

Professional Engineer



Meet Your New Manager of Administration – Ken Buhr, P.Eng.

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

On March 2, 1998, Ken Buhr, P.Eng., joined the APEM staff as the Manager of Administration. In his new position, Ken will be responsible for the day-to-day operation of the office, including: human resources; upgrading and maintaining the computer system, the data base, and the web page; finances and the preparation of a draft budget; monitoring APEM investments; monitoring information for mandatory professional development; assisting in the implementation of the re-organization of the committees; and providing committee support.

Ken has a broad background of experience. After graduation in 1967, he was employed by the Province of Manitoba, Water Resources, as a geotechnical engineer. From 1974 until 1979, Ken was the manager of the Northlands Study Team, which conducted geotechnical, land use, and engineering studies for 50 northern communities to obtain baseline data for planning and the design of infrastructure. In 1979, Ken served as the Chief Engineer for the Manitoba Water Services Board. In 1981, he joined Poetker Engineer-



ing Consultants Ltd. as a principal. There, his duties included financial and administrative functions which provided the foundation for his cur-

rent responsibilities. Ken continued in a similar capacity with Poetker MacLaren and MacPlan Environmental Services until 1994. At that time, Ken joined DS-Lea Consultants as a project manager (later as an associate), where we first met.

The meeting was memorable because during the second week of Ken's tenure with DS-Lea, he accompanied our prestigious group on our annual golf outing. That year, our journey as a group took us to another country (Warroad, MN). The look on Ken's face shortly after the bus departed, and the start of the accompanying festivities, can be best described as similar to the one that must appear on a gopher on the edge of the highway, deciding if it's safe to cross. Ken survived his first DS-Lea tour event, including our return through Canada Customs ("You have to let us back – the U.S. won't allow us to stay"). Golf tournaments in following years made us aware of Ken's outstanding golf skills. When playing with Ken, make sure the course passes by the driving range on the back nine, so he can re-load. (Note to the Sports Committee: if Ken attends the APEM Annual Spring Golf Tournament, send him out with President Washchysyn the day before. At least the remaining golfers may have a chance of locating them should they become lost in dense bush.)

MPDP Pilot Project Wraps Up

By: M.S. O'Laughlin, P.Eng.

The Mandatory Professional Development Program (MPDP) Subcommittee is making final revisions to the MPDP Document based on input from a number of APEM members who participated in the Pilot Project.

The four-month pilot project was launched back in October 1997 to test the requirements of the MPDP by having volunteer members review their previous year's professional development and plan their individual professional development for 1998. About 100 volunteer APEM members participated between the months of November 1997 and March 1998. Ten groups were formed with about ten members each. Five groups were from the City of Winnipeg and the other five represented the smaller cities and Manitoba's more rural areas – Brandon, Dauphin, Portage La Prairie, Thompson, Pinawa, Beausejour, Pine Falls, Lac du Bonnet, The Pas, and Flin-

Flon. An effort was also made to include engineers from a variety of backgrounds including private industry, government, academia, consulting, manufacturing, and management.

The pilot project was very successful in obtaining information from the members regarding the ease of using the forms provided, the resources required to complete the information on the forms, the resources required to develop a professional development plan for 1998, and implementation of possible modifications or improvements.

All of the information gathered during the pilot project will be presented to Council in May 1998 along with some final recommendations. The MPDP document is also being revised to reflect some of the most common suggestions and recommendations from the volunteer members.

Continued on page 2

Continued on page 2

THE MANITOBA Professional Engineer

June 1998

Published by the Association of Professional Engineers of the Province of Manitoba
850A Pembina Highway
Winnipeg, Manitoba R3M 2M7
Ph. (204) 474-2736 Fax (204) 474-5960
E-Mail: apem@apem.mb.ca

APEM COUNCIL

P. Washchysyn, P.Eng., President
A.E. Ball, P.Eng.
M.G. Britton, P.Eng.
E. Eddy, Ph.D., B.P.T., M.C.P.A., M.C.S.P.
J.R. Hosang, P.Eng.
D.J. Kramble, P.Eng.
K.F. Olishefski, P.Eng.
A.J. Pollard, P.Eng.
K.J. Pratt, P.Eng.
C.S. Roberts, P.Eng.
J.M. Symonds, P.Eng., Past-President
B. Thomson, R.N.

APEM STAFF

D.A. Ennis, P. Eng., Exec. Director and Registrar
S.M. Matile, P. Eng., Director of Admissions
K.A. Buhr, P. Eng., Manager, Administration
J.C. McKinley, Administrative Officer
D. Bilodeau, Admissions Co-ordinator
E. Ryan, Accounting & Membership
L. Dupas, Receptionist/Secretary
J.A. McCorrister, Administrative Secretary

COMMUNICATIONS COMMITTEE

S.C. Alford, P. Eng., Chair;
M. Baril, EIT; J.W. Bogan, P. Eng.;
B.A. Dobran, P. Eng.; V.L. Dutton, P. Eng. (Ret.);
A. Kempan, P.Eng. (Ret); B. Stimpson, P.Eng.

CORRESPONDENTS

P. Yamada, P. Eng., Thompson
S. Trivett, P. Eng., Brandon

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 engineering or business topics that would be of interest to the membership.

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

Canada's Communication Centre

Source: *Quebec Science*, Sept. 97,
translated by V.L. Dutton, P.Eng. (Ret.)

Last April, when most Winnipeggers were worrying about sandbags and dykes, the technicians at Teleglobe Canada, in Montreal, found that they suddenly had an under-water cable in the middle of their network.

One of the two fibre-optic cables that tie this country together had failed. "For two weeks the entire network hung together on a single 'wire'."

Teleglobe has had lots of experience with under-water cables as they are responsible for all submarine and satellite connections between Canada and 200 countries around the world.

Teleglobe is the nerve centre of Canada's communications system with six switching centres, two terminals for the submarine cables, and three radar stations. At present, it handles two billion minutes of international calls per year. By 2001, they expect to have 40 satellites in service. □

Meet Your New Manager of Administration...

(Cont'd from page 1)

Ken's two brothers are also engineers. Larry works with Dillon Consulting in Winnipeg; Allan is currently employed by Mid-West Constructors, Edmonton.

Ken is married to Lou-Anne, who is the Assistant Deputy Minister for the Province of Manitoba, Department of Culture, Heritage, and Citizenship. Ken and Lou-Anne have a daughter Kristin, who is studying for a career in clinical psychology, and a son Kevin, who is taking a doctorate in statistics at Madison, Wisconsin. (Go, Badgers!)

Ken has long served APEM on numerous committees, as a member of Council, and as President. He has been involved with the Association of Consulting Engineers of Manitoba, the Canadian Council of Professional Engineers, as well as the Sturgeon Creek and St. Andrew's River

Heights United Churches. In addition, Ken is working on his family's genealogy, enjoys spending time on the Internet, and is constantly upgrading his computer. (Dilbert lives!)

It won't take long for Ken to demonstrate his experience and abilities for the benefit of this Association. □

MPDP Pilot Project Wraps Up

(Cont'd from page 1)

A sincere "Thank You" to all of those who offered their time and participated in the pilot project groups. Special appreciation is extended to the group co-ordinators who organized and chaired the meetings and provided reports to APEM summarizing the key points arising from the pilot project meetings and activities.

All members should expect to see the final version of the MPDP document in the coming months for their review and consideration. □

NEW MEMBERS REGISTERED MARCH & APRIL 1998

R.H. Buchanan	B.A.J. Mazerolle
R.J. Douglas	T.G. Okany
P.M. Dornn	J.J. Pera
K.G. Edginton	M.C. Poole
I. Goertzen	N.D. Rajapakse
J.W. Hendry (ON)	R.M. Sawka
D.D.J. Himbeault	B.R. Shearer
J. Hum (BC)	D.M.P. Shume
M.D. Kelly	T.G. Sims
V.R. Klassen (SK)	T.E. Small
G.J. Kriviak (AB)	T.P. Styran (ON)
M.D. LaRiviere	S. Tessier
R.D. MacDonald (ON)	M. Varol
F.A. MacNeil	S.A. Witzke
T.R. Marr	K.W. Zwicker (AB)
M.G. Matousek	

EITs ENROLLED MARCH & APRIL 1998

K.W. Bannister	M.P. Maendel
M.J. Berrub	I.A.R. McLaren
B.D. Clegg	R.D. Morphy
G.A. Desrosiers	R.D. Pilgrim
C.L. Dyck	W.D. Price
I.T. Fernando	F. Rizzuto
G.S. Hobbs	D.D. Robbins
X. Huang	E.H. Wagner
H.H. Janz	W.Y. Yuen
D.L. Jubenvill	M.H. Zahedi
C.T. Klos	C. Zubin
P.M. Kotelko	

LICENCES ISSUED MARCH & APRIL 1998

D.H. Berkowitz (MN)	D.V. Martin (TX)
J.E. Budke (MN)	H.A. Mohamed (GA)
S.H. Carroll (BC)	C.A. Palumbo (FL)
R.E. Diedrich (OR)	K.J.J. Pontiff (PA)
S.M. Hansen (TX)	L.M. Sargent (IA)
H.R. Hawk (ON)	M.K. Sjoblom (MN)
G.V.R. Holness (MI)	H. Vallee (QC)
T.A. London (BC)	

In Memoriam

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

John D. Adam

Robert D. Stott



President's Message

P. Washchyshyn,
P.Eng.



Hung Up on Mandatory Professional Development? Don't Be!

From speaking with members over the past number of months regarding their concerns over the APEM's plan to introduce mandatory professional development (MPDP), it is apparent that many are intimidated or apprehensive without cause. When the program is explained, the majority understand and, indeed, become supportive.

Essentially, the plan is your opportunity to participate in a guided program of life-long learning – an activity that, from your engineering education, you have always recognized as fundamental to your personal and professional effectiveness. The MPDP process is a matter of assessing your current job function, preparing, and periodically updating, a near-term learning plan consistent with your general career aspirations, maintaining a record of that plan, and the steps taken to carry it out, and then reporting annually to the Association on those steps in a summary form.

Evaluating, planning, implementation and reporting are not unfamiliar concepts to professional engineers. As with everything else in life, if you don't know where you are, and you don't know where you want to be, you won't know how to get there or whether you have arrived. Performance reviews in the workplace can readily be used as the basis for your plan.

Articles in earlier editions of this publication have noted that you will be able to earn credits for professional practice – on-the-job learning. While the job functions must involve the practice of professional engineering, the test is one of whether they come within the legal definition of the practice of professional engineering. That definition is quite broad and encompasses the job functions of most professional engineers. It is not limited to "that which you do with a calculator". It reads as follows:

"practice of professional engineering" means any act of planning, designing, composing, measuring, evaluating, inspecting, advising, reporting, directing, or supervising, or managing any of the foregoing, that requires the application of

engineering principles and that concerns the safeguarding of life, health, property, economic interests, the public interest or the environment.

It has three components. An action, such as "advising", which involves an engineering principle, such as engineering economics, and that concerns the public interest or the environment. For those professional engineers in management, it also encompasses the directing or supervising or managing of the actions of others that meet the test. The intention is that the scope of practice be addressed by the individual member, guided by the definition, his or her conscience, and the requirement of the code of ethics that the professional engineer "strive to maintain a high standard of competence (in his or her area of practice) by seeking opportunities to acquire knowledge of, and experience with, new techniques and developments".

As has also been mentioned in earlier editions of the MPE, the MPDP has been modelled on the one introduced by the Alberta Association, and, with a few modifications, has also been adopted by a number of other provinces. The APEM's MPDP is an opportunity for Manitoba engineers to contribute, as we have done in other areas, to the process of maintaining the high standards of the engineering profession in Canada.

**As with everything else in life,
if you don't know where you are,
and you don't know where
you want to be, you won't know
how to get there or whether
you have arrived.**

Members should understand that the MPDP is not something that is being forced upon them by the Council without consultation or the opportunity for participation. The two most recent annual meetings included presentations and discussions of the general topic. There will be more discussion and a vote at the Annual General Meeting on October 17, 1998, and, if approved at the Annual Meeting, another opportunity for members to ratify, or reject, By-law changes by way of letter ballot.

Now that the pilot project has been completed and comments have been considered, the plan has been modified. There are also plans to hold an informational session in advance of the Annual General Meeting. Details of the plan will also be available on the internet at <http://www.mts.net/~bobbbruce/mpdp/mpdp.html>.

I encourage you to study the proposal, attend the informational session prepared to discuss the proposal with an open mind, and come to the Annual Meeting prepared to cast your ballot.

Council dedicated most of the December 1997 meeting to a critical review of the MPDP Program after completing the forms independently. The purpose of that exercise was two-fold: first,

to seek flaws in the format and, secondly, to respond knowledgeably to concerns of members. So, if you have questions, feel free to call your councillors.

Finally, I see an important linkage between the vision of APEM as "the leader and a facilitator of the process that ensures excellence in engineering and applied technology for the public of Manitoba" and the words of the philosopher Eric Hoffer, who said, "In a time of rapid change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists." □

NEWS RELEASE

Garland Laliberte Wins National Engineering Award

Dr. Garland E. Laliberte, P.Eng., is the 1998 winner of the **CCPE Meritorious Service Award for Professional Service**. Dr.

Laliberte's achievements in engineering education and professional leadership have earned him the highest respect and honours from his peers throughout North America. As Dean of the Faculty of Engineering at the University of Manitoba, he spearheaded achievements in postgraduate enrollment, women in engineering and engineering research. In professional circles, he has received many awards for his dedicated leadership of numerous provincial, national, and international professional engineering organizations. His efforts have appreciably raised the status and profile of the profession in Canadian society. □



Dr. Garland E. Laliberte, P.Eng.

Professional Development

Renovations to the University of Manitoba Engineering Building – An Overview

By: M. Tokarz, P.Eng.

Dr. Doug Ruth, Ph.D., P.Eng., on February 25, 1998, at a breakfast meeting at the Norwood Hotel, presented an interesting, informative talk on the "Renovations of the University of Manitoba Engineering Building". Dr. Ruth holds two degrees from the U of M and a Ph.D. degree from Waterloo, and is currently the Associate Dean of the U of M's Faculty of Engineering.

Past Accomplishments/Status of Engineers

Dr. Ruth started his presentation justifying the renovations to the U of M Engineering Building by outlining several facts about, and accomplishments of, engineers in Manitoba:

- There are 3600 registered engineers and 400 engineers-in-training in Manitoba, distributed throughout 1000 companies.
- Manitoba cities have traditionally had clean drinking water and sewers. These infrastructures, designed by engineers, play an important role in improving people's standard of living, and are often taken for granted.
- The Red River Floodway, one of the largest earth-moving projects on Earth, is recognized worldwide as a major engineering achievement.
- Manitoba Hydro is the leader in AC-DC power development. New designs developed elsewhere use Manitoba-based technology.
- The transportation industry in Manitoba is keeping abreast of innovation and technology. For instance, the Renaissance bus is designed and manufactured by Motor Coach Industries in Winnipeg. It is a state-of-the-art vehicle that is competitively priced.
- Companies employing more than 20 engineers include Inco, Bristol Aerospace, Standard Aero, Boeing, Atomic Energy, Winnipeg Hydro, Motor Coach Industries, and New Flyer Industries.
- Engineers and technologists work hand-in-hand to improve our standard of living. Engineering is a silent profession – never blowing its own horn.
- 63% of APEM members are educated at the University of Manitoba – the supplier of professionals in Manitoba.
- There are 3442 alumni engineers in Manitoba, with lower numbers in other provinces.

The above points demonstrate the importance of upgrading and modernizing the Engineering Building to continue to provide top-notch engineers.

Dr. Ruth ended this section with a very positive statement: "Great programs need great facili-

ties". In addition, he presented a very enthusiastic goal for the U of M – "the best engineering program on the face of the planet".

Building History

The oldest building, noted Dr. Ruth, is the Featherstonhaugh Building, which was built in 1912 as one of the buildings of the Agricultural College. It lacks adequate ventilation and proper wiring. The stairwells don't meet the present code for rail safety and fire, as the banister is open straight up for five floors. The MacDonald Building, built in the late 1940's, was constructed with the first floor half-way below ground. (A desire to reduce storey heights and the shortage of building materials following World War II forced a mis-match between floors in the old and new buildings.) Dr. Ruth went on to say the biggest problems are access for the handicapped and moving equipment down stairs. The newest building is the Hoogstraten Wing, which is in reasonably good shape. As we look ahead, Dr. Ruth emphasized that educators must teach engineers to be aware of health and safety issues and fire codes.

Consultants' Report

Several consultants were involved in the Engineering Building study. The consultants' report showed the structure to be sound, but architecturally it was marginal except for the newest wing. Mechanical and electrical installations were completely inadequate. Dr. Ruth noted that the Featherstonhaugh and MacDonald Buildings were both rated as 35% effective while the Hoogstraten wing was rated at twice that. This tells the story in itself – we need to renovate now. Dr. Ruth also noted that, because all the buildings are structurally sound, the challenge is to convince politicians that an upgrade is needed.

Concept

The thrust of the new concept, Dr. Ruth noted, was to renovate around a central focus, an "atrium" to be constructed in parking lot "H". This would unify all three buildings into one big building. There would be an open area connected to UMSU, a central elevator, handicap access from the MacDonald Building, and a bridge to the "power tower". The "power tower" has no handicap access. Dr. Ruth went on to say the Featherstonhaugh Building would be an Engineering Innovation and Research Centre (ERIC). The atrium would contain new classrooms, and the MacDonald Building would house the rest. In addition, the entire complex would be sprinklered.

The upgrade will remove old-style blackboards and benches and allow the faculty to utilize modern techniques such as computer simulation, Power Point, multimedia, and anima-



Dr. Doug Ruth, P.Eng.

tion. The old steam turbine technology of the 1930's must be replaced with new technology such as a computerized Petrol engine.

Costs

In the last section of his presentation, Dr. Ruth outlined the costs for this intriguing design as follows:

Architectural	\$ 15,086,000
Mechanical	\$ 6,191,000
Electrical	\$ 5,712,000
Phase in	\$ 700,000
Class Equipment	\$ 3,500,000
Lab Equipment	\$ 2,900,000
Furniture	\$ 600,000
Professional Fees	\$ 4,500,000
Contingencies	\$ 5,653,000
Total	\$ 53,942,000

Although a considerable sum of money, the expenditures are justified. The costs will be split between the levels of government and the private sector based on a complex formula. Renovations will start as the money is raised and are expected to begin in the spring of 1999. The target amount for the first two phases is \$17.6 million.

Dr. Ruth ended the meeting with an important message about which he felt very strongly. "Engineers contribute to the economy of Manitoba".

Thank you, Dr. Ruth, for a very informative session. □

The Engineering Endowment Fund Advisory Committee

By: M.T.M. Caners, P.Eng. and
J.B. Martino, P.Eng.

The EEFAC is an advisory committee to the Dean of the Faculty of Engineering. Its purpose is to invite and review applications for grants from the Engineering Endowment Fund, to recommend those projects that it considers should receive support, and to review the terms of reference of the committee and recommend revisions to the Dean where appropriate. Jason Martino, P.Eng., and Michelle Caners, P.Eng., are co-chairs for the EEFAC. Both Jason, who is employed by Atomic Energy of Canada Ltd., and Michelle, from Manitoba Hydro, have been members of this committee since 1994. The committee's decisions and proposed changes are reported by the chairs to Dean Don Shields, P.Eng., who can then approve the recommendations and forward them to the Engineering Faculty Council for their information.

Our committee consists of 13 members drawn from engineering academic and support staff, undergraduate and graduate students, and alumni. The participation has been very lively and effective from all members of this committee.

Our goal is to provide support for initiatives that promote excellence and innovation in the Faculty of Engineering. The Engineering Endowment Fund Advisory Committee is pleased to acknowledge the 1997 projects which have been supported by the fund.

Visit our new web site for our story and a summary of 1997 and earlier award winners (<http://www.umanitoba.ca/faculties/engineering/umeng/endowment/endowment.html>). One very inspiring project supported by the Engineering Endowment Fund is "Preparation for Introduction to Engineering" submitted by M.G. (Ron) Britton, P.Eng. and Shirley Matile, P.Eng.

Project Significance

Introduction to Engineering will be required of every student who enrolls in the Faculty of Engineering. Given the large class size and the Pass/Fail format, success using the traditional lecture format seems unlikely. An acceptable alternative is required.

Team learning has been used successfully at the University of Oklahoma in introductory economics classes as large as 180 students. Given that this format provides a student-oriented, rather than a professor-oriented, learning environment, and that it provides extensive experience in team work, there seems to be merit in attempting to introduce its use in Introduction to Engineering. Several University of Manitoba professors, including Dr. Britton, have used this technique in smaller senior classes.

If the class is properly prepared, the team-

Continued on page 8



Concrete Toboggan Team.

1997 DISBURSEMENTS

ALL DEPARTMENTS

Engineering Conferences
National Association of Engineering Student Councils National Conference
Preparation for Introduction to Engineering

Sub-total \$ 12,500

CIVIL AND GEOLOGICAL ENGINEERING

CSCE Engineering Thesis Competition
CSCE Computer
Great Northern Concrete Toboggan Race
ASCE Steel Bridge Building Competition
New Geotechnical Computing Laboratory
Network Software Eagle Point Advantage Series
GIS Applications in Transportation Engineering

Sub-total \$ 18,725

MECHANICAL AND INDUSTRIAL ENGINEERING

Student Conferences '98
New Undergraduate Laboratory for Design of Mechanisms Courses
Digital Video Equipment
CNC Technology Transfer to Machine Shop Lathe
UMSAE Computer Fund
3D Mastercam
UMSAE Design Vehicles

Sub-total \$ 29,350

ELECTRICAL AND COMPUTER ENGINEERING

Wireless Internet Access
Courseware Web Competition: Technology Enhanced Teaching

Sub-total \$ 8,000

BIOSYSTEMS ENGINEERING

Student Club Computer Upgrade
1/4 Scale Tractor Pull Competition
Interactive Computer Based Learning Aids for Unit Operations
Preparation of Interactive Web Based Engineering Design Courses

Sub-total \$ 9,500

OUTREACH

Orientation Program for Newly Admitted Engineering students
Engineering Magazine
Access (WISE) Home Page Development

Sub-total \$ 24,000

TOTAL \$ 102,075

Attention, Engineering Supervisors!

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

The Engineering Profession Act which we, the members of APEM, are responsible for administering, requires that the practice of engineering be conducted only by registered professional engineers, or by people working under the direct personal supervision and guidance of *registered professional engineers who assume full professional responsibility for the engineering work done by those under their supervision.*

As a registered professional engineer, you are **fully responsible** for your own practice of engineering. As the supervisor of an EIT, you are also **fully responsible** for the EIT's practice of engineering.

The supervisory role is not to be taken lightly. Recently-registered professional engineers may wish to give careful consideration to their Code of Ethics before taking on the responsibility for the practice of engineering of others. Professional engineers with less than five years' professional experience should seriously consider the prudence of accepting the role of engineering supervisor or mentor – particularly to an EIT in the employ of others, who is receiving no on-site supervision or guidance.

As an EIT, you may wish to give careful consideration to the amount of experience an individual engineer may have before asking him or her to serve as your supervisor and mentor.

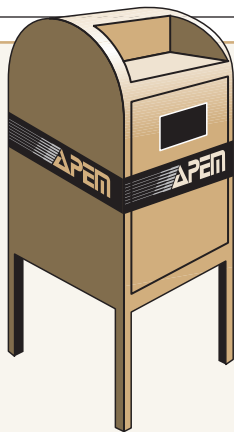
As a registered professional engineer, your best judgement, alone, will determine whether you are qualified and prepared to supervise an EIT.

As an EIT, you are NOT qualified to supervise the practice of engineering by another EIT, and it is illegal for you to do so. □

The Oceans – Nuclear Garbage-Cans

Source: *Sciences et Avenir*, December 1996, translated by V.L. Dutton, P.Eng. (Ret.)

It is disturbing to note that there are 52 known sites where nuclear material now rests on the oceans' bottoms. The nuclear waste includes containers with waste from nuclear reactors, debris from satellites, lost nuclear weapons and material from a variety of other sources. Twenty-seven of these 52 known sites are off the coasts of North America. □



Letters to the Editor

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

Dear Sir:

I am writing regarding the February 1998 issue of *The Manitoba Professional Engineer* – specifically regarding the section titled “Jobs Wanted” on the bottom right-hand corner of Page 10. I am quite concerned about the second posting where the “Civil Engineer-in-Training” is offering to work for minimum wage to gain experience towards attaining professional status. This statement implies that the individual is asking to be employed in a position that involves the responsibilities required by The Association of Professional Engineers of the Province of Manitoba (APEM) to become a professional engineer. The requirements for the EIT program are quite well defined in the Association's publication. These responsibilities include but are not restricted to “the skillful application of theory”, “opportunities to implement engineering decisions”, and “increased responsibility” with respect to the tasks delegated to the Engineer-in-Training. I ask if it seems reasonable that someone earning minimum wage should be expected to accept these responsibilities while other employment opportunities exist, such as those in the fast-food/service industry, which would pay the same wage? I looked back into my “Professional Engineers Code of Ethics” publication which I studied carefully to write my Engineer-in-Training application test. I think that the following section is relevant in this situation (taken directly from, “Professional Engineers Code of Ethics”, April 13, 1992.)

5. *The professional engineer shall be fair to colleagues and shall support their professional development.* Specifically, and without limiting the generality of this statement, the professional engineer shall:
 - 5.b. support the standards of the engineering profession by upholding the principle that appropriate and adequate compensation for all those engaged in engineering work is in the public interest.

I personally do not feel that paying Engineers-in-Training minimum wage is appropriate or adequate for the level of responsibility that APEM demands from its EITs in order to become eligible for professional registration. I realize that this was most likely requested by the person who submitted the item. Should the editors have edited the item appropriately and informed the author of the changes?

I am afraid that this advertisement may set a very dangerous precedent in terms of acceptable starting wages for Engineers-in-Training. I understand that it can be difficult to find a first full-time job. Offering to work for minimum wage, in my opinion, is unacceptable.

On a positive note, I believe that the concept of having a “Jobs Wanted” section is an excellent idea, and I certainly applaud the Association for allowing those who require the service to advertise in *The Manitoba Professional Engineer*.

Thank you.

Sincerely,
J.A. Blatz, EIT

Dear Sir:

I am writing in response to the letter to the editor by J.A. Blatz dated March 25, 1998. He states “Should the editors have edited the item appropriately and informed the author of the changes?”. As a member of the Communications Committee which publishes the *Manitoba Professional Engineer*, and also an EIT, I have to say that although I agree EITs should be paid more than minimum wage, we do not have the right to tell people what they can or cannot negotiate in terms of salary. Is it better for a career to work for a year as a waiter at minimum wage plus tips, or work for a year as an EIT for minimum wage? At the end of the year, the latter scenario would present a more favourable position when looking for a second job.

In today's work environment, where we have a surplus of professional job graduates (i.e. engineers, lawyers, doctors, etc.), it is not uncommon for graduating lawyers to pay for their own articling and doctors to volunteer at free clinics. Should we be expecting graduating engineers to be immune from the trends affecting all of society? I personally worked as a draftsman for seven months prior to my first job as an EIT. I know an individual who worked for a month without salary prior to joining his firm on a full-time, salaried basis. Was it worthwhile time spent? I would have to say so, as today's trends are forcing individuals to be creative in the marketing of their skills.

Continued on page 11

Manitoba Hydro Makes Generous Donation to Engineering Building Renovation Project

In recognition of Manitoba Hydro's continued support, the Faculty of Engineering presented a Certificate of Appreciation to President Robert Brennan for Manitoba Hydro's \$1 million donation towards ERIC (the Engineering Research Innovation Centre). ERIC is a proposal to bring the equipment and facilities of the Engineering Faculty from the age of steam to the electronic age – and beyond. Phase 1 of ERIC will involve the purchase of \$8 million in new research equipment, and the complete renovation of the 1912 portion of the Engineering Building for an estimated cost of \$18 million. Some \$4 million of this cost will see greatly improved research facilities of direct interest, and benefit, to the hydro-electric power industry. Manitoba Hydro's planned contribution of \$1 million over the next three years has cemented further the very close ties between Manitoba Hydro and the Faculty of Engineering. This contribution is greatly appreciated by the entire staff and the students of the Faculty.

For additional information on ERIC, please contact the Office of the Dean of Engineering at 474-9806. □



Pictured (Left to Right) Don Shields, Dean of Engineering; Douglas Ruth, Associate Dean (Administration); Bob Brennan, President and Chief Executive Officer Manitoba Hydro accepting the Certificate of Appreciation from Kathryn Kolbuch, Senior Stick, U of M Engineering Society; Nabil Bassim, Associate Dean (Research) Faculty of Engineering; and Guy Jonatschick, Postgraduate student in the Electrical and Computer Engineering Department.

University News

By: B. Stimpson, P.Eng.

AWARDS

National Science and Engineering Research Council (NSERC):

Competition for NSERC graduate scholarships and post-doctoral fellowships is severe. Congratulations to the following:

Department of Civil and Geological Engineering:

Graduate: Chris Gentile, Natalie Rizkalla, Brea Williams, and Ilsa Nelich

Post Doctoral: Yafei Zhou

Department of Electrical and Computer Engineering:

Graduate: Curtis Reimer, Leill Shafai, Chris Urmson, and Pradeepa Yahampath

Canadian Construction Association National Thesis Competition (open to all senior graduate students of Architecture and Engineering)

1st place (\$2000 cash prize): Marc Foster and Karen Sze, "Behaviour Study of a Concrete Bridge Deck Slab Reinforced by CFRP". Advisor: Dr. Sami Rizkalla, Department of Civil and Geological Engineering

2nd place (\$1000 cash prize): Donald Burns, "Electrochemical Processes for Chloride Extraction From Concrete". Advisor: Dr. Sami Rizkalla, Department of Civil and Geological Engineering. Collaborator: Vector Construction, Winnipeg

The same students also won the first- and second-place awards for the Canadian Construction Research Board (Manitoba Chapter) Competition.

Winnipeg Chamber of Commerce Technology Awards – Student Category

1st place: Ali Morawej, a doctoral student in the Department of Electrical and Computer Engineering, for his work in "Speech Therapy via the Internet".

Donald M. Stephens Memorial Fellowship (Manitoba Hydro):

\$8,000 Fellowship to Andrew Baryla, a graduate student in the Department of Civil and Geological Engineering

ACADEMIC PROMOTIONS

Department of Civil and Geological Engineering:

Al Woodbury, P.Eng. (Groundwater) to Professor
Takis Elefsiniotis (Environmental) to Associate Professor

Daryl McCartney, P.Eng. (Environmental) to Associate Professor

ADMINISTRATION

Department of Civil and Geological Engineering:

New Head (as of April 1) – Nimal Rajapakse, P.Eng.

PROFESSIONAL AND TECHNICAL ORGANIZATIONS

Digvir Jayas, P.Eng., Professor and Head, Department of Biosystems Engineering:

Appointed: Vice-Chair of the Canadian Engineering Qualifications Board (CEQB) by the Canadian Council of Professional Engineers. (CEQB formulates national guidelines on the qualifications and standards of practice required of professional engineers.)

Vice-President of the Canadian Institute of Food Science and Technology (CIFST). (CIFST advocates and promotes the quality, safety, and wholesomeness of the food supply through the applications of science and technology by linking food science professionals from industry, government, and academia.)

BOOK PUBLICATION

The book "Grain Drying: Theory and Practice", by Stan Pabis, Digvir Jayas, and Stefan Cenkowski has been released by John Wiley and Sons. Stan Pabis was a visiting professor in the Department of Biosystems Engineering; Digvir Jayas, P.Eng. (Professor and Head), and Stefan Cenkowski, P.Eng. (Associate Professor), are both in the Department of Biosystems Engineering. □



Council Reports

Tuesday, March 10, 1998

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

AT WHICH COUNCIL DISCUSSES THE ENVIRONMENT, INTERNATIONAL AFFAIRS AND THE PROPOSED ACT

Our President runs a good meeting, but I'm forced to do a bit of cutting and choosing; I hope he will approve.

One of our Past-Presidents, D.G. Chapman, is a Director of CCPE (Canadian Council of Professional Engineers). He had submitted to Council a three-page Memorandum summarizing CCPE's first board meeting of 1998. Approximately one-third of the Memorandum was devoted to the Environment.

CCHREI is the acronym for the Canadian Council on Human Resources, the Environment and Industry. Centered in Calgary, this group appears to want to control the certification of environmental practitioners and, in order to do this, they have created CECAB (whatever that means). One of the comments I recorded during Council's discussion of this topic was "lots of potential conflict."

Tuesday, April 14, 1998

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

AT WHICH COUNCIL CONSIDERS REORGANIZATION, THE END OF "GRANDFATHERING", AND MANDATORY PROFESSIONAL DEVELOPMENT

As has been the situation in recent meetings of Council, a large part of this meeting was spent on the subject that has been the major effort of Council for many months and which is now approaching the point of no return – the successful achievement of a new Engineering and Geoscientific Professions Act.

The reporter doesn't believe it to be space well-spent to go into details of the many meetings held in reaching the point where Mr. Tom Farrell, Deputy Minister of Labour, will place the Act before Legislature during its current session. However, the Association is indebted to the work Shirley Matile and Rick Lemoine of SPRGM (Subcommittee for the Professional Registration of Geoscientists) have done with the geoscientists.

Remember ORAP? This is the new organizational plan introduced at the special meeting to which everyone was invited in March. The Councillors present spent some time choosing the new committees on which they wished to serve.

Change rarely comes without reaction. The members of the former Research and Development Committee have objected to being re-named the Emerging Technologies Committee. Nor are they happy with the new Terms

The CCPE also has an "International Affairs Sub-Committee". One of the problems this group is addressing is caused by APEC (Asia Pacific Economic Community). APEC apparently intends to issue some type of Certificate of Competency to "engineers", whether the applicant is a graduate of a recognized university or from an institution such as one of the several hundred "universities" in the Philippines. The implications of this are "scary" (as Ms. Matile commented during the discussions). It appears the bureaucrats in Ottawa are prepared to accept these certificates when processing immigration applications. You might want to ask your M.P. what he or she knows about this.

The last issue of *The Manitoba Professional Engineer* carried a report on the recent visit by our President and our Executive Director to Flin Flon. What impressed me was the President's suggestion that, considering the costs of such a visit, APEM should use a chartered aircraft for future visits. If carefully scheduled, this would permit the group to visit both Flin Flon and Thompson on the same trip.

With an April 22 deadline set by the Department of Labour, the proposed new Act continues to keep Council busy. Establishing a satisfactory *modus operandi* with the Architects is still a major problem. If a satisfactory resolution continues to elude Council, the Association may be forced to abandon its hopes for a new Act and settle for amending the present one.

Discussions with the Geoscientists, Physicists, Land Surveyors, and Landscape Architects have reached the point where we now know that they will not oppose our proposed new Act. □

of Reference. Expect to hear from this group again. Ours is a dynamic Association.

Change was also responsible for another issue that generated considerable discussion and thought at the meeting. In September, 1994, Council decreed "that a sunset clause be placed on the grandfathering policy such that all applicants for registration whose applications are received after December 31, 1998, be required to comply with the Association's Four-Year Work Experience Requirement." The Experience Review Committee now wishes to have this requirement changed. They recommended to Council that the 'grandfathering' clause be extended to allow EITs who have obtained 24 months' acceptable engineering work experience, satisfactory to the Experience Review Committee, by December 31, 1998 to be grandfathered, rather than being required to have applied for registration as professional engineers by December 31, 1998. It was agreed that the deadline for obtaining satisfactory experience be extended to December 31, 1998.

As it turned out, Council lost its quorum prior to completing debate on this item, so the issue of grandfathering will come up again at the next meeting.

Action on another topic also had to be postponed. This was the question of the ramifications of the definition of Scope of Practice as required by the MPDP (Mandatory Professional Development Project). Included in this topic was the general question of how to interpret what is meant by the Practice of Professional Engineering. Three Councillors had spent some time discussing this matter and a memo was presented at the meeting. Please see the article from the Professional Development Committee for more information on this topic. □

The Engineering Endowment Fund Advisory Committee

(Cont'd from page 5)

learning approach should provide a classroom environment that will counteract the well documented problems of large, pass/fail, required classes. Theoretically this can be accomplished with a single professor and two teaching assistants, once the material is in place.

If properly presented, engineering students will gain a better understanding of the profession into which they hope to graduate, and the academic environment in which they will operate prior to graduation. Informed students make bet-

ter decisions respecting their individual futures and the future of the profession they hope to join.

In general, proposals may come from staff, students, and alumni who are contributors to the Engineering Endowment Fund. Application forms, together with instructions for entering the 1998 Engineering Endowment Fund Competition, are available on our web site. The disposable investment income for 1998 from the Engineering Endowment Fund will be about \$101,000. The deadline to send your proposals is mid-November, 1998.

Thanks to the generous contributions of alumni, students, and faculty, the Faculty of Engi-

neering has been able to support many innovative and exciting activities. However, since the total amount requested for 1997 was \$223,000, the Engineering Endowment Fund was not able to support all worthy proposals. The Engineering Endowment Fund is allocated 70% of earnings (interest, etc.) of the funds donated to the Engineering Capital Fund. If you would like the satisfaction of knowing you're helping to give back to the faculty, please make a contribution to the Engineering Endowment Fund. Contact the Department of Private Funding, Room 179, Continuing Education, U of M, Winnipeg, MB, R3T 2N2. Phone 274-9195, FAX 474-7635 or e-mail Private_Funding@umanitoba.ca. □

Highlighting Some Specifics

(Last in a Three-part Series on the Proposed Revised Act)

By: H. Lobo, EIT

Part One of this series covered the history of the progress of the Engineering and Geoscientific Professions Act, and Part Two looked at some issues with external stakeholders. In this article, some specific items will be addressed which will immediately affect APEM members.

One change being proposed regards the definition of the practice of engineering. **The Engineering Profession Act** of 1985 defines the "practice of professional engineering" or "practice of engineering" as "carrying on for hire, gain or hope of reward, either directly or indirectly, of one or more of the following branches of the science of engineering, namely: i) agricultural, ii) biochemical, iii) chemical, iv) civil, v) electrical, vi) forest, vii) geological, viii) industrial, ix) mechanical, x) metallurgical, xi) structural, or such other branch as hereafter may be recognized and adopted by by-law of the Association as a branch of engineering and, without restricting the generality of the foregoing, includes the reporting on, advising on, valuing of, measuring for, laying out of, designing of, engineering inspection of (including the direction or supervision of any of the foregoing) or the construction, alteration, improvements or enlargement of, works or processes or any of them by reason of their requiring in connection with any of the operations above

set forth, the skilled or professional application of the principles of mathematics, physics, mechanics, aeronautics, hydraulics, electricity, forestry, chemistry, geology, or metallurgy, but does not include the operation, execution or supervision of works as superintendent, foreman, inspector, road master, track master, bridge master, building master or contractor, where the works have been designed by and are constructed under the supervision of a professional engineer."

The proposed revised **Engineering and Geoscientific Professions Act** reads "practice of professional engineering" means any act of planning, designing, composing, evaluating, advising, reporting, directing or supervising, or managing any of the foregoing that requires the application of engineering principles, and that concerns the safeguarding of life, health, property, economic interests, the public interest or the environment." This is the definition that has been adopted by the Canadian Council of Professional Engineers. Essentially, the new definition encompasses three ideals: actions (verbs), engineering principles, and safeguards. By sheer size alone, it is considerably reduced.

A definition of the **practice of geoscience** will also be incorporated into the Act. In light of the Bre-X Minerals scandal, did you know that the Toronto Stock Exchange (TSE) hired a "mining"

professional?

With regard to **Group Practice**, APEM will be permitted to require a Certificate of Authorization for every group (company or department) practising engineering, once the Act is passed. This will give APEM some form of identification as a point of entry into the company in question, for contact and investigation, if needed.

Have you had your PD today? Now that the **Mandatory Professional Development Program** (MPDP) is being set up to ensure competence and professional understanding, the Act will empower the Association to enforce compliance with the program.

A **loop hole** which will be considered closed involves cancelled membership. Even if an individual resigns, it will not save the former member from investigation and disciplinary action. So, APEM will have the power to exercise legal action over past, as well as current, members.

Some **25 sections** of the by-laws will require change.

Another issue of interest entails the disclosure of insurance coverage. The proposed Act prescribes the circumstances and manner in which members, temporary licensees, engineers-in-training, specified-scope-of-practice licensees and certificate holders must disclose that errors-and-omissions insurance is not held or is not applicable. This particular description will enable the Association to regulate the disclosure of insurance coverage.

Finally, a significant change will be that **annual dues** are no longer due within six months (the current grace period) but, rather, in three months. Hey, that's pretty BIG.

The issues which could impede the new Act from being tabled in the current Legislative session are changing rapidly at the time of this writing, but we are looking forward to a quick resolution. □

ORAP – For Better or For Worse

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

Yes, you are a member of an association that is doing what all successful organizations/companies do – re-engineering itself. On March 11, 1998, a committed group of APEM members assembled at the Norwood Hotel to hear about how APEM is re-organizing its committee structure.

Past-President Doug Chapman started the formal meeting with a review of the proposed Committee Organization that you received some time ago.

Our Executive Director and Registrar, Dave Ennis, helped answer many questions and expressed concern about the scheduling of the reorganizing, as the preparation of the budget for the AGM takes time, and will depend to some extent on what the committees are doing.

One of the fundamental reasons for the new committee structure is so that Council may devote itself more exclusively to the setting of policies. It is anticipated that Council will meet only six times per year, although you will be pleased to know the Councillors will have other duties.

The Nominating Committee will have a much more important function than in the past, as these people will now be responsible for the selection of all volunteers to work on the various commit-

tees. There will be an overall growth in the number of committees that APEM has and this should allow more members the opportunity to help "run" the Association.

It will be interesting to watch how the process of keeping the Committees producing effectively actually functions. Each Committee in the group that helps our Director run the Association limits membership to three consecutive two-year terms. Since, as Shirley Matile assured me, the "clock starts ticking on July 1st", Old Father Time will likely ensure an end to my work on the Communications Committee. Kelly Hearson will tell you when I first joined the Committee – and I've loved every year.

I was happy to have the chance to socialize at the "break". Hilmi Turanli and Trevor Cornell were there from the Professional Development Committee, as was Michael DeWiele who had served on the Professional Development Committee for several years. The two young mothers who were present give significance to the Women in Engineering Advisory Committee. I was also happy to speak to a few of the young men who had taken an evening away from watching the Brier to be at the meeting. I hope the Chair of the new Nominating Committee made note of their names. □

VISION

VISION

APEM VISION



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



Dick Johnson Retires

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

Dick Johnson's 42 years of service to the University of Manitoba have come to an end. The Retirement Party held for him in the University Club on March 24th was well-earned.

Time has a way of slipping by when one is busy with his own affairs. Dick was still in the Electrical Department when I left the University so I had failed to note that it was 22 years ago that he had left the Faculty to join the administrative end of the University as Provost. The large number of young women and men at the party were obviously people who had worked with Dick in recent years. The ones I recognized, with the exception of Allan McKay, all had hair nearly as gray as mine. Allan told me that it was 25 years ago that Dick had hired him as a technician.

In the grey-haired contingent from Electrical Engineering were Tom White, Rob Menzies, Ernie Bridges, Glen Swift, Steve Onyshko, and Girt Martens.

It was a particular pleasure to meet Tom White again. Tom was Chief Technologist for E.E. when I first grew to know him. I will always

be grateful to Tom for the help he gave me in mastering the programming of the Bendix G-5-D that was Engineering's first digital computer. Don Whitmore, of Vector Engineering, was one of the first of Civil's students to meet the new world of the computer on the Bendix. Punched papertape was the order of the day!

Dick had also given me some much-appreciated help while I was learning to program Engineering's analogue computer.

Glen Swift, Steve Onyshko, and Girt Martens stand out in my memory as fathers of Scouts in my Troop many years ago. On one occasion, Steve and Girt worked some magic on the tongue of the canoe-trailer our Group had at the time so that it towed better. Friends indeed!

Ernie Bridges is now retired. He and I had spent a summer in Ottawa many years ago. I don't think any of the three Bridges boys had been born then.

I was to learn, at the party, that Dick had a special fondness for Gilbert and Sullivan. In fact, the icing on the cake carried the quotation "He is the very model of a modern Major-General". This explained the significance of the gift former U of M President Arnold Naimark presented to Dick – The Complete Annotated Gilbert and Sullivan.

I have since learned that Dick is something of an authority on Thomas Hardy. His children com-

memorated his retirement with a gift of a Limited Edition of The Return of the Native.

There were three other Civils at the party to – how shall I phrase it? – provide a modicum of balance to the Electrical types – Shirley Matile and Dave Ennis from "the office" and Past-President (1991) Bill McDonald. We did a bit of reminiscing about Professors Andy Baracos and Art "Smiley" Larson – both now residents of British Columbia. Dave refreshed my memory as to the year Dick had been president of our Association – 1979.

Mrs. Johnson – Elaine – was at the party, as were the Johnsons' son, Skuli, and the Johnsons' daughters, Kristin and Karen. Kristin was with her daughter Maryka (3 1/2) and Karen with her two sons Andrew (3) and Colin (1). Kristin is a P. Eng. in her own right while Karen's husband, Alan Dalkie, P. Eng., works for Cowin Steel.

This article is not intended to be an history of the Electrical Engineering Department although it might be an appropriate time for someone to undertake compiling one for, as I was to learn, Professor McMath is still living and there are still graduates living who studied under Captain Love. Perhaps the group who are planning the Class Reunion of 2000 would be prepared to do this. I'll have to work on my friend, Hugh McDiarmid, who graduated in 1950 in the largest class of engineering graduates on record. Incidentally, one of my treasured memories of Hugh goes back to when he was Commanding Officer of the Sixth Field Engineering Regiment, Royal Canadian Engineers. As a part of their training exercise, the Regiment demolished parts of the old Pinawa Dam. When my troop portaged its canoes past that obstacle on our way to the Lee River Bridge, I always thought of Hugh.

Much has happened in the 22 years since Dick left Electrical Engineering to become a vice-president of the University. What had he been doing?

Another friend to the rescue! Reminding me of the stringent financial constraints that have fettered the University for all of Dick's years as a vice-president, my friend claimed that it was mostly thanks to Dick's efforts that the University has arrived at where it is today in as good shape as it is.

Happy retirement, Dick! □



Dick Johnson flanked by U of M Presidents past (r) and present (l).

Technology-Law Audits for Users of Technology

By: G. Robson of the Law Firm Aikins, MacAulay & Thorvaldson

Imagine that you started a small business in your basement. In the beginning, you did it all: selling, servicing, bookkeeping, and managing. Now, a few years later, business has been so good that you've got several employees and you've been able to upgrade and expand your computer system several times. Then, out of nowhere, you receive a letter from the lawyer for the licensor of one of the software products that your business uses (and relies on), telling you that you owe the licensor \$15,000 in additional license fees because you have been using more copies of the

software than the license permits. You can't believe it, but when you read the licence agreement carefully (for the first time), you discover that you have, indeed, breached it. Over the next two months, you negotiate with the licensor, hire your own lawyer, and end up settling the matter by agreeing to pay the additional licence fees over the next six months.

An unlikely scenario? Unfortunately not. This example is based on a true story. In fact, this type of situation happens far more often than it should. A technology-law audit can ensure, among other

things, that you are complying with the terms of all licence agreements that you have entered into.

These days, it is common for businesses to continually upgrade, modify, and change their computer systems. Therefore, it is wise for all users of technology to take stock of what they've got and how it's being administered, and to ensure that it is protected and is being used in accordance with applicable agreements. Users of technology who fail to complete an audit may have cause to be sorry later. □

January, 1997, Aikins, MacAulay & Thorvaldson. All rights reserved. This article was written for general information purposes only and should not be construed as legal advice or opinion.

Graham Robson is a technology lawyer with the TeKnow Law Practice Group (Technology & Intellectual Property) at the Winnipeg law firm of Aikins, MacAulay & Thorvaldson.

Research & Development

Conception to Birth: A Product is Born

By D.J. Fedirchuk, P.Eng.

In August, 1997, the first units of a Manitoba born-and-bred high-tech product for the electrical utility industry were delivered to Manitoba Hydro.

This particular product is called a System Undervoltage Controller (SUVC) and is a control device that helps ensure stability in the Manitoba Hydro system. Although this product is designed to perform a very specific task, the technology developed to perform this task has a basic framework that can be used to perform many other tasks associated with the operation and protection of a power system. The evolution of this technology has taken a number of years and the efforts of a number of people to develop.

The initial concept started back in 1984 with an R&D project involving Manitoba Hydro and the now defunct Industrial Applications Microelectronics Centre. Yes, no one has ever said research and development would ever be easy and usually it never is. When the Industrial Applications Microelectronics Centre closed down, work on the project was continued by key technical personnel who had been hired by a local electronics manufacturing company called Vansco Electronics. This company also had the ability to manufacture products that were developed as a benefit to the process. This project involved the use of microelectronics technology in the power utility industry to locate overhead power-line faults. Although the project did not become a huge financial success, it did prove that Manitobans had the technical skills necessary to develop micro-electronic technology and, more importantly, that the use of this technology in power utilities was indeed possible.

With this technical success established, the next project was to develop a recording system

for Manitoba Hydro that could help provide information related to system limits and help verify power export limits to the neighbouring power utilities. This project was successfully completed and is now in service, providing important information regarding tie-line loading and stability. This technology was the first in the world and even now, ten years later, is still a leading edge concept.

Again spurred by success, a vision developed between individuals within the Winnipeg area power-systems community that Winnipeg could and should be able to develop leading-edge technology for the power systems of the world. It was also the start of a vision sometimes referred to as the "Winnipeg Connection". Basically, it fused the interests of groups, such as the University of Manitoba Faculty of Engineering and Manitoba Hydro, and resulted in discussions and activities, such as support of projects for engineering masters' theses.

In the early 1990's, a prototype transmission-line protection-relay was developed at the University of Manitoba under the guidance of Professors Peter McLaren, P.Eng. and Glenn Swift, P.Eng., along with technical and graduate personnel. Much of the funding was provided by Manitoba Hydro R&D funds. Utility expertise was provided by some of Manitoba Hydro's engineers.

The concept of the use of generic hardware and a generic structure was presented, in the form of technical papers, to the significant power utility trade shows throughout North America. At a conference in Spokane, Washington, in 1992, the prototype transmission line protection was demonstrated to protection engineers from all over the world with positive response. A large USA company expressed interest to manufacture

the relay, but Vansco Electronics, in particular president, Ed Van Humbeck, P.Eng., also expressed a strong desire to manufacture this product in Manitoba. To help with this process, Professor Swift began to work part time at Vansco. About this time, also, a new division was created within Vansco called Alpha Power Technologies (APT) with the expressed intent of developing and marketing products to the power utility industry.

Several versions of the basic product were designed from 1993 to 1996. Most of the development was for tasks where no other technology was available. This technology is now applied on all of the major interconnecting tie-lines between Manitoba and the USA to ensure maximum utilization of these lines.

It became apparent, however, in 1996, that the hardware structure of the development was becoming outdated and was too expensive for more typical applications of power-system protection. It also became apparent that, to make the product marketable, it would require a re-design of the hardware. The hardware is now such that it can be sold for one-quarter of its former price. This exhausting process took about a year-and-a-half to complete. The basic hardware platform now contains a powerful digital signal-processor that can perform many functions in a very short period of time in a very cost-effective manner.

Above all the technical hurdles, this story has one common element: the vision of players such as Bob Brennan, Chair of Manitoba Hydro, and Ed Van Humbeck, founder of Vansco Electronics, who have supported the development efforts in various ways. While many challenges remain, much progress toward the final goal of developing world-renown products for the power industry has been made. Realizing this vision will result in new engineering opportunities and greater prosperity in Manitoba. Many engineers and technical people from different backgrounds helped make this concept a reality. It's difficult to quantify exactly what each one of these individuals contributed – not that it will matter much as time passes. What is important, however, is the legacy that is left behind that could only be accomplished through a spirit of co-operation and vision. Besides this, the engineers and technical people involved have made a point. They want to put Winnipeg on the map and leave their mark on the world. □

Have You Paid Your 1998 Dues?

Your 1998 annual dues were payable to this Association by January 1, 1998. As of March 1, 1998, the \$54.00 late payment penalty was assessed.

If we have not received payment for your dues, complete with late-payment penalty fee, by June 30, 1998, your name will be removed from the register and you will cease to be a member of this Association.

If you are de-registered and wish to become reinstated to membership, you will be required to:

- pay the current de-registration fee (\$300)
- pay the current annual membership dues;
- pay the current admission fee;

- pay annual dues for all of the years of non-registered practice of engineering in Manitoba from time of de-registration;
- write and pass the Association's Professional Practice Test (if you re-apply within one year of de-registration) or attend the Association's Professional Practice Seminar and write and pass the Professional Practice Examination (if you re-apply more than one year following de-registration);
- provide the names of referees who will verify at least four years of your recent engineering work experience; and
- provide Council with a satisfactory explanation as to why you allowed your membership to lapse.

Letters to the Editor

(Cont'd from page 6)

I have nothing against Mr. Blatz's opinion, and would have to say that in an ideal work environment I would agree with his perspective, but an individual should be free to do what he or she feels is in their best, long-term interest.

M. Baril, EIT

Ed Note: This letter represents the personal viewpoint of the author, and not necessarily the opinion of the Communications Committee or of APEM.

The Engineering Profession: A "Lay" Perspective

By: B. Thomson, Councillor

The position of appointed Councillor for APEM has been a pleasure for me. It has certainly been a learning experience, and it has given me the unique opportunity to be in the position of having direct input into a profession whose actions directly affect the public's daily safety, standard of living, and welfare.

I must admit that I approached this opportunity with some reservations. What intelligent comment could a retired R.N./Office Manager/Girl Guide Leader/Wife and Mother have to contribute to a professional group about which I knew so little? I prepared myself by reading your "Act" and your "Bylaws", and by reviewing some past Council minutes, and then decided I really was in trouble here.

After some experience, I am beginning to understand the language and slowly I have gained

some confidence. I have come to understand that my role as an appointed Councillor is really very simple: I provide a perspective that is outside the profession. I often find myself listening to discussion or debate and asking myself what outcome would further protect my family, my friends, my neighbours, and my community in their daily lives. Before I became involved in APEM, I had not given much thought to how much engineering affects the welfare and safety of the public and the huge responsibility the profession carries. I feel that the inclusion of appointed Councillors gives the profession both a validity and a humanity.

I have been impressed with the professionalism and ethical standards I have witnessed on Council. I have been grateful for their patience as I struggle to understand your issues and it has



Councillor B. Thomson

been five months since I have come home from a Council meeting with a headache so I must be improving. This has been a great experience for me, and I thank you for the opportunity. □

Western Economic Diversification Canada (WD) Supports Technological Innovation

New Loan Programs and Financing Information and Advice

By: E.E. Lach, P.Eng.

Whether they have one employee or a few hundred, small businesses involved in a wide range of technology-related ventures or projects could be eligible for patient and flexible-term loans, ranging from \$50,000 to \$1 million.

In co-operation with TD Bank, Royal Bank, CIBC, and the Business Development Bank of Canada, Western Economic Diversification Canada (WD) has created several new sources of patient and flexible-term debt financing for small businesses in Western Canada, with particular emphasis on knowledge and export-based industries. The new programs include: the Advanced Technology Loan Program; the Environmental Technology Loan Program; the Advanced Materials and Manufacturing Technologies Loan Program; the Biotechnology Loan Program; two information technology and telecommunication loan programs; and the Knowledge-Based Industries Loan Fund.

"The loan programs provide a new source of patient debt capital to firms in sectors that traditionally have had difficulty obtaining financing. Too often, people with great ideas can't get the capital they need for research, development, growth and expansion. We want to change that", explains WD fund manager David Woynorowski. While WD contributes towards each loan fund and is responsible for first-stage eligibility reviews, each bank makes the final decision on all loan approvals.

The loan programs are unique in that WD also provides small businesses with free information and advice on a wide range of financing alternatives, and will help determine their eligibility for those programs that best suit their needs. By packaging business information, support, and advisory services as a part of the funds, WD's programs are better than most small-business loan programs now available.

Terms vary slightly between the banks; however, each loan fund emphasizes flexibility to ensure that small businesses have adequate cash flow during the early years. This may include the ability to capitalize interest for up to two years, to postpone principal payments for up to two-thirds of the loan term, and to schedule repayment over a period of up to seven years. Depending upon the loan, interest rates may vary up to 6% above the bank's prime lending rate. For most businesses, this is a less-expensive financing alternative than trying to attract equity investors and losing ownership or control.

CLASS.ab.ca Inc., developers of an innovative electronic criminal law search system on the Internet, like the new technology-related loan programs because of their flexibility: "Without WD's participation," says CLASS.ab.ca president Peter Pellatt, "we would have been forced to either attract additional equity at a significant cost, or to continue generating working capital with a marketing program that sacrifices future revenues."

In addition to the new loan programs, Western Canadian small businesses lacking staff with the technical skills needed to adopt or commercialize new technologies, or to develop an export potential, can also benefit from WD's First Jobs in Science and Technology Program, or its International Trade Personnel Program. Through the programs, WD will help fund a portion of the salaries of recent post-secondary graduates for up to three years.

For more information about these or other programs and services offered by Western Economic Diversification, call WD toll-free at 1-888-338-WEST (9378), or visit their Web site at <http://www.wd.gc.ca>. □

Coming Events

Canadian Institute of Steel Construction

"Low-Rise Office Building Design Aid" One Day Course

Winnipeg, September 18, 1998

For further information:

Phone: (416) 491-4552

fax: (416) 491-6461 or check out the

Website: <http://www.cisc-icca>

1998 Canadian Dam Association Annual Conference

System Stewardship for Dams and Reservoirs

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

For more information call Anne Rockwell

Phone: (902) 428-6178

Fax: (902) 428-6101

or enter WWW conference site via CDA "1998 conference" link at <http://www.cda.ca>