.

Fourteen towns were targeted for full-scale rehabilitation and limited expansion, and the remaining 20 were CIDA-funded for the design and construction supervision. The actual construction for the remaining 20 towns was funded by a World Bank credit agreement to Ghana. International Competitive Bidding was undertaken and managed by Wardrop.

A successful borehole-drilling-program located enough high-yielding wells to convert all but four systems to ground water. Advantages of the groundwater system include lower maintenance and operating costs and greater reliability. Solar-powered photovoltaic pumping systems were installed in five locations using Grundfos systems and AC-type pump. A slow sand-filter treatment plant and two conventional treatment plants were installed to treat surface water.

Local water councils, equivalent to municipal authorities in Canada, were set up to manage and operate the systems, and in June of 1999 the government supply authority handed over responsibility for the systems to these local water-councils. The water councils were created and trained as part of the development effort.

Wardrop has been able to apply the knowledge gained through the community capacity development-process in other more recent projects.

The original CIDA project budget of $20.9 million was increased during the life of the project by a total of $8.2 million through six contract amendments, while the World Bank supplied another $5,000,000 in U.S. dollars.

The engineering supervision of the remaining 20 towns was continued by Wardrop under World Bank funding and was expected to last until this past November.

The closure of the project represents a significant achievement for Wardrop and CIDA and closes an important chapter in CIDA's development-activities in Northern Ghana. ■

Council Reports

Tuesday, November 14, 2000

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

PRESIDENT POLLARD TAKES THE REINS

President Pollard called the meeting to order on this mild, snowy day in front of a healthy turnout of ten councillors, two past presidents, Executive Director Dave Ennis, and the regular supporting cast. This was an auspicious start to President Pollard's term as president, and a welcome change from the anemic turnout of the previous month. Clearly, the new Council was ready and eager to do business.

After reviewing the Issues and Activities report and approving the minutes of the October meeting, Executive Director Dave Ennis led Council through his own report. He reviewed the touchy subject of who should approve the newly minted Certificate of Authorization, or as it's known in its short form, the C of A. Executive Director Dave Ennis had requested that Council give him that responsibility, his reason being that the C of A was not related to the Registration function, as the persons covered under a C of A had to be registered before an application was considered. Upon request from Council, the Registration Committee had agreed to this delegation of authority; however, their decision wasn't unanimous. Councillor Permut thought that APEGM should seek a legal opinion on whether the Registration Committee could delegate the issuing of Certificates of Authorization and Council passed a motion to that effect. Executive Director Ennis remarked that his relationship with the Registration Committee hadn't been the smoothest one. Councillor Hamilton thought a meeting of the parties might help restore some harmony.

The next task before Council was to choose a president-elect, (or in other words, the president-in-training) and a member of the Executive Committee. Not surprisingly, no one stepped forward at this time as it usually takes a few Council meetings for someone to commit to these considerable responsibilities. Councillor Ruff encouraged the geologist Councillors to participate, and Past President Washchyshyn urged members to look at the positive aspects of the jobs, the rewards of leading the profession. Past President Hosang said it was valuable professional experience.

Part of the requirements for a Certificate of Authorization stipulates that the holders of the Certificate buy adequate liability insurance. This requirement had raised concerns in The Mining Association of Manitoba (MAMI) and was the subject of a letter from its Chairperson for Exploration, Tom Lewis, to APEGM. Mr. Lewis stated that the insurance rates quoted to its members were too excessive to bear and he asked for a one-year adjustment period before this requirement took effect. (It should be noted here that liability insurance is not an APEGM requirement, but was mandated by our legislators under the new Act.)

MAMI was sending a delegation to this Council meeting and so Council prepared for an audience with Mr. Ed Huebert, Executive Vice President of MAMI. Councillor Syme helped de-mystify the subject with an explanation of the issue. He said that the insurance requirement was for the exploration portion of the industry, exploration being a low-risk activity. The insurance quotes may have been for mining activity, inherently a high-risk activity. Mr. Syme thought it could be a case of people not knowing what to ask for.

When Mr. Huebert faced Council, Councillor Permut promptly brought the discussion into focus when he asked politely what Mr. Huebert wanted from APEGM. Past President Hosang pointed out that APEGM wasn't able to grant an exception. Mr. Huebert said he was aware of that, but having APEGM on-side would help in getting a delay in the process. In the end, Council agreed to participate in a Task Force to discuss the issue with all concerned parties.

During a break in the meeting, Council had a breath of fresh air while the University of Manitoba Society of Automotive Engineers student organization demonstrated their gas-powered "dune buggy" vehicle in the parking lot. This enthusiastic group offered a test drive to any Councillor who felt up to the trip. When there were no takers, a student took the wheel and made a few quick turns around the lot, nearly taking a few Councillors with him. The demo ended abruptly with the dune buggy resting against a chain-link fence. The kill switch had malfunctioned and was the reason behind the unorthodox driving display. Fortunately, the driver was cool-headed and skillful enough to stop the vehicle without bodily harm to him or the vehicle.

After that bit of excitement, the rest of the meeting was rather uneventful. Council concluded with a discussion about changing the dates of the Annual General Meeting. This would have major ramifications, one being a change in our fiscal year. Past President Washchyshyn said the AGM needed more 'value-added'; previous meetings had a poor venue and a poor meal. What was needed was more showcase, more event, he said. Councillor Syme recounted his experience in another organization which upgraded its meeting, which in turn resulted in dramatic increases in meeting attendance, and thus becoming the best meeting in Canada of its kind. ■

Tuesday, December 12, 2000

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

EXECUTIVE COMMITTEE MEMBER ELECTED

This meeting saw a small deviation from long established practice. Beginning as it did at 1:00 PM, Council had graciously delayed the meeting so as not to interfere with exams being written on the premises. When 1:00 PM did arrive, President Pollard promptly started the meeting. Our new President has, from the start, established himself as someone who likes to move the meeting along and to get things done efficiently.

After the routine items were out of the way, Council revisited the question of who should issue the Certificates of Authorization. Executive Director Dave Ennis had proposed that he should do it, the Registration Committee concurred, and now APEGM legal counsel had blessed it. Therefore, Council passed a motion empowering Mr. Ennis to issue the Certificates.

Part of the quest for volunteers for two key positions was fulfilled when Council found a member willing to join the Executive Committee. First, Councillors submitted paper-ballot nominations for fellow Councillors they felt were qualified for the job. Nominees for Executive Committee included Councillors Barakat, Bogan, Gilmore, Hamilton, Syme and Permut. When they were canvassed for their willingness to stand for the position, all except Councillor Hamilton declined. By acclamation, Mr. Hamilton became a member of the Executive Committee.

The position of President Elect netted four potential candidates; Councillors Ball, Barakat, Ferchoff, and Syme. Councillors Barakat and Syme immediately declined the nomination, which left only the two absent Councillors in the running. President Pollard promised to speak to them to see if they were interested, and so the position of President Elect was left unfilled for December. They will try again next month.

APEGM is in the process of revising its management procedures on the principles of governance guru Carver. Council discussed the possibility of hiring a consultant for a Carver seminar. No firm decision was made. President Pollard informed Council that the Law Association had agreed to share their management procedures, as a learning tool, with APEGM.

Past President Britton informed Council that the Joint Board, created to resolve disputes between the architecture and engineering professions, was working, based on the five meetings to date. He told Council about several issues that had been successfully resolved. President Pollard pointed out, mainly for the new Councillors, that the Joint Board operated at arm's length from the Association.

The Manitoba Association of Architects (MAA) had sent a letter to the City of Winnipeg outlining the types of structures which required the services of an architect. Unfortunately, APEGM didn't share their understanding of the Architect's Act. President Pollard responded by sending a letter to the Deputy Minister of Labour stating that the engineering profession was committed to resolving such disputes via the Joint Board. He noted that the issues brought up in the MAA's letter to the City hadn't been put before the Board.

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Manitoba Mining and Minerals Convention 2000

Continued from page 4

capital from traditional areas to new frontiers. "Light at the End of the Tunnel" provided delegates with the latest on major capital investments in Manitoba's mining sector, and "Taking Stock" presented an outlook on mining finance and commodities.

The Mining and Minerals Poster Session featured 35 poster presentations authored by staff of the Manitoba Geological Survey, Geological Survey of Canada, researchers from a number of universities, APEGM, and Mines Branch. In addition, 74 company-sponsored booths featured mineral properties in Manitoba and attracted considerable interest from the many exploration industry representatives at the Convention.

The keynote speakers at the luncheons attracted large turnouts. The Outlook Luncheon featured the Honourable Steve Ashton, Minister of Highways and Government Services, who discussed infrastructure development in northern Manitoba, a topic of great relevance to the future of exploring and mining in the province. The Convention concluded with its traditional CIM Luncheon, featuring keynote speaker Dr. Harvey Thorleifson of the Geological Survey of Canada. Dr. Thorleifson discussed the latest techniques for diamond exploration in Canada, including developments in indicator mineral methods related to sampling media, regional glacial geology, recovery methods, mineral chemistry, tectonic models, and advanced geophysical survey methods.

The Manitoba Mining and Minerals Convention once again lived up to its reputation of providing a good balance of displays and both technical and topical business presentations. The next Mining and Minerals Convention will take place on November 15-17, 2001. ■

We're Hunting for Experts

APEGM's Image Enhancement Committee is compiling a list of engineers and geoscientists who would be willing to be interviewed by the media (television, radio, newspapers) on news stories related to their fields of "expertise". This endeavour is part of an initiative by the APEGM to increase public awareness of the role of professional engineers and geoscientists in society. The committee is asking Association members to write, fax, or e-mail the APEGM to volunteer their own expertise and offer recommendations as to other engineers and geoscientists who can inform the public and enhance the image of the profession through the media. ■

University News

Mechanical and Industrial Engineering

Congratulations to **Dr. J.R. Cahoon, P.Eng.**, of the Mechanical and Industrial Engineering Department, on his grant of $222,350 in support of his proposal, Experiments for the Accurate Determination of Liquid Diffusion Coefficients.

Third-year Mechanical Engineering student **Joey Mikawoz** won the President's Trophy. Mr. Mikawoz, a Bison line-backer, was recognized as the nation's top defensive player at the Canadian university football festivities. ■

Geological Association of Canada Awards Gordon Williams the J. Willis Ambrose Medal

Gordon Williams is a rare example of a former Manitoban who has bridged the gap between two careers and two communities of Earth Scientists by alternating between them, and has served both remarkably well. He has touched hundreds of geologists' lives as a teacher, administrator, manager, leader, mentor, and colleague. He has impacted positively on the lives of his fellow geoscientists beyond the boundaries of his professional responsibilities.

In the course of the academic phases of his career, Gordon supervised more than 20 Ph.D. and M.Sc. students and taught hundreds of undergraduates the fundamentals of petroleum geology, subsurface methods, coal geology, stratigraphy, and engineering geology. Many geologists would have been content with such a record of influence over their fellow earth-scientists. However, Gordon did not hold back from giving more when asked and also served as departmental chair at the University of Alberta and as Dean at Mount Royal College. During his career stints as a petroleum industry geologist, Gordon not only worked in a technical role, but repeatedly provided leadership by organizing and teaching in-house and outside courses, seminars, and outreach programs both in Canada and internationally. Throughout these interwoven careers, he never lost sight of the fundamental ingredient of our community, i.e. people.

Scott Swinden (l) President of the Geological Association of Canada, presents medal to Gordon Williams.

In professional affairs in particular, he found time, as a volunteer, to bring people together by defining critical issues, finding resources to deal with them, and persisting in his efforts until lasting solutions were found. Over the past 45 years, Gordon Williams has unceasingly sought out opportunities to positively influence the affairs of Earth-Science societies, amongst which are the Geological Association of Canada, the Canadian Society of Petroleum Geologists, the International Association for Mathematical Geology, and the Computer-Oriented Geological Society. He has also provided steady leadership on the professional issues increasingly affecting geoscientists by serving, for example, with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and the Canadian Council of Professional Geoscientists.

Gordon's untiring dedication to professionalism and self-regulation of geoscientists in Canada was instrumental in the formation of the CCPG two years ago. Under his chairmanship in the first year, CCPG has become recognized as the key body devoted to the recognition of geoscience as a profession worthy of the privilege of self-regulation. The CCPG expects to ratify the first national mobility agreement for professional geoscientists in Canada, an accord that would have seemed highly improbable only a few years ago; the credibility of all geoscience activities in Canada will be strengthened by the existence of this agreement. It is for such sustained leadership and advocacy of far-reaching issues that he was awarded the J. Willis Ambrose medal by the Geological Association of Canada. ■

Meet Your New Councillor – Moe Barakat

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

Our newest Councillor is Dr. Moe A. Barakat. I briefly spoke to him to gather some background information.

Dr. Barakat has a rich background in his professional life, which spans from his Bachelor's Degree, received from the University of Alexandria in 1966, to the present as President and CEO of InfoMagnetics Technologies. At the University of Alexandria, he began as a Lecturer and progressed into his post-graduate studies at the University of Manitoba, filling in his spare time as a teaching assistant, receiving his M.Sc. in Electrical Engineering in 1974. While working for Teshmont Consultants, Bristol Aerospace and National Research Council, he was also studying for his Ph.D. in Electrical Engineering, which he received in 1982. Today, he continues to pass along his knowledge as an Adjunct Professor at the University of Manitoba in the Department of Electrical and Computer Engineering, where he supervises graduate students and supports industrial initiatives.

Dr. Barakat has been, and is active in a number of organizations and committees, a few being: Antenna Technology and Applied Electromagnetics, Canadian Foundation for Innovation, National Research Council – Industrial Research Assistance Program, and International Organization for Standardization. He is also on the Boards of Directors of the Economic Development Authority of Whiteshell, Telecommunications Laboratory, TRLabs Inc., and the Canadian Advanced Technology Alliance.

Moe and his wife, Samia, have three adult children. The younger two are following in their father's footsteps and have heard the "Calling of the Engineer".

While on Council, Dr. Barakat would like to establish methods to attract engineering and geoscience graduates to join APEGM, and to make them aware of the importance and benefits of the P.Eng. and P.Geo. designations. Hand-in-hand with this, he would like to direct resources to communicate the "essence" of being professional engineers and geoscientists and to increase the public relevancy and recognition of the professions. ■

New Councillor Dr. Moe A. Barakat

Unauthorized Land Surveys

The following article is based on information recently provided by the Association of Manitoba Land Surveyors. Edited by J. Bogan, P.Eng.

Under *"The Land Surveyors Act"* of Manitoba, only those individuals commissioned to practice under the Act are entitled to engage in the practice of land surveying within Manitoba. To ensure that your property boundary is properly surveyed, only those individuals listed as Practicing Members in the Association of Manitoba Land Surveyor's Annual Register are properly educated and trained to do this work.

In order to protect the public against fraud and incompetence with respect to the surveying of land, individuals who are not qualified to practice land surveying may be subject to prosecution for unauthorized practice under Subsection 54(1) of the Act, and subject to a fine of up to $2,000.

Earlier this year, the Association of Manitoba Land Surveyors prosecuted an individual on two counts of unauthorized practice in the Interlake area. The charges originated as a result of letters received by the Association's Executive Council concerning the survey activities of a Mr. Barry Waller, a retired Highways employee, in the area.

The first charge laid against Mr. Waller was for performing a staking for a landowner in Sandy Hook on August 26, 1999. The Association retained the services of their solicitor, Ms. Janine LeMere, who was able to locate the owner of the lot surveyed. Through a telephone conversation with the owner, Ms LeMere obtained detailed information regarding Mr. Waller's activities. The landowner hired Mr. Waller to survey her property boundaries and paid him $100.

The second charge against Mr. Waller was for performing staking for a landowner in the Town of Gimli on September 1, 1999. A survey crew working in the area talked with Mr. Waller, who openly admitted he was placing six-inch nails on or near the property corners in order that the property owner could erect a fence.

Ms. LeMere contacted this owner who confirmed he had asked Mr. Waller to stake his property lines because he wanted to build a fence on his property. According to the owner, Mr. Waller did not receive any compensation for the survey work done because they were friends.

As a result of these two incidents, the Executive Council, on the advice of the Unauthorized Practice Committee, decided to proceed with a prosecution against Mr. Waller. On January 26, 2000, an information was filed against Mr. Waller in Provincial Court containing two counts of practicing land surveying pursuant to Subsection (a) of the definitions, without being registered under The Land Surveyors Act of Manitoba, and without being supervised by a Manitoba Land Surveyor.

A remand date was set for March 27, 2000 in Gimli, where Mr. Waller pleaded guilty on both counts of unauthorized practice. Judge Guy fined him $750 on each of the two counts plus reimbursement of $100 to the landowner. ■

Broken Hydro Poles

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

Windsor Park is defined by the Soo line of the CPR. Two crossings let you into Windsor Park. The north one is on Elizabeth Road. Arundel Road runs south from Elizabeth. My "pad" is the fourth house south of Elizabeth on the east side of the road. The houses opposite me back onto the railway but have a service lane – euphemistically called a park – that gives Hydro crews access to the row of poles that parallel the track.

The street-lights on Arundel Road are serviced by buried cables which makes the street look very attractive. However, my back lane is full of hydro poles and Elizabeth Road is lined with them. Wherever you look, there are dead trees – big ones – that will have to be replaced, sooner or later, if suitable replacements can be found. In an article in the October, 2000, issue of PLAN, we are told that there are 150 million wooden poles in North America with three million of them being in Quebec.

Paul Fournier, P.Eng., became concerned about this situation and eventually founded Genilex to build a replacement pole. It is called the MCM pole from the French for "modulaire à composition mixte".

Apparently the poles are made from steel tubes enclosed in fibrocement. A neoprene "cushion" is also involved. They are serviced by buried cables and are available in lengths of 3.6m and 4.9m.

The article does not go into the costs in much detail other than to tell the reader that North Americans should be seeing the MCM pole in the future and, as a result, our visual environment will be immensely improved; I'll let you contemplate what it will mean to our forests. ■

THOUGHTS ON

Design

Re-thinking the System

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

January 1, 2001, saw the initiation of a Natural Sciences and Engineering Research Council sponsored Chair in Design Engineering at the University of Manitoba. This Chair is one of five awarded since the initiation of the Design Engineering program in 1999. During the five-year term for the Chair, the University will receive $1,000,000 of NSERC support. This will be matched, in cash or in-kind, by the University and industry.

The Design Engineering Chair program addresses four specific objectives. Quoting from the NSERC Request for Proposals,

"The objectives of the program are:

- to produce increased numbers of high-quality design engineers who have the skills required by future employers;
- to emphasize increased productivity and innovation in design research, design practices and design education;
- to establish productive and effective collaboration between the chairholder(s), industry and other design-faculty and experts across Canada;
- to increase the awareness and appreciation in the community for all aspects of design engineering."

Further, they note that "Design partnerships with industry and business are an essential component of the Chair. Industry participation, involvement and commitment will keep the Chair focused on what industry needs to be productive and innovative in creating the products and processes that will improve our economy."

At the University of Manitoba, we have committed to the development of "design-ready" engineering graduates. We intend to provide our students with the sort of education that will respond to the design world in which members of APEGM function. That will require a more concerted effort to bring your needs to our classrooms, and our capabilities to your offices. It is an exciting opportunity.

The prime focus of this undertaking, from both NSERC's and the University's perspectives, is summed up in another quote from the Request for Proposals. "The education and training of more top-notch design engineers who have the skills, the knowledge, the professional and personal attributes required by industry, is a priority." With the cooperation of Manitoba Engineers and Manitoba industry, we look forward to meeting that priority. ■

December Council Meeting

Continued from page 8

As the meeting wound down, Council dealt with several communications received by the Association. One was from a "Life Member" of the Association who proposed that every member reaching the age of 75 be granted a life membership. Furthermore, a member achieving this status should not be required to pay membership fees, he wrote. This proposal brought forth mixed reaction; Executive Director Dave Ennis wasn't receptive, Dr. Barakat thought it was a good idea, but felt a life membership should be awarded and shouldn't be an entitlement. Mr. Hosang and Mr. Washchyshyn approved. It was generally accepted that a life membership category would have little financial impact on the Association. Council decided to let Executive Director Ennis study the suggestion and report back to Council.

Finally, Council read an apology from the University of Manitoba Society of Automotive Engineers for their demonstration of unsafe motoring at November's Council meeting. They said it wasn't representative of their normal operations and that it had been a lesson in the effects of cold weather. Naturally, Council accepted the apology. Councillor Barakat commended the group for their initiative in issuing the apology. ■

Who Is Representing The Geoscience Community At APEGM?

Council

At the Annual General Meeting on October 28, 2000, the two-year terms of appointed Councillors Robert Matthews, P.Geo. and Dr. Louise Quinn expired. They have been replaced by Dr. Ric Syme, P.Geo. and Kelly Gilmore, P.Geo. Dr. Syme was elected for a two-year term, and Mr. Gilmore for a one-year term.

Admissions

The Task Force, which is still reviewing the applications of Geoscientists for registration under the "grandparenting" criteria, comprises the following geoscientists: David Parbery, P.Geo., Raymond Reichelt, P.Geo., James Wong, P.Eng., Carey Galeschuk, P.Geo., and Don Dudek, P.Geo.

Dr. Nancy Chow, P.Geo., and Dr. Ian Ferguson, P.Geo., serve on the Association's Academic Review Committee, on which Dr. Brian Stimpson, P.Eng., also serves.

Raymond Reichelt, P.Geo., and Chris Roney, P.Geo., serve on the Association's Experience Review Committee, of which Dr. Don Anderson, P.Eng/P.Geo., has been a member for a number of years. Karen Mathers, GIT, is a member of the newly-created Member-in-Training (MIT) Committee which reports to the Experience Review Committee.

Jim Campbell, P.Eng./P.Geo., is a member of the Registration Committee, which is responsible for the final approval of all applicants for registration, EIT/GIT enrollment, and temporary licensure.

National Representation

APEGM is a constituent association of the Canadian Council of Professional Geoscientists (CCPG). Alan Bailes, P.Geo., is APEGM's director to that Council.

Robert Matthews, P. Geo., is currently Chair of the Canadian Geoscience Standards Board (CGSB), which is a standing Board of the CCPG.

Other

Pat Lengyel, P. Geo., is a member of the Association's Communications Committee. ■

Science Fair Judges Urgently Required – Can you help?

Innovators in the Schools needs judges for upcoming science fairs. Please contact the Program Manager at 988-0669 or fax 944-1167 to volunteer. ■

Attention, Geoscientists!

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

*If you know any geologists or geophysicists who did not become registered as professional geoscientists, or any geoscience graduates who are not yet enrolled as Geoscientists-in-Training(GITs), **please** pass this information along to them.*

In accordance with the Engineering and Geoscientific Professions Act, which was proclaimed by the Government of Manitoba on June 28, 1998, **anyone wishing to engage in the practice of geoscience in Manitoba, as defined in the Act, must be registered with this Association as a "P.Geo."**

The "grandparenting" period established by the Act has now expired, and all applicants are now required to meet this Association's current admissions criteria. These criteria include academic qualifications and work-experience qualifications.

APEGM's *Policy on Academic Qualification for Geologists/Geophysicists* is posted at our web-site. Essentially, if you have a B.Sc. Honours degree in geology or geophysics from the University of Manitoba, or a B.Sc. four-year Specialist degree in geology from Brandon University, you are "automatically" considered academically qualified for enrollment as a GIT.

If you hold a Canadian four-year Honours degree in geoscience other than those mentioned above, you will be required to apply for a Verification Assessment of your Academic Credentials, for which there is no charge. (There will, however, be a charge for any examinations you may be required to pass.)

If you hold academic credentials different from those above, you will be required to apply for the Assessment of your Academic Credentials, for which you will be charged a $337 assessment fee. (The same fee charged to engineering applicants with non-accredited degrees.) Again, if you are assigned examinations, additional charges will be incurred.

Once you have demonstrated that you are academically qualified, you will then have to enroll with the Association as a Geoscientist-in-Training (GIT) and obtain four years' acceptable geoscientific experience under the supervision of a registered Professional Geoscientist or Professional Engineer. All GITs are required to complete the Association's Pre-Registration Program, which comprises the semi-annual reporting of work-experience as well as mandatory professional development and professional service activity. The Pre-Registration Program also includes the successful completion of the Professional Practice Examination.

The Association is currently "grandparenting" geoscience work-experience for GITs (i.e. allowing newly enrolled GITs to claim and potentially obtain credit for past geoscientific work-experience). The deadline for this practice was set, recently, at May 1, 2001. This means that, if you would like any of your past geoscientific work-experience to be considered toward the four-year work-experience requirement, **you must have become enrolled as a GIT and submitted reports on all of your past geoscientific work-experience by May 1, 2001.** Following this date, only work-experience obtained while you are enrolled as a GIT, and reported in conformance with the Association's Pre-Registration Program, will be eligible for consideration.

If you have been practising geoscience but have not yet registered with this Association, we urge you to enroll as a GIT as soon as possible, and to submit GIT Progress Reports on your work-experience before May 1, 2001, to ensure that your past work-experience will still be considered.

Professional Geoscientists, Professional Geologists, and Professional Geophysicists currently registered elsewhere in Canada who satisfy APEGM's Grandparenting Criteria, have passed an approved Professional Practice Examination, and have not previously been de-registered for the non-payment of dues, may qualify for registration by "transfer".

The fees for geoscientists are identical to those for engineers. To register under the "transfer" criteria you will have to pay the Association's non-refundable Admission Fee ($107.00 for 2001) plus the annual dues for the year ($242.00 for 2001). To enroll as a Geoscientist- in-Training (GIT) you will have to pay the $107.00 Admission Fee

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Meet Your New Councillor – Kelly Gilmore

By: J.W.P. Lengyel, P.Geo.

It gives me great pleasure as a former co-worker and Flin Flonner to introduce Kelly Gilmore, one the first elected geoscientist councillors at APEGM. Kelly was born and raised in Flin Flon, one of Manitoba's oldest exploration and mining communities. It was no surprise when Kelly became a geologist as two of his uncles had already been prospectors in the area and one of their properties became Hudson Bay Mining and Smelting Co. Ltd's Centennial Mine.

Kelly has been active in the Manitoba geoscience community since graduating from the University of Manitoba in 1980 with a B.Sc. in geology. Upon graduation, Kelly returned to Flin Flon where he has been employed for 20 years with Hudson Bay Exploration and Development Ltd. Throughout his professional career, Kelly has contributed to a wide variety of projects including the Callinan North mine and the new "777" project. Kelly's extensive experience combined with the support of his colleagues in the Flin Flon area are some of the strengths that Kelly will bring to APEGM.

Kelly met his wife, Brenda, during his graduation year and they were married in 1982. Both are active in the Flin Flon community, enjoying the gardening at the northern edge of Canada's 'corn belt' and participating in a wide range of sports. Kelly plays a lot of hockey in the local recreation league and in his spare time works with a group of volunteers to maintain 24 kilometers of cross country ski trails at Bakers Narrows.

Running for Council was important to Kelly for several reasons. He believes that you have to be involved in the decision-making process within the Association or others will make your decisions for you. Kelly feels that geoscientists have been slow at getting involved in the Association and that some of the current issues facing APEGM are a direct result of this.

Regional issues are also a priority with Kelly. While he sees himself as a representative of exploration geoscientists province-wide, he is concerned about improving communications between the rural centres, primarily in the north, and Winnipeg.

Professional development is another area that Kelly hopes to address while on Council. He plans on working towards making professional development available to all geoscientists at a minimal effort and cost, and he also hopes to make the Association aware of the less-formal aspects of professional development in geoscience.

Geoscientists across the province are fortunate to have Kelly Gilmore as one of their representatives. Welcome, Kelly, and good luck with your first term as Councillor with APEGM. ■

New Councillor Kelly Gilmore

Access Program for Women in Science & Engineering

By: C. Flather

The Access Program for Women in Science and Engineering (WISE) is the largest community-outreach program at the University of Manitoba and the largest science outreach program in the province. WISE was founded in 1990 by the University of Manitoba to help encourage girls to continue their studies in science and pursue careers in science and engineering.

In the ten years of our existence we have grown, from a small group of science and engineering students doing several dozen presentations annually, to a program with a staff of 14 who present to over 20,000 students each year. Our audiences are girls and boys, Kindergarten to Grade 12, from all socio-economic backgrounds throughout Manitoba. We offer a wide variety of presentations which include topics in chemistry, geology, physics, engineering, life-sciences and astronomy. The presentations have been designed to show the excitement of science and complement the Manitoba school curriculum. WISE staff have traveled extensively throughout the province, visiting over four dozen rural communities including several remote locations such as Churchill and Wasagamach First Nation.

WISE presentations focus not only on the fun and excitement of science but also on the importance of science in education and the benefits of a career in a science-related field such as engineering. WISE is helping the teachers of Manitoba to produce a technically literate, knowledge-based society.

WISE has been honoured with several awards, including The Canadian Engineering Memorial Foundation, Engineering Student Projects Award (1995, 1999), the Michael Smith Award for Science Promotion (1999), and the University of Manitoba Outreach Award (1993, 2000).

Besides the presentations delivered in the school environment, WISE also works in partnership with another program at the University of Manitoba – *Career Trek*. WISE delivers the science and engineering portions of this program which brings "at risk" students into the university environment. The goal of this program is to encourage students, who may not otherwise consider the opportunities of a secondary education due to social or economic factors, to consider the opportunities available to them through further education. One segment of the program for which the Access program is closely involved is the "Adolescent Parents' Program". This program is offered exclusively to young parents. For two nights per week, for ten weeks, the parents and their children are brought on campus. The parents are provided with daycare while they explore several areas of study through interactive, hands on, workshops. WISE facilitates the science

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People Wanted

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

Preparations for National Engineering Week (March 2 and 3, 2001) continue. As with any large endeavour undertaken solely by volunteers, extra helping hands are always appreciated. In particular, individuals willing to give approximately four hours of their time during NEW to staff a display area in St. Vital Centre are being sought. Any P.Eng. or EIT is welcome. Retired members willing to share their engineering experiences with the general public are particularly asked to help.

In a related area, individuals or businesses willing to give or lend materials for the display area are also being sought. The desired material includes promotional information (brochures, posters, etc.) tangible items (final products or parts), and/or VHS videotapes.

If you wish to volunteer your time, or provide display materials, please contact:
Wally Jackson (ph. 943-3178, e-mail ***waljack@home. com***) or John Rooney (ph. 788-5438, e-mail ***john_rooney@ standardaero.ca***). ■

MSBI Leverages Dollars to Establish or Top Up Student Awards

By: B. Stimpson, P.Eng.

As most readers know, the reductions in federal transfer payments to the provinces have negatively impacted health and education services. Because health-care affects us all and because the decline in services has been so visible (e.g. patients in hallways), media attention has primarily been focussed on this area. Perhaps, with the recent agreement between the provinces and the federal government on increased health-care funding, attention will now turn to the underfunding of post-secondary education. Universities have, in part, made up the annual shortfalls in budget by increasing tuition fees so that, since the early 1980's, fees have risen by 115% while average family income rose over the same time-period by 1% after adjusting for inflation. Since the University of Manitoba is not permitted to run a deficit, the rest of the shortfall has been accomplished through staff reductions, reduced services, longer replacement times for equipment, delayed maintenance, shelving of programs such as geological engineering, and, for a while, the imposition of the university equivalent of "Filmon Fridays." It should come as no surprise that the result has been that students are, in many cases, facing serious debt loads. In 1986, 40% of graduates repaid their loans within two years while in 1995 the figure had dropped to 17%. The average debt-load after completing a four-year undergraduate degree is now $25,000.

It was with this stark reality in mind that Gary Filmon's PC Government introduced the Manitoba Scholarship and Bursary Initiative (MSBI). This Program, which is being continued by Gary Doer's NDP Government, matches dollar for dollar any gifts for student awards, be they bursaries or scholarships. As well as having an impact on student debt-loads, these awards help to keep Manitobans studying in Manitoban post-secondary institutions. There is a great deal of competition among universities for out-of-province students and scholarships are one way to lure the best and the brightest.

From May 1999 to June 2000, the University of Manitoba awarded $925,000 in need-based bursaries, $987,000 in entrance scholarships, as well as $1.4 million in in-course scholarships, and $265,000 in prizes.

Peter Dueck, Director of Enrolment Services, finds that the MSBI has been very valuable in highlighting the needs of students. He also says, "Donors are encouraged by the MSBI Program, knowing that their donations will be matched for the benefit of students."

Engineering students are among those who are being assisted in their pursuit of an engineering education through the generosity of donors. Also, the Engineering Endowment Fund, which was founded over a decade ago, is now providing considerable resources for capital purchases for laboratories and classrooms to the tune of twice the amount received annually through the University's allocation from government. ■

Industrial Ethernet – Is it the "New" Solution to Traditional Multi-layered Industrial Networks?

By: L.L. Douglas, EIT

Digital control systems (DCS) are complex arrangements of networking levels using various protocols. These systems typically use a traditional data-highway connecting Programmable Logic Controllers (PLC) to DCS systems and to Human Machine Interfaces (HMI). Configuring this system to communicate is time consuming and costly. The use of Industrial Ethernet dramatically flattens this network allowing the user to employ Ethernet from the control level all the way to the field devices.

Ethernet in Industrial applications was slow to evolve due to Ethernet's non-deterministic method of obtaining access to the communication link. Where industrial applications typically require high-speed communications in milli-seconds, this random-access method of throwing information onto the bus at any given time just wasn't suited for most designs. Today, improvements in switching technology allow Ethernet to manage collisions and to switch the data only to the device for which the information is intended. This breakthrough in switching has brought Ethernet to the forefront of emerging industrial fieldbus technologies.

There are numerous advantages to using Ethernet in industrial environments, two of which are cost and availability. From the low-cost twisted pair of wires to the Ethernet products which enjoy economies of scale, plant engineers can integrate Ethernet into their plant at a fraction of the cost associated with proprietary industrial automation networks. Ethernet is a wide-spread network technology with users exceeding 100 million world-wide.

In addition to reduced costs, another benefit of using Ethernet is the knowledge of on-site IT personnel which, to the engineer in a bind, can be very beneficial. Also, the mainstream speed of 100 Mbps and a processing rate of a Giga-bytes per second make Ethernet most impressive.

Much of the cost of research and development of Ethernet has been shouldered by such firms as Cisco and 3Com so that industrial-automation companies are free to do what they know best – developing automation hardware.

Finally, one should understand that easily-integrated and well-defined protocols are extremely valuable in Ethernet integration. Also, the following Internet application-protocols co-exist on an Ethernet TCP/IP network: HTTP for transferring HTML web-pages, FTP for transferring files, and SMTP for e-mail. Instead of relying on one protocol to handle many diverse tasks, a number of protocols may be used in a more efficient manner to process each specific task over the same bus. Ethernet advantages are further heightened by its capability to increase data accessibility. Any user on the Ethernet network may access data obtained from the plant-floor level. This tool can become invaluable with ERP software-integration for true plant control.

Today, many automation manufacturers use Ethernet TCP/IP as a backbone for their proprietary network protocol and some industrial-connector manufacturers are already producing industrial Ethernet-connectors. A standard Ethernet TCP/IP fieldbus that allows users to have Ethernet technology embedded in the field I/O are making their way into plant floor applications. Those users who have been pressing hard for an open network and devices for all of their plant requirements will soon have it at their finger-tips. ■

Sources

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APEGM VISION

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Attention, Geoscientists!

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plus the annual member-in-training dues ($96.00 for 2001). (All fees include GST, and annual dues are pro-rated semi-annually.)

Please call the APEGM office at (204) 474-2736, to request an application package. You may also request a package by faxing (204) 474-5960 or e-mailing ***apegm@apegm.mb.ca*** and it will be mailed to you. ■

Robotics Games – Volunteers Wanted!

The Manitoba Robotics Games will be held on Saturday/Sunday March 17-18, 2001 at the Manitoba Museum of Man and Nature. If you are interested in volunteering to assist at the games for one or both of these days, please call Leah Friesen at 633-4403 ext. 229.

Information on the Robotics Games can be found at ***www.scmb.mb.ca.*** ■

Access Program for Women in Science & Engineering

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and engineering segments of these workshops. Career Trek is now an independent organization which is looking for partnership and participation from the community. If you would like to help, please call Darrell Cole, Program Manager, Career Trek, 474-6533.

We are continuing to expand our activities! The PromoScience Grant was announced by NSERC this year. The purpose of this grant is to encourage an interest in science in Canada's young people. WISE faced some stiff competition from the almost 200 applicants, and was successful in obtaining a three-year grant which will provide $60,000 in funding to WISE. With this $60,000, WISE plans to provide a summer science-camp for children in several rural communities throughout Manitoba.

If you have any questions about WISE, please contact: Colleen Flather, Program Manager, Access Program for WISE, University of Manitoba, 474-9340, fax 474-7644, e-mail ***Colleen_Flather@umanitoba.ca***. Look for our new and improved web site (to be completed spring, 2001) at ***www.umanitoba.ca/outreach/wise***. ■

March 2-3, 2001 **St. Vital Shopping Centre**

Join us for:

- **Interactive demonstrations with Concrete Kits for Kids, Friday at 7 p.m.**
- **Spaghetti Bridge Competitions, Saturday 10 a.m. – 2 p.m.**
- **Displays, including the CEM Award winners, from 10 a.m. until close Friday and Saturday.**

Remembering December 6, 1989

By: T. Davis, CCPE Communications Director

Eleven years after Mark Lepine shot and killed 14 women at École Polytechnique in Montréal, very few Canadians, even within the engineering profession, remember the names of his victims. Most of us still recall where we were and what we were doing when the tragedy occurred, and that we remained glued to our television sets as it unfolded, but not who died.

This is unfortunate. Like the famous five, whose statue now graces Parliament Hill in Ottawa, the legacy of the 14 women who died on Dec. 6, 1989, is immense. Their senseless deaths changed Canadians' perceptions of our society and ourselves, and led to significant changes in the engineering profession.

Those changes include the creation of the Canadian Engineering Memorial Foundation in 1989, to "open doors for young women in engineering," as well as concerted efforts by universities and engineering organizations across Canada to make engineering a more attractive career choice for women.

To date the Foundation has raised more than $1 million in support of its initiatives, which include a scholarship program to encourage women to enter the engineering profession, as well as an awards program to recognize universities and companies which support women engineering students. CCPE has provided direct support to the Foundation in addition to promoting engineering as a career choice for youth during National Engineering Week, and undertaking research on the number of women entering the profession.

This year, CCPE approved a new policy on women in the engineering profession. It recognizes that "diversity through the incorporation of women in the engineering profession, which is reflective of Canadian society, enhances our profession and society at large." CCPE also created a new Canadian Engineers' Award to recognize individuals who act as role models for, or provide support to, women considering a career in engineering – the Award for the Support of Women in the Engineering Profession.

The results speak for themselves. Between 1989 and 1999, the number of women enroled in undergraduate engineering programs in Canada more than doubled, increasing from a total of 4,276 students in 1989 to reach 9,397 in 1999. Today, women make up more than 20 per cent of all undergraduate engineering students in Canada.

This is the legacy of Geneviève Bergeron, Hélène Colgan, Nathalie Croteau, Barbara Daigneault, Anne-Marie Edward, Maud Haviernick, Barbara Maria Klucznik, Maryse Leclair, Annie St-Arneault, Michèle Richard, Maryse Laganière, Anne-Marie Lemay, Sonia Pelletier, and Annie Turcotte.

We should remember their names. ■