THE MANITOBA
Professional Engineer
October 1998
APEGM

Bill 54 – The Engineering and Geoscientific Professions and Consequential Amendments Act – is Proclaimed!

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

Our profession has undergone a legislative change in the past few months. We have, as a group, the privilege of being a self-governing entity. This was given us through legislation many years ago. As with all things, periodic updating is required to stay current with present-day realities. In Manitoba, Bill 54 of the 36th Legislature modernized our Act. This is in keeping with other provinces which have also passed updated legislation.

Perhaps the most significant feature of the new act is the inclusion of geoscientists in our association. This was achieved through lengthy and amicable discussions with the geoscientists. Probably the main reason for joining our professions was that our work tends to cross boundaries, so it resolves many jurisdictional issues to be under one act.

Other highlights of Bill 54:

- Updated definitions of the practice of engineering as endorsed by the Canadian Council of Professional Engineers.
- Establishment of rules of practice, codes of ethics, and disciplinary measures for Geoscientific work.
- Establishment of separate joint boards with the Manitoba Association of Architects and the Certified Technicians and Technologists of Manitoba to resolve jurisdictional issues between our association and theirs. With respect to the Architects, our profession feels that the new Act is more restrictive to our participation in the field of architecture.
- Issuance of certificates of authorization for group practice. Under this provision a specified individual will be responsible for the work of all persons in the firm.
- Amended disciplinary procedures to allow actions against former members. Before this change, a person under scrutiny could resign their membership and evade sanctions.
- Provision for the association to make professional development mandatory and to monitor the quality of engineering work.

Bill 54 will certainly have an impact on the working environment of our members, but it will also have an impact on our Association. All those extra members and new responsibilities will increase the workload of our staff and will probably require more staff to be hired.

Bill 54 became the law in Manitoba when it received Royal Assent on June 29, 1998. □

ASSOCIATION OF PROFESSIONAL ENGINEERS AND GEOSCIENTISTS OF THE PROVINCE OF MANITOBA

79th ANNUAL GENERAL MEETING

The Niakwa Country Club, 620 Niakwa Road, Winnipeg

PROGRAM

Friday, October 16, 1998

9:00 a.m.	Registration
10:00 a.m.	Presentation on The Engineering & Geoscientific Professions Act.
12:00 noon	Lunch – No charge *(submission of pre-registration form required)*
1:00 p.m.	Presentation on the Professional Development Program
2:30 p.m.	Coffee Break
3:00 p.m.	Presentation on the Professional Development Program continues with Questions and Discussion

Saturday, October 17, 1998

8:30 a.m.	Registration
9:30 a.m.	Official Opening – President Peter Washchyshyn, P.Eng. Business Meeting Discussion on the Mandatory Professional Program.
12:00 noon	Lunch & Speaker – No charge *(submission of pre-registration form required)*
1:30 p.m.	Continuation of Business Meeting
6:30 p.m.	Reception
7:30 p.m.	Presentation of APEGM Awards Dinner & Entertainment

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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 APEGM or the APEGM Council.

APEGM

In Memoriam

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

Lawrence P. Williams

New Act Means Fees Due Earlier

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

The Engineering and Geoscientific Professions Act, which received royal assent, and therefore came into effect, on June 29, 1998, states that:

> *"where a member...(or) engineer-in-training...omits to pay the prescribed annual dues within three months of the day upon which payment becomes due, the registrar shall cause the name of the member...(or) engineer-in-training...to be removed from the register but, at any time thereafter, upon complying with the bylaws relative thereto, the member...(or) engineer-in-training...is entitled to make application to be reinstated."*

This means that, commencing with your 1999 annual dues, the permissible delinquency period has been reduced from six months to three months. Because the By-laws have not yet been revised to correspond with the new Act, the late payment penalty remains effective commencing March 1, 1999. So, to avoid the late payment penalty, please make sure your annual dues are received in the APEGM office on or before February 28, 1999. **And to avoid being de-registered for non-payment of dues, and having to make application for the reinstatement of your membership, please ensure that your annual dues, complete with late payment penalty if applicable, are received in the APEGM office on or before March 31, 1999.** □

Corrections

In the August issue of *The Manitoba Professional Engineer* the list of members de-registered read "May & June, 1998". The date of de-registration should have read June 30, 1998.

On July 23, 1998, APEGM was informed that J. McIntyre passed away in July, 1997. We have removed Mr. McIntyre from the list of those members who were de-registered, as shown in the August issue. □

LICENCES ISSUED JULY & AUGUST 1998

D.C. Billing (ON)
S.H. Gebler (IL)
J.W. Martin (ND)
G.P. Mittenburg (ON)
J.J. Sweeney (IL)
C.W. Walker (WI)

EITs ENROLLED JULY & AUGUST 1998

F.R. Ara
S.C. Banks
B.A. Beyak
S.A. Bezak
L.E. Bonnett
R.J. Bray
K.J. Chisholm
J.L. Corkery
G.J.A. Delaurier
M.H. Ginter
R.P. Jayasinghe
W.L. Kaspick
I.S. Klassen
R.A. LaFleche
R.J. Lavitt
A.D. McLeod
L.P. McLeod
L.A. Moffat
P. Narayanaswamy
J.E. Nordstrom
P.J. Oliver
E.B. Panchuk
J.R. Pehkonen
J.P. Penner
C.V.A. Ramsay
B.J. Ransom
C.J. Reimer
D.B. Rempel
T.R. Schick
S.R. Seguin
C. Valeo
L.P. Warywoda
I. Wasilewski
J.E. Yestrau
S.H. Assaad
D.V. Bonin
T.J. Bryant
K.L. Burbank
P.B. Collins
P.E. Davies
M.F.R. DeProphetis
R.A. Fidler
C.J. Gentile
R.L.J. Girouard
D.B. Gosse
L.T.H. Grieger
A.M. Juck
C.J. Kroeker
C.L. Lichkowski
M. Lioubachevski
M.M. Majcher
K.P. Merriam
M.A. Michaluk
T.F. Pavlicic
J.M. Pawluk
B.K. Perkins
A.M. Reeves
R.W. Reidy
K.A.S. Saxton
D.J. Schmidt
T.W. Shanks
C.I. Shesaf
C.M. Tellier
S. Walberg

REINSTATEMENTS JULY & AUGUST 1998

G.A. Barnett
B.M. Bodnaruk
C.E. Hayward
R.W. Smith

NEW MEMBERS REGISTERED JULY & AUGUST 1998

A.A. Altaee (ON)
M.E. Baril
C.A. Bell
S. Bergeron (QC)
B.A. Brandt (ON)
T.D. Brauen (AB)
J.D. Brocklebank (AB)
K.S. Burron
A.B.K. Chik
J.A. Cooke
C.D. Craig (AB)
D.T. Curilla (AB)
R.S. Cuthbertson-Black
P. Dallaire (QC)
K.W. Foster (AB)
W.J.L. Friesen
G.P. Hawley (AB)
E.G. Hohenberg
C.J. Kingsland
O.A. Laine
C.K.S. Lin
E.A.M. Loucks
K.A. MacDonald (MN)
T.I. Mathison (BC)
E.F. Nichols (AB)
W.N. Olsen (AB)
R.N. Palko
M.M. Peros (ON)
B.M. Peterson
C. Steneker (AB)
G.R. Tumak
I. Umadat
D.J. Wazney
W.J. Whalen (AB)
C.S. Wilson
B. Yee
C.K. Yee (AB)

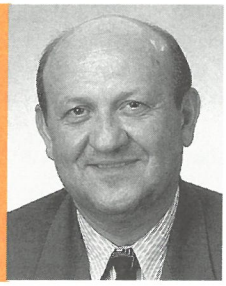
WE HAVE LOST CONTACT. MAY WE HAVE AN ADDRESS?



S.D. Gasser
E.D. Lindquist
M.R. Strizic

President's Message

P. Washchyshyn, P.Eng.



A Year in Review – Challenges for the Future

As I commenced the year as your President, I discussed some of my goals for the year with a past President of the APEGM. During that discussion, my more ambitious goals were somewhat tempered by the suggestion that if, in one year of office, closure could be brought to items started by others, the year would be successful. In that spirit, I wish to outline the various accomplishments of 1997/98 that were indeed commenced by previous Councils and Presidents.

Bill 54 – The Engineering and Geoscientific Professions Act – was proclaimed in June, 1998. The decision to propose a new Act had been taken in 1994.

After years of discussion, the previous Council approved the new organizational structure for the Association which became effective early in 1998. The new organization will be monitored and refined over time in order to best fulfill the mandate of the Association and service to the public and its members.

Following our Memorandum of Agreement with MAA, the terms of reference for the Joint Board were approved. In fact, the Joint Board has been working effectively during this past year. Its role was crucial in support of the new Act, and it is now authorized by the Act.

The Provincial Court ruled on the MAA's charge against an engineer for practising as an architect in May, 1998. The court ruled in favour of the engineer. The MAA has appealed the case to a higher court and APEGM will seek intervention once again.

With respect to Mandatory Professional Development, the pilot project has been completed. Council will deal with proposed By-law changes at a special meeting in August. The proposed By-laws will be presented at a special meeting on September 10, 1998 and at the October 17, 1998 AGM. Subject to approval by those present at the AGM, the By-laws will go to the membership for ratification. In conjunction with the MPDP, the task force on continuing competence has completed its report, also to be presented on September 10 and again at the AGM.

The Joint Board with CTTAM has been established and is working effectively.

The APEGM is strongly in support of the Engineering Faculty at the University of Manitoba and to that end made a number of presentations to the University's President's Task Force. Our support has been extended to meetings with the VP Academic to establish a continuing dialogue in support of the faculty.

The Kelsey Chapter in Flin Flon/The Pas was inaugurated early in 1998 in conjunction with APEGS. Follow-on meetings will take place in September, 1998 in Cranberry Portage. To extend the goodwill of the APEGM "beyond the perimeter highway," I met with the Kelsey and Thompson Chapters. The dialogue should continue with annual visits.

Memoranda of Understanding were also executed with the Manitoba Association of Landscape Architects (MALA) and the Association of Manitoba Land Surveyors (AMLS). Both associations were instrumental in support of the new Act.

The wheels of change for an association like ours sometimes move slowly, but with the commitment and perseverance of Council, Committees, and members, the wheels do move forward.

Challenges in the future will be many.

- We now have geoscientists as members of our Association. Although the introduction of these additional memberships may stress staff resources somewhat, it is incumbent on the professional-engineer members to welcome the geoscientists into the fold of the APEGM.
- Mandatory Professional Development should not be seen as a problem or a nuisance but as an opportunity to participate in a guided program of lifelong learning to enhance the professional's competence and effectiveness.
- Most of our members start their journeys in their professional careers by graduating from accredited programs. The Association must assist in whatever way possible to support the Faculty of Engineering at the U of M in its quest to maintain the highest level of accreditation possible.
- The court intervention of the MAA appeal will once again strain our resources to some degree. Council will need to maintain a firm position on the principle of upholding the mandate of the APEGM in this regard.

In closing, I wish to reflect on one of my favourite topics: the role of effective communications. This view is shared by many across the country, as expressed at the CCPE Annual Meeting and the annual meetings of other associations. To this end, CCPE has commenced a communications plan. APEGM should strongly support that plan and build on it, tailoring it to suit the needs of our membership. Effective communications are essential to make the public aware of our mandate to serve and to make the Association relevant to its members.

I wish to express my gratitude to the Council, Committees, and staff for their support over the past year and I wish Professor Britton, President-elect, and his Council the best in 98/99. I will continue my support as Past-President. Thank you for the opportunity to serve you. □

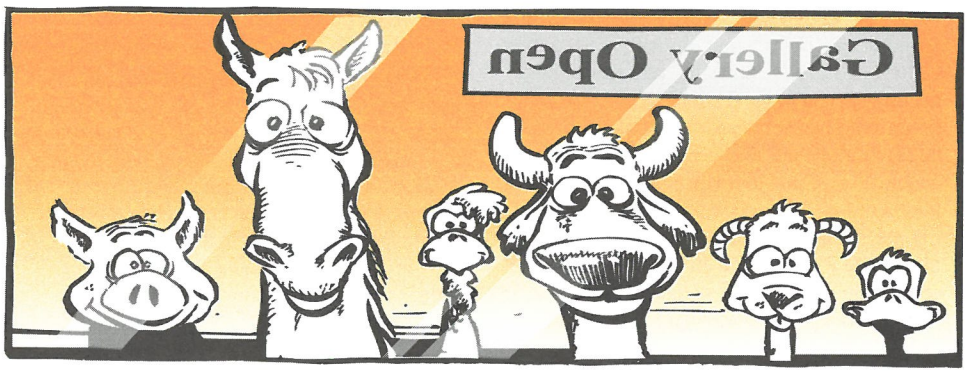
WonderWorks – The Infrastructure Gallery

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

On, May 1, 1998, the WonderWorks Gallery was opened at the Manitoba Children's Museum. The idea for this project was initiated with the Museum in 1995, by Chris Lorenc of the Infrastructure Council of Manitoba and the Manitoba Heavy Construction Association, and Barry Mulder of Mulder Construction. The two and a half years since its conception saw the idea evolve into a gallery incorporating interactive displays to teach children and their parents about a community's infrastructure; waste and water distribution systems, transportation facilities and infrastructure, new and emerging technologies, and heavy construction equipment.

The new WonderWorks Gallery is a North American first. Through the dedication of countless volunteers, including a large number of engineering and construction/manufacturing companies, the gallery was completed with donations of cash, gifts and design/fabrication services in excess of $530,000.

As a volunteer on the project, as well as a father, I can assure you the exhibit offers not only an opportunity to spend some time with your child(ren) doing fun activities (including operating a working, scale version of a back-hoe), but an opportunity to open your child(ren)'s eyes to what we as engineers do to promote the progress and safety of our communities. The next time your child(ren) ask you what you do all day at the office/plant/site, take them to the WonderWorks Gallery and show them the kind of things you are responsible for designing/building/managing. □



Another Exciting SAE Student Competition

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

Aspiring young engineers at the University of Manitoba have an excellent way to put those paper ideas into reality through the University of Manitoba Society of Automotive Engineers (UMSAE) student chapter. For those who labour in the aerospace or automotive-design fields the Society of Automotive Engineers (SAE) is a well-known technical organization which stages several high-profile shows each year, as well as being a standards and technical-exchange organization. The many student chapters at universities around the world are branches of the parent organization. The University of Manitoba chapter has around 100 members, one of the largest student chapters in the world. One of the benefits of membership in SAE is to participate in several large design competitions open to the student chapters. The University of Manitoba chapter again took part in the 1998 competitions.

One of the most valuable aspects of the completion is that they provide the participants with a real world experience in engineering. Therefore, a good design is not enough, the students must fundraise, recruit sponsors, develop presentations, design, and build their creations. In short, it is a complete business exercise with proper documentation and bookkeeping throughout. This year the group had ambitions as high as the sky with three simultaneous design groups undertaking projects.

Formula SAE

Here students design, fabricate, and compete with small formula-style race cars. Restrictions are placed on the car frame and engine so the students' knowledge, creativity, and imagination are tested. Four cycle engines up to 610cc can be turbocharged or supercharged to add a new dimension to the challenge of engine design. The vehicles are judged in three different categories: static inspection and engineering design, solo performance trails, and high-performance track endurance.

On May 7, the students displayed their handiwork to their sponsors and the public at an informal gathering at the University of Manitoba. This year the group was well ahead of last year's effort, thanks to the experience gained from the 1997 exercise.

Their car went to Detroit's Pontiac Superdome to compete against more than 90 colleges and universities in the United States, Canada, Mexico, Puerto Rico, and Great Britain to determine the best vehicle.

Although the Formula SAE team did not get the top prize, they placed 58th in the competition. Their best showing was in the endurance/economy category where they came in 37th.

Canada's University of Waterloo made a great showing, coming in at 7th place overall.

Air Cargo

Here students design remote controlled cargo planes. Again, veteran members from last year's team returned to add to the pool of knowledge. This group used new methods of analysis to improve the performance of the aircraft. The airfoils were windtunnel tested to assess their characteristics.

The competition was held in June, in Long Beach, California. The UMSAE Air Cargo group, Prairie Fire II, came 8th overall, a truly amazing achievement. Canada was well represented with the University of British Columbia finishing fourth and the Ecole Polytechnique de Montreal finishing fifth. Canada placed three teams in the top ten.

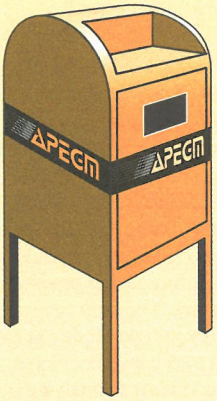
The second Manitoba entry, Spruce Moose, added to Manitoba's glory by finishing in thirteenth spot.

Mini-Baja

The University of Manitoba hadn't entered this competition in over a decade, so they started without the pool of accumulated knowledge available to the other participants. These small,

Continued on page 2

Letters to the Editor



Re: "Engineering and the Future" and "A Profession Not in Demand", *(The Manitoba Professional Engineer, August, 1998)*

Both articles accept the premise that all graduates from the faculty of engineering should become professional engineers. I submit there is much evidence that training in the art of engineering would be very useful to persons in a variety of professions – politics and journalism to mention a few – and that the entry of graduates of engineering into other professions would be a good thing. Who has not wished that politicians might be able to follow a line of reasoning to a logical conclusion, or that journalists might have at least a rudimentary understanding of numbers. Let me cite a few recent examples. The Winnipeg Free Press carried an article about a giant cruise ship giving "vital statistics" such as "Gross tonnage (displacement, not weight) 109,000". An earlier article on the new Hong Kong airport detailed how many years and billions of dollars were required to build the airport and noted that a mountain was leveled to provide rock fill to turn two islands into a peninsula. The volume of rock placed was, so we were informed, "one tonne". Would a lesson on Archimede's principle or on units of measurement be wasted on a journalist? Time magazine issued a correction to an earlier article on hot internet companies noting that the graphic giving the wealth of the founders of Excite should have been in millions of dollars instead of billions as shown. Gigabytes and nanograms may be confusing, but dollars?

F. Penner, P.Eng.

E-mail to the Editor

T Pietrafesa's article raises a number of issues. I disagree with most of the author's opinions.

First, it is correctly suggested that new graduates had difficulty finding good employment opportunities in the past decade. I disagree with the subsequent claim that "today, with a much weaker economy, it is much more difficult." All evidence, both statistical and anecdotal (in the public media), suggests that the Manitoba economy is as near to booming as we have ever seen. I am in regular contact with numerous consultants, contractors, and suppliers, all of whom report being busy, and most of whom have been hiring additional staff. The consulting office in which I work now has five graduate engineers (i.e. EITs), and this represents the greatest number of these on staff in my 17-year consulting experience.

Second, I suggest that the author was erroneous in suggesting that "many engineering firms do not hire EITs (preferring to hire) technicians (at lower wages)" and in claiming that "no company will want to deal with the greater training cost (associated with a four-year EIT program)." I believe that engineers and technologists are not interchangeable, and that most successful firms recognize the need to strike an appropriate balance between the two groups. For instance, our firm's Winnipeg office has nine P.Engs, five engineering graduates, and 14 technologists. Employees are hired for their ability to do a certain job (or several), and for their ability to fit into the team. Insofar as training costs are concerned, employers do not pay APEM to have EITs on staff, although some companies do reimburse APEM dues, so the switch from a two-year to a four-year EIT program has little impact. The only type of employer impacted by the switch will be one which has few P.Engs on staff, and which may rely on a graduate getting a "stamp" as quickly as possible. That does not necessarily enhance protection of the public. I believe that a four-year EIT program does a better job in helping

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Operating Highly Complex and Hazardous Technological Systems Without Mistakes:

The Wrong Lessons from ValuJet 592

By: B. Stimpson, P.Eng.



Fishermen ducked for cover as the twin-engine DC-9 banked vertically to the right and went straight down into Everglades Holiday Park, Florida, on a warm, May afternoon in 1996. The first fisherman called the emergency dispatcher on his cellular phone within a minute. Part of his cryptic message – "It will not be in one piece" – was tragically true, and two pilots, three flight attendants, and 105 passengers lay dead in a watery grave. Investigators soon determined the physical cause – a fatal cargo of old oxygen canisters and three tires stowed in Flight 592's forward hold. Ignition of the canisters precipitated an inferno that quickly overwhelmed vital control systems; the pilot had no means to divert the craft from its deadly vertical dive.

What happened is clear, but why did it happen? In the May, 1998 issue of *The Atlantic Monthly*, William Langewiesche makes the case that the disaster was a "system accident," a kind of incident that cannot be prevented by conventional solutions, and that more lie in wait, and not only in the airline business. Is the goal of a zero-accident future a tantalizing but unattainable goal? In studying the events and decisions that led to the crash of Flight 592, Langewiesche argues that other serious failures of systems that require complex organizations for their control and operation – in power generation, chemical manufacturing, nuclear-weapons control, and space flight, for example – are "virtually guaranteed to occur".

The two most common forms of accidents are the procedural and the engineered. Obvious mistakes, such as forgetting to put on a face mask while using resins or chemical sprays, occur daily. These are procedural accidents. "Engineered" accidents are those unexpected failures that usually lead to improved designs and/or materials following detailed examination by experts. "God-like" designers, or more prolonged testing at the prototype stage, would have uncovered them earlier. From such accidents – sometimes tragic – progress is made and the technology is made safer for those who follow.

The ValuJet accident was, according to Langewiesche, different in that it falls into the elusive category of a "system accident". Perrow, the Yale sociologist, prefers a different term – a "normal accident" – because he considers that at our current stage of technological development in which we are using complex organizations to manage and operate dangerous technologies, accidents of this kind are "normal", i.e. they should be expected. Risk is accepted in these ventures but is usually obscured. It is not that trade-offs are deliberately made between profit/convenience and safety, but in a complex system bad choices or mistakes will inevitably occur. Most of the time these do not result in tragedy because "Murphy's Law is wrong" – what can go wrong usually goes right. But, just once in a while, a chain of bad choices, oversights, and mistakes leads to catastrophe, as in Flight 592. Three tires and five cardboard boxes of old oxygen generators – an inferno-in-waiting – somehow found their way on board.

Step 1 in the fateful train of events took place with the removal of the small oxygen-generators (steel canisters) from three twin-jet MD-80's, which ValuJet had bought and was having refurbished in a hangar at Miami Airport by an outside firm called SabreTech. Airline travellers are familiar with instructions on how to use an oxygen mask in the event of a loss of cabin pressure. In the MD-80 canisters, oxygen generation was by means of an exothermic chemical reaction initiated by a displacement of a firing pin and detonation of a minute explosive charge when the passenger pulled on the lanyard attachment on the face mask. Most of the generators on the MD-80's had come to the end of their licensed lifetime, i.e. had "expired".

ValuJet had provided SabreTech with explicit instructions on how to remove the generators and with general warnings about the fire risk: *If generator has not been expended, install shipping cap on firing pins.* Seventy-two SabreTech workers, many of them temporary, logged 910 hours replacing canisters. Working to a tight deadline and occupying, as Langewiesche puts it, "a world of boss men and sudden firings, with few protections or guarantees for the future", they removed the generators, taped or cut off the lanyards, and stored them without plastic safety caps in five cardboard boxes that were conveniently lying around in the hangar. Two mechanics signed off the work, including the line indicating that safety caps had been attached. Under time pressure, the distinction between expired and expended canisters, which was clear to those who wrote the technical manuals, was not clear to the hard-pressed mechanics. In reality, many of the canisters being removed were expired but were not expended, i.e. they could still be fired.

Mechanics also attached green tags to most of the removed oxygen generators to indicate that they were "repairable", which, in fact, they were not. Clearly, supervisors and inspectors failed to provide clear, detailed instructions. The simple instructions of the work cards appeared in stark contrast to the huge MD-80 manual in which instructions for the storage, disposal, and destruction of oxygen generators was described. Most of the canisters should have been destroyed and have never made their way on to an aircraft. However, if plastic caps had been provided and their placement properly verified, Flight 592 would never have burned. Some mechanics later claimed to have made known their concerns about the lack of safety caps. If that was indeed the case, their concerns were not acted upon. Other mechanics had, out of curiosity, fired off some of the canisters, but the possibility of the devices being shipped does not seem to have occurred to any SabreTech mechanics.

Step 2. The unmarked cardboard boxes, stored for weeks on a parts rack, were taken over to SabreTech's shipping-and-receiving department and left on the floor in an area assigned to ValuJet property.

Step 3. Continental Airlines, a potential SabreTech customer, was planning an inspection of the facility, so a SabreTech shipping clerk was instructed to clean up the work place. He decided to send the oxygen generators to ValuJet's headquarters in Atlanta and labelled the boxes "aircraft parts". He had shipped ValuJet material to Atlanta before without formal approval. Furthermore, he misunderstood the green tags to indicate "unserviceable" or "out of service" and jumped to the conclusion that the generators were empty.

Step 4. The shipping clerk made up a load for the forward cargo hold of the five boxes plus two large main tires and a smaller nose tire. He instructed a co-worker to prepare a shipping ticket stating "oxygen canisters – empty". The co-worker wrote, "Oxy Canisters" followed by "Empty" in quotation marks. The tires were also listed.

Step 5. A day or two later, the boxes were delivered to the ValuJet ramp-agent for acceptance on Flight 592. The shipping ticket listing tires and oxygen canisters should have caught his attention but didn't. The canisters were then loaded against federal regulations, as ValuJet was not registered to transport hazardous materials. It is possible that, in the ramp-agent's mind, the possibility of SabreTech workers sending him hazardous cargo was inconceivable.

Step 6. The ramp-agent discussed the load with the co-pilot, who should have known better than to accept the material. The last line of defence was breached; the five boxes were taken into the forward cargo hold and stacked around the outer edge of one of the large main tires which was lying flat. The other main tire was leaned against the bulkhead.

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Council Report

Tuesday, July 14, 1998

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

AT WHICH COUNCIL PLANS FOR OPERATION UNDER THE NEW ACT, PROPOSES A BUDGET AND NEW SCHEDULE OF FEES AND DUES, AND CONSIDERS THE SUPPLY OF ENGINEERING GRADUATES IN MANITOBA

The song goes, "Summer time and the living is easy." Council just made quorum on a warm July 14, and finished its business in about 4.5 hours, but the agenda wasn't "easy."

Since Council last met, the Engineering and Geoscientific Professions Act came into force (June 29th to be precise). Our Executive Director and Registrar, Dave Ennis, drew attention to the significance of the Memoranda of Agreement or Understanding with the Associations representing Manitoba Architects, Land Surveyors, Landscape Architects, and Technologists in reaching a successful conclusion. These agreements carried a great deal of weight in the passage of the Act through the various legislative stages.

Council didn't spend much time glowing over this historic accomplishment because, with the passage of the Act, there is an immediate need to draft new By-Laws, to establish procedures for the registration of geoscientists, and to develop a new global and graphic identity (APEGM ?), to name just a few issues. All these matters and strategies for achieving them were discussed by Council. For example, two geoscientists are to be appointed to Council by a special Committee. In the longer term, strategies have to be developed to ensure that a minimum of two geoscientists will be elected to Council. Policies regarding grandfathering, academic credentials, and experience requirements have to be quickly finalized and approved.

Council agreed to ask the Legislation Committee to work on new By-Laws for presentation to a Special Meeting of the APEGM membership in August prior to the AGM in October. It was also agreed that it would be timely to review all the current By-Laws with a view to another Special Meeting of members in February 1999. Council also passed a motion transforming the three sub-committees of the Sub-Committee for the Professional Registration of Geoscientists (SPRGM) into official Task Forces of APEGM. SPRGM is an ad hoc group of geoscientists under the leadership of Rick Lemoine, P.Geol. (AB), which has been working on grandfathering, academic credentials, and experience requirements.

Attention of Council turned next to the proposed Budget and Schedule of Fees and Dues for the year ending July 31, 1999. Dave Ennis reviewed the detailed 21-page document, noting the proposed Professional Development and Competency Program is difficult to cost, and the request for a 2.75% increase (from $203.74 to $209.35) in member dues plus GST. EITs will get a break, as no change is proposed ($74.77) plus GST. Following discussion, Council approved the proposed Budget and Schedule of Fees and Dues.

Council reviewed a report of the Continuing Competency Committee presented in the form of flow charts describing the flow of procedures for the proposed Continuing Competence Program. Council posed a number of questions and suggestions and asked the Committee to prepare a final document in preparation for the AGM in October.

A revised CCPE Inter-Association Mobility Agreement was approved, the laudable goal of which is to improve inter-association mobility of both relocating and non-resident licensed engineers in Canada.

The final item – a proposal to undertake a questionnaire and telephone survey of the last five years of engineering graduates from the University of Manitoba – engendered at least 45 minutes' discussion. The stimulus for the survey is the Faculty of Engineering's proposal to restrict enrolment as one measure to operate within drastically reduced budgets and yet conform with some of the requirements of the Canadian Engineering Accreditation Board, which will be reviewing all programs in 1999. In a subsequent meeting with APEGM's President, Peter Washchyshyn, Vice-President (Academic) Jim Gardner, had posed the question of what is an adequate supply of engineering graduates for Manitoba. The intention of the proposed survey is to assist in answering that question. Industry-based Council members noted the difficulty for most companies in predicting their requirements even for next year. Councillor Alan Ball led the view that the proposed survey, being a record of history, will not answer the question of future requirements. Others questioned the parochialism of focussing only on Manitoba's needs, arguing that the tax-payer's expectation is that the University will provide a quality education to prepare their children for engineering careers regardless of whether or not they will reside in Manitoba. This interesting and important debate concluded with an agreement to establish a small Task Force to look into the need for and type of survey. □

Attention, Retired Members!

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

Did you know that you are not obliged to maintain your membership with APEGM to maintain your CCPE life insurance coverage if you have reached the age of 75?

Yes, it's true!

Almost every year, one of our retired members omits to pay his (there are no retired "hers", yet!) dues, and finds himself in the impossible situation of having to reinstate his membership to retain his life insurance coverage, yet being unable to satisfy Council's reinstatement requirements (which require current engineering work experience). This has been a source of concern for quite some time.

We have learned, recently, from Manulife Financial, that, in accordance with its Continuation Benefit, the insurance "is guaranteed for the life of any insured Member age 75 and over even if the policy terminates or the Insured Member ceases to be a member as defined in the policy."

(This doesn't do much for those of us who are under 75, however, and a Task Force of Council continues to study this issue.)

Meanwhile, if you would like more information, please call Manulife Financial at 416-229-3062.

Professional Engineers Must Remember That...

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

- the primary objective of this Association is the protection of the **public – not** its members;
- your first responsibility is to the public – **not** your employer;
- no one (other than a power engineer) may assume a title containing the word "engineer" (e.g. "systems engineer," "field engineer," etc.) unless registered with this Association;
- you must seal all specifications, reports, etc. for which you are responsible;
- you must report to this Association a colleague who may be practising unethically;
- you must strive to keep abreast of new technology in your field; and
- you must take into consideration the potential impact of your work on the environment.

If you were unaware of, or had forgotten, any of these points, perhaps it is time to take another look at the Engineering and Geoscientific Professions Act and the Professional Engineers' Code of Ethics – both of which are updated, and should be reviewed periodically.

Both of these documents can be found on the APEGM web-site at **www.apem.mb.ca.** □

The Wrong Lessons From ValuJet 592

Continued from Page 5

Step 7. Flight 592 took off. Six minutes later there were signs of instrument failure and one minute later the last message was recorded on the flight recorder – "Completely on fire". The precise sequence of events in the cargo hold will never be known.

The investigation into the accident noted the procedural and "engineered" problems and responded with obvious recommendations, including the installation of fire detectors and extinguishers in all cargo holds. But were elements of this crash also in that disturbing category of a "normal" accident, as described by Charles Perrow in his book *Normal Accidents: Living With High-Risk Technologies?* These occur, he says, in unforeseeable ways in complex organizations that are characterized by "interactive complexity" in which components or elements – material, organizational, or psychological – are connected in multiple and often unpredictable ways, and by "tight coupling" in which the speed and inflexibility of the operating system (e.g. Flight 592 when airborne) frustrate or prevent the human operator from recovering the system when a series of events cascade in an accelerating fashion. Under conditions of "interactive complexity", Langewiesche writes, "If the system is large, the possible combinations of failures are practically infinite. Such unravellings seem to have an intelligence of their own: they expose hidden connections, neutralize redundancies, bypass "fire-walls", and exploit chance circumstances that no engineer could have planned for."

Langewiesche concludes his *Atlantic Monthly* article with the ominous statement, "Conventional accidents – those I call procedural or engineered – will submit to our solutions, but as airline travel continues to expand, we can expect capricious system accidents to blossom. Understanding why might keep us from making the system even more complex, and therefore, perhaps more dangerous, too."

Is the operation of highly complex systems without "system" accidents an impossibility? Todd La Prote, Karlene Roberts, and Gene Rochlin at the University of California, Berkeley *(Beyond Engineering: A New Way of Thinking About Technology,* Oxford University Press, 1997; an excerpt from the book appeared in *Technology Review, July 1997)* think not. They examined a number of systems involving great technological complexity and many hazards, including aircraft carriers and air traffic control towers, that operate essentially without mistakes. An aircraft carrier must land and launch weapons-loaded planes of various types on a short "see-sawing" runway. At the same time as one plane is being accelerated to 140 knots (160 miles per hour) every 50 seconds by steam catapult, another craft is just touching down at full throttle and is decelerated to a standstill in about two seconds by four arresting wires. On a Nimitz-class carrier, this is just part of a huge operation involving 5000 men and women who are predominantly teenagers. Mistakes are rare. Little wonder LaPorte and his colleagues wanted to study this organizational and technological feat first-hand to look for answers that might be applied elsewhere.

At first glance, the organizational structure on an aircraft carrier appears hierarchical and the thick operating manuals and training activities look no different from those found in a complex manufacturing plant. However, when the aircraft carrier goes into "active" mode and 'planes are landing and being launched, there is a vital change. Co-operation and communication largely override hierarchical position. There is no time for instructions to move up and down a chain of command. Team play, constant communication (telephone, radio, hand signals, writing), watching colleagues' actions, and the oversight of more-experienced personnel who monitor activities, mean that mistakes are rare and can often be corrected before harm is done. Safety is everyone's responsibility. Crew members are encouraged to think for themselves and to act without authorization from anyone else if they perceive any threat to safe operation. This can even include the lowest rating suspending flight operations and, even if wrong, he/she will not be penalized. The steady turnover of officers and crew also means that the aircraft carrier is a "floating school", with little chance for operations to become routine.

The Diablo Canyon Nuclear Power Station, California, also has all the initial signs of a rigid hierarchy and an almost literal tower of regulations and procedures. However, Paul Schulman, a collaborator with LaPorte, Roberts, and Rochlin, discerned another side of the operation. While there are well-established rules which guard against errors of omission, there is also a process for avoiding errors of commission, i.e. actions that can have unexpected consequences. Continuous learning and improvement, and constant questioning of accepted practice and thinking about what you are doing, are cultivated. Employees who become too confident or stubborn are seen as undesirable.

Communication flow and co-operation, rather than bureaucratic channels, permit the employees to organize themselves into different patterns to meet the needs of the moment: hierarchical, yet also collegial when required; rule-bound but also learning-centred; centralized but decentralized when appropriate. By contrast, poor communications and deference to hierarchy in a strict chain of command cultivate, over time, an environment of false security. According to LaPorte et al, the Challenger accident, the 1982 crash of a Boeing 737 into the Potomac River, Washington, the collision of two 747s in the Canary Islands in 1977, and the deaths of thousands from a cloud of methyl isocynate in Bhopal, India, all contained such elements. Why, then, view Flight 592, as Langewiesche does in his *Atlantic Monthly* article, as a capricious accident that occurred through a chain of unpredictable events? It would appear that a different work environment, one in which communication, co-operation, responsibility, team work, and learning were valued and cultivated, would have prevented the deaths of 110 souls.

Greater organizational reliability, some would argue, comes with an economic cost. But, if we can reduce technological costs while increasing the reliability of technology as we have done, why should it not be possible to have smarter organizations with reduced cost? Above all, for the engineer, failure is not a design option. □

Attention EITs "Grandfathered" Under Pre-1995 "Two-Year" Rule

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

The "grandfathering" provision, allowing those who enrolled as EITs prior to 1995 to be registered with two, rather than the current four, years' acceptable engineering work experience, terminates December 31, 1998.

To be eligible for the "two-year" rule, you must have obtained 24 months' acceptable engineering work experience and completed all of the Pre-Registration Program by December 31, 1998. The requirements of the Pre-Registration program include obtaining at least ten professional development hours and two professional service points, taking the professional practice seminar and passing the professional practice examination. Your final EIT Progress Report Form must be received by APEGM no later than February 28, 1999.

These dates are firm. Absolutely no exceptions will be made.

If you are unable to comply in any respect with these requirements, or if the Association's Experience Review Committee does not consider 24 months of your experience to December 31, 1998, to have been acceptable, you will be required to comply with the current four-year admissions criteria. This means that you will be required to obtain ten professional development hours and one to four (average two) professional service points for every 12 months of acceptable engineering work experience. This requirement will be effective January 1, 1999 and be applicable to every 12 months, and portion thereof, of your remaining requirements. (For example, if you have 21 months' approved experience as of December 31, 1998, you will require an additional 27 months' acceptable experience. With this, you must obtain 10 professional development hours and one to four (average two) professional service points during each of the first 12 months, the second 12 months, and the remaining three months, for a total of at least 30 professional development hours and six professional service points.) □

Professional Development

Alternative Fuels – A Local Connection

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

When you look under your hood sometime in the early 21st century, what will you see? Batteries, a piston engine, a fuel cell? New Flyer Industries thinks it may be a fuel cell. New Flyer has partnered with a world famous Canadian company, Ballard Power Systems, to test the future with fuel cells.

William Grove constructed the first fuel cell in 1839, but the first fuel cell vehicle was not built until 1959. While fuel cells were used and proven in non-automotive applications for the past forty years, mainly in space, the use of fuel cells in transportation has only recently received increased attention. Fuel cell technology in vehicles, with its inherent high efficiency, high power density, and zero-emission potential, has advanced significantly over the past decade and is now a serious contender for use in zero-emission vehicles. Although there are at least six different fuel cell technologies, the most promising for automotive applications is the hydrogen-oxygen fuel cell. The operating principle of a hydrogen-oxygen fuel cell, the original and simplest fuel cell, is as follows: Hydrogen gas is fed to an electrode coated with platinum which creates, through dissociation and ionization, hydrogen ions (or protons). The "hydrogen electrode" is in an "electrolyte" – water or other liquid. As protons leave the hydrogen electrode and enter the electrolyte, electrons are left behind which give the hydrogen electrode a negative charge and polarity. At the other electrode, oxygen is dissociated and ionized by accepting electrons from the electrode and reacting with water. Negatively charged hydroxyl ions enter the electrolyte, leaving the oxygen electrode positively charged. In the electrolyte, protons and hydroxyl ions combine to form water. When an external electric load is connected between the negative hydrogen electrode and the positive oxygen electrode, an electric current will flow as long as the flows of hydrogen and oxygen continue.

The use of pure hydrogen and oxygen directly poses problems of storage, cost, and safety, so practical hydrogen-oxygen fuel cells use other fuels, usually methanol, although gasoline, ethanol, or diesel fuel are possibilities. Since these fuels are not directly useable in a fuel cell, a component called a fuel processor is required to convert them. Naturally, this creates more complexity, cost, and a lowering of efficiency.

New Flyer built a demo bus body for Ballard about four years ago. It was a specially manufactured one, weighing about 30,000 lbs. This was above the normal weight for a New Flyer transit bus. Power output of the fuel cell was about 250 – 275 HP, average for that type of vehicle. This bus was a frequent visitor to bus shows all across North America. Fuel cell buses are far from being just a demonstration; Chicago transit has three New Flyer/Ballard buses in revenue service and Vancouver plans to follow suit.

For the future, Ballard plans to use a standard New Flyer bus body for the next prototype. This demonstrates just how far they have come in reducing the size of the fuel cell installation.

Other alternate fuels activities

Although fuel cells may be the wave of the future, New Flyer is presently in the alternate fuels market with CNG (compressed natural gas), and LNG (liquid natural gas.) CNG buses are New Flyer's largest alternate fuel seller, accounting for 20% of sales. Atlanta, San Diego, Los Angles, and the state of Texas are the best customers for CNG buses.

CNG systems store gaseous fuel in spiral wound, plastic lined, carbon fibre tanks. Operating at high pressure poses design challenges because of potential failures in tanks and fitting. The advantage of CNG systems is that fuelling facilities are simpler and cheaper to build.

Natural gas can be liquefied for use as a fuel, but since it is liquid only at very low temperatures, an LNG fuelling system is much more costly and complicated, and the fuel tanks must be heavily insulated. The bus is filled at the start of the day, and if it is not driven, the gas will slowly boil away as ambient heat works its way through the insulation. However, LNG buses have greater range and smaller fuel tanks than CNG.

Once an unprofitable, government-owned relic known as Flyer Industries, New Flyer transformed itself in the 80's into a thriving business, and today has over 1300 employees and an order book filled into the year 2001. They recently expanded their manufacturing space by 50% and are planning an expansion in Crookston, North Dakota. □

Fuel Cells

By E.A. Speers, P. Eng.

On Thursday, June 18, 1998, at the Charter House Hotel, Ed Wojczynski, P. Eng., Manager of Manitoba Hydro's Power Resource Planning, gave a well-illustrated review of National and International Developments of Fuel Cells.

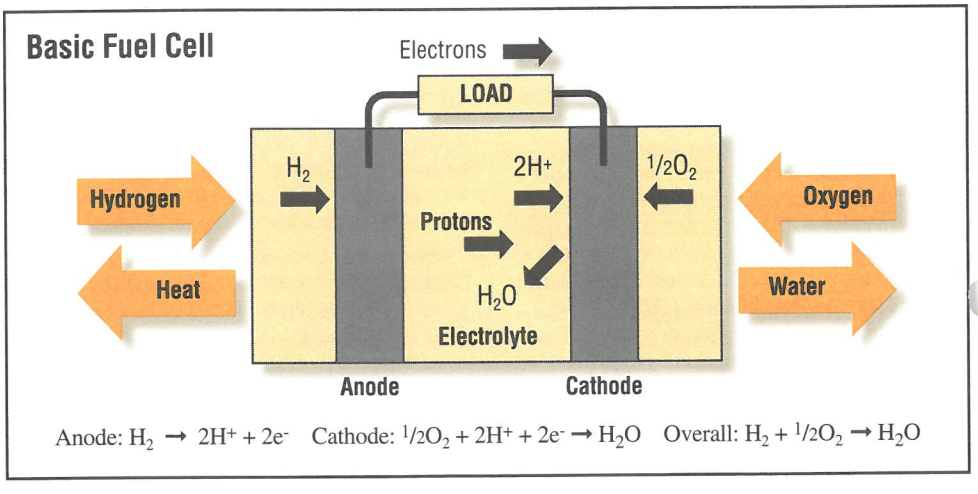
Descriptions of the basic fuel cell and of the Fuel Cell Power Plant were presented, along with details on the several varieties of the technology: the Phosphoric Acid Fuel Cell, the Proton Exchange Membrane (PEMFC), the Molten Carbonate, the Solid Oxide, Direct Methanol, and the Alkaline Fuel Cell. The efficiencies run from 40-45% to 60-70% for the first four running on natural gas, to 50% for methanol, and over 60% for hydrogen fuel cells.

Emphasis was placed on the Ballard PEM where the aim is to secure a small efficient fuel cell suitable for vehicles and possibly household use. This is where the greatest market potential lies. When Ballard first approached car manufactures in 1989 his PEM stacks (FC) generated 3kW power density. The improvements have come from improvements in the plates allowing the gases and effluent water to flow through quickly, thus increasing passage over the reaction catalyst to increase the power output.

The advantages of the fuel cell are in its efficiency, low noise, compact size, few moving parts, and reliability, and in its being ecologically acceptable. The current disadvantages lie in its immature technology, low operating experience, and high cost. However, the potential is large, as reported by Esco Vale Projection; by 2020, the stationary power market in the 1-30 MW range is estimated at 13,500 MW/yr, and in transport power, the market is visualized at 55,000 MW/Yr.

It was a good talk with capacity (64) attendance, with 20 members turned away.

This could be considered a challenge for the Manitoba engineering fraternity to develop a cost-effective fuel cell using Manitoba resources. □



Professional Engineers Complete Full Year of Assistance to Victims of the Flood of the Century

By: E.W.J. Clarke, P.Eng.

As a result of the Red River's 1997 "Flood of the Century," more than two hundred flood-damaged homes in southern Manitoba were eventually deemed unsalvageable, while several hundred more sustained serious structural damage.

To address these problems, the engineering profession moved quickly in 1997 to establish the Red River Flood Engineering Services Compensation Fund. The terms of reference for this Fund were based on the Ordre des ingénieurs du Québec (OIQ) program which had previously addressed the Saguenay flood disaster in 1996.

Contributions to the Fund were received from every provincial and territorial engineering association in Canada, as well as from the national body, the Canadian Council of Professional Engineers (CCPE).

The primary intent of the Fund was to enable individual homeowners in southern Manitoba whose homes had been structurally damaged by the 1997 Red River flood to receive professional engineering services at little or no cost. Such flood victims could qualify for a grant of up to $1,000 to help offset the cost of the services.

To ensure that those in need of flood-related engineering assistance would be aware of the program, the following summary description was provided to the Canadian Red Cross for use by its Red Cross Manitoba Flood Appeal workers:

Compensation Fund for Engineering Services for Manitoba Victims of the Red River Flood of 1997

- This program is sponsored by professional engineering associations across Canada, and is being administered by the Association of Professional Engineers of the Province of Manitoba (APEM).
- Under the APEM criteria, a flood victim is an affected:
  - owner of a principal residence in Manitoba;
  - business representing the principal means of income for the owners; or
  - not-for-profit organization.
- The amount of the total fund is less than $90,000, which will be distributed on a **"first come, first served"** basis. The expiry date for compensation requests is December 1, 1997.
- The **compensation limit for each request for aid is $1,000**. Only one request per flood victim is allowed.
- The request must be for the **fees for services of a professional engineer retained by the flood victim** to carry out a study, an appraisal, or a plan and estimate. The works undertaken must be compatible with local municipal and/or Manitoba Government flood relief or prevention programs.
- The fees and costs shall not be paid to another program.
- The professional engineer must describe, in a proposal, the services, the deliverables and the costs.
- The proposal of the professional engineer retained by the flood victim must be attached. If the application concerns a not-for-profit organization, a resolution of the Board of Directors must be attached to the application. If the services of the professional engineer were retained before July 14, 1997, the report must be attached to the application.
- The assistance cheques will be made out jointly in the names of the professional engineer and the flood victim.
- There must be an "arms-length" relationship between the professional engineer and the flood victim.
- The application form is to be sent with the professional engineer's proposal or report to: **The Association of Professional Engineers of the Province of Manitoba, 850A Pembina Highway, Winnipeg, Manitoba R3M 2M7**

Within less than one month of its inception, the available funding had been entirely committed to grants for the initial 125 applicants. At that point in time, applications were still being received at the rate of approximately six per business day.

To enable the Fund to continue despite the depleted funding, a Partnership Program was negotiated with the Canadian Red Cross.

Because the Red Cross had made it financially possible to continue the program, and because applications continued to be received after the initial December 1st deadline, the APEM Council agreed to extend the program deadline for new applications to March 31, 1998.

The financial status of the Fund, as of April 21, 1998, is as follows:

Initial funding	**$ 88,200**
Current funding limit	**$ 143,200**
Funds encumbered	**$ 122,723**
Funds disbursed	**$ 102,070**
Number of applications	**229**
Number of applications approved	**201**
Number of claims paid	**187**

The Fund has been managed by the APEM Executive Director and APEM staff, under the direction of a volunteer committee of Manitoba professional engineers.

A number of "Thank You" letters, filled with heartfelt expressions of gratitude, were sent to APEM by Fund claimants. As well, flood victims were grateful for the competence and extreme helpfulness of engineering firms and individual engineers who provided the needed engineering services.

Simply put, at a time when the need was great, the engineering profession was there to help, and, thanks to the Fund, at greatly reduced cost to those affected by the "Flood of the Century." □

Letters to the Editor

Continued from Page 4

young engineers prepare for the responsibilities which they must assume as P.Engs, and that in this way, employers will benefit, as well as the society which we serve.

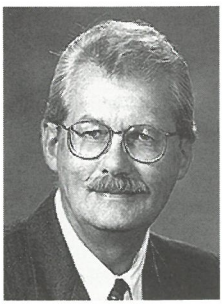
Third, I take issue with the statement that "the way to reverse this trend (i.e. not enough jobs for EITs) is for APEM and the Faculty of Engineering at the U of M to show real leadership (by drastically cutting) the number of people allowed to enter the Faculty...". Decisions as to numbers of students in a program cannot be made only on the basis of short-term local job prospects. Our graduates are successfully working around the world. If there is a Manitoba student wishing to enter the profession, and hoping to live and work in another province or country, why should he or she not be able to complete the academic program here, close to home? Should we deny people this opportunity because of narrow self-interest, influenced by short-term local economics? Economics do play a role in that university education is publicly subsidized, but the extent to which that is allowed to impact upon allowable enrollment is a societal value judgement. It should not be a matter where practitioners decide to restrict their numbers artificially to maximize their earnings or prestige.

Fourth, I disagree with the author's suggestion that the Faculty of Engineering be shut down if the author's misguided program can not be achieved. There can be no doubt that there will always be economic fluctuations affecting the demand for graduate engineers and the demand for all professions and trades. This should not lead to the implementation of drastic solutions such as have been proposed by the author.

As a last comment, I agree with many of the points raised in S.C. Alford's article, which accompanies that of T. Pietrafesa. Engineers have suffered in comparison to some other professionals, and it is ironic in the context of the technological nature of our society. We have an on-going task in defining how we may best serve society. However, we should do it in a spirit which reflects rather more optimism than what is presented in the August issue.

W.H.Brant, P.Eng.

Annual Reports



D.A. Ennis

Executive Director's Report

Most of the activities of the Association are reported on elsewhere in this publication by the committee Chairs, the President, and the Director of Admissions. This report is intended for matters not addressed by them.

Membership

The status of, and changes to, the membership over the year is:

Membership on July 31, 1997			3,594
Plus	registrations	132	
	transferred-in	22	
	reinstatements	6	
		+160	
Less	resignations	93	
	transferred-out	0	
	de-registered	63	
	deceased	13	
		-169	
Membership on July 31, 1998			3,585
The breakdown by categories is:			
	Full members		3,079
	Non-Resident members		257
	Retired members		192
	Pract/Retired members		12
	Deferred Dues Members		18
	Life Members		27
			3,585

Of the 160 members who were registered with APEGM, 67 are residents of other provinces who are also members of their provinces' engineering Associations. We welcome them to APEGM.

Association Operations

As Treasurer, I report that the Association is in a sound financial position. The level of reserves is such that it could sustain operations for in excess of one year.

The payment for members' annual dues in 1999, with GST included, will be $224.00. The Council has decided that, since the designated Fund is at an appropriate level, there will not be a By-law 43 (Discipline By-law) assessment. There will also not be an increase in the Annual Dues for EITs, retired members, or members or EITs paying deferred dues.

The Association continues to operate from leased premises on Pembina Highway. That location and its facilities are well suited for conducting our operations. They are readily accessible and convenient for volunteers, other members, and the public. There is now a sign prominently positioned on Pembina Highway which has noticeably increased general public awareness of the Association. There has been an increase in the staffing with the hiring of a Manager of Administration, Ken Buhr, P. Eng.

The Engineering and Geoscientific Professions Act

On June 29, 1998, after 18 months of consultations and negotiations, The Engineering and Geoscientific Professions Act received Royal Assent and came into effect. It is a replacement of the Act that has governed the profession and the Association since 1985. The most notable change is provision for the regulation of professional geoscientists – geologists, geophysicists and geochemists. I welcome them to the Association and look forward to working with them in implementing self-governance to their professions.

Inter-Profession Liaison

In prior years the Council has reported on the agreements with other Associations focused on resolving jurisdictional issues and providing a process for joint action on issues of common interest. The consultations with those Associations and stakeholder groups leading up to the new Act has led to further developments.

Certified Technicians and Technologists Association of Manitoba (CTTAM)

The Applied Science Technologists Act, which was put forward as companion legislation to The Engineering and Geoscientific Professions Act, also received Royal Assent on June 29, 1998. The Associations had signed a Memorandum of Understanding (MOU) in 1996. In early 1998 a Joint Board was established to carry out the objectives of the MOU and to conduct inter-association liaison in anticipation of the Acts being adopted. The APEGM representatives on the Joint Board are Malcolm Symonds, Michael Bulman and Wally Koschik. With the adoption of the Acts, that Board is now established by the Legislature.

Manitoba Association of Architects (MAA)

The membership has, over the past four years, held two special meetings and received reports which led up to the Association signing a Memorandum of Agreement on jurisdictional issues with the MAA in 1997. The agreement called for the establishment of a Joint Board. That Joint Board has been established and, with the assistance of a Chair appointed by the Minister of Labour, has begun operation. The APEGM representatives are Hans Boge, Doug Stewart, and Guenter Schaub, with Don Osman as an alternate.

With the adoption of The Engineering and Geoscientific Professions Act, and a consequential amendment to The Architects Act, the Board is now also established by the Legislature. Additionally, The Engineering and Geoscientific Professions Act, unlike its predecessor, does not exempt members of the MAA.

Association of Manitoba Land Surveyors (AMLS)

The AMLS and APEGM have also entered into an MOU. Members received a copy with the regular mailing in August. The APEGM representatives on the Committee are Don Mulder, Jim Thomson, and Darwin Kupskay. The Joint Committee is holding an Inter-Profession Work Shop on October 22, 1998. Members whose area of practice interfaces with the practice of land surveying are encouraged to attend.

Manitoba Association of Landscape Architects (MALA)

The MALA does not, as yet, operate under an Act. It intends to seek one in the near future. Given the interface of members of that profession with professional engineers and professional geoscientists in the development of land and water areas and the preservation of the environment, APEGM entered into an MOU in June of 1998. It is focused on clarifying the differences and similarities in the professions and developing a process to foster the involvement of the professions on projects, where appropriate. This MOU also establishes a Joint Committee. The members of the Joint Committee have not been appointed.

Prosecution of a Professional Engineer Under The Architects Act

Members have received reports at previous Annual Meetings on the involvement of the Association in ensuring that the provisions of The Engineering Profession Act, authorizing professional engineers to carry out the practice of professional engineering, are not compromised.

The matter involved the prosecution in Provincial Court of a professional engineer with respect to his involvement in the planning and supervision of two building projects. The Court handed down its decision on May 8, 1998. The Court was not satisfied beyond a reasonable doubt that the professional engineer's work was not authorized by The Engineering Profession Act and he was acquitted on both charges. The matter has been appealed to the Court of Queens Bench and is currently scheduled to be heard on October 16, 1998.

Compensation Fund for Flood-Related Engineering Services

As was reported a year ago, our sister Associations across Canada and APEM established a

Continued on page 11



S.M. Matile

Director of Admissions' Report

Between August 1, 1997 and July 31, 1998, this Association received 454 applications. Of these, 37 were referred to the Academic Review Committee for the assessment of the applicants' academic credentials, 185 were enrolled as Engineers-in-Training (EITs), 68 were registered as out-of-province members in accordance with the Interim Inter-Association Mobility Agreement, 22 were transferred in from other provinces, and six were re-instated to membership. In addition, 71 non-resident Canadian and U. S. Engineers were granted temporary licences to practise engineering in Manitoba.

Enrollment as an EIT is a mandatory pre-requisite to registration for anyone not previously registered as a professional engineer in Canada. The files of all EITs are reviewed on a regular basis by this Association's very hard-working Experience Review Committee, which monitors the progress of the EITs and essentially guides them along the path to registration. This year, the Committee conducted 575 EIT file reviews, and recommended the registration of 70 EITs, all of whom were subsequently registered by the Registration Committee. Of these, 51 were "grandfathered" in under the two-year work-experience requirement, while 19 had obtained at least four years' acceptable engineering work experience.

In August, 1997, the Experience Review Committee, having recognized that many EITs were not fully complying with the Pre-Registration Program, developed penalties for non-compliance, and set a target date for their implementation of January 1, 1998. The EITs were notified in September, and Progress Report Forms came flooding into the office to the extent that, by December 31, the stack of files to be reviewed had reached over 1.2 m in depth! Needless to say, the New Year was extremely busy, as the admissions staff and the Experience Review Committee attempted to review hundreds of EIT reports – some going back as much as six years. Two additional meetings of the Committee were held to deal with the inundation – and a third is likely, as the "rush" is not over, yet!

In September, 1997, the famous ORAP became a reality, and the Admissions Board was created (it will hold its inaugural meeting on August 31, 1998). The ORAP also had the effect of changing the names of all of the admissions committees. (Thankfully, however, their functions remained unchanged!)

In January, 1998, Council approved a revised Manual of Admissions. This policy document, among many other things, clarified the requirement that for first-time registrants, engineering work experience obtained in Manitoba, to be considered acceptable, must be obtained while the applicant is enrolled as an EIT. It also closed the loophole whereby members who had been de-registered for non-payment of dues but who were registered in other provinces could use the Mobility Agreement for re-admission. Now, those de-registered for non-payment of dues have to comply with the Association's reinstatement requirements (which now include a requirement that they pay the annual dues for all of the years in which they practised in Manitoba without being registered).

A total of nine sessions of the APEM Professional Practice Seminar and Examination has been conducted, to date. Even though the pass mark was raised from a D (50%) to a C (60%), last fall, we continue to enjoy a 100% success rate. (35 passed the examination in the Fall, and 54 in the spring.) I am currently working on a CCPE committee looking into the possibility of a national professional practice examination. This would be a significant departure from our seminar and examination, which is unique in Canada. It would, however, result in more uniformity across the country – and allow us to offer the Professional Practice Seminar modules as professional development opportunities. Meanwhile, however, the current program will be continued, with a three-day weekend session scheduled for the fall. Instructors Richard Swystun, Wells Peever, Adrian Battison and Kelly Dixon continue to deliver first-class seminars, as does Kris Dick, who has replaced Dick Johnson as our instructor for the Professionalism module. Congratulations to all who took and passed the examination, and thank you Richard, Wells, Adrian, Kelly, and Kris!

Please remember that the Professional Practice Seminar is open – and recommended! – to all engineers. It is an excellent professional development activity!

The big issues this year, of course, are the web page (on which we have installed **tons** of admissions information, including the EIT and supervisor report forms) and the proclamation of the new Engineering and Geoscientific Professions Act, which makes us APEGM, and authorizes – in fact, requires! – us to register geoscientists. Three subcommittees of geoscientists have prepared recommendations regarding the academic, work experience, and "Grandparenting" requirements for registration, which will be reviewed by the staff and the various admissions committees before being sent to Council for approval in September. Needless to say, a tremendous amount of work is contemplated in this area. Three hundred geoscientists are expected to join the Association under the grandparenting provisions, which will expire on June 30, 2000, and a number of recent graduates are expected to enroll as geoscientists-in-training. Because the Code of Ethics has to be revised, and its revision approved by the membership through a mail ballot following the Annual General Meeting, it is expected that the first professional geoscientist will not be registered in Manitoba until early in 1999.

The Admissions process and procedures at APEGM continue to evolve, and the Admissions staff continues to work hard to adapt and adjust. Donna Bilodeau, our Admissions Co-ordinator, works very hard to keep up with the influx of EIT reports, supervisor reports, references, and application forms of all descriptions, while cheerfully addressing a myriad of inquiries from EITs and potential applicants. Joan McKinley, who serves as Secretary to the Academic Review Committee, continues to provide excellent service to both the Committee and those on our examination program. And Lorraine Dupas, our much-more-than-receptionist, continues to provide invaluable customer service and administrative assistance in a multitude of areas. Thank you, all. Your commitment and dedication are very much appreciated. □

Executive Director's Report

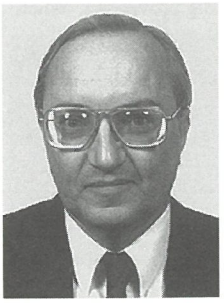
Continued from Page 10

fund of $88,200 to assist victims of the 1997 Red River Flood by subsidising the cost of engineering services for restoration and/or flood prevention work. The fund was quickly committed and, to enable the work to continue despite the depleted funding, a partnership was negotiated with the Canadian Red Cross. It boosted the Fund to a limit of $143,200. The deadline for applications was March 31, 1998. The Fund has been administered through the APEM office. It is expected that the program will be completed in the late fall of 1998 with assistance having been provided to some 220 victims.

Committee System Restructuring

The Association has adopted a governance policy and introduced a revised committee structure which clarifies responsibilities and reporting relationships, improves communications and liaison among related committees, and will allow the Council more time to deal with long-term goals and leadership issues. The transition to the revised structure is to be finalized following a review of comments received from the committees and Boards as they begin operating under the new system.

This year, more so than some others, has been one of challenges and changes. Without a dedicated staff and a committed cadre of elected and appointed volunteers, the wheels of self-governance would grind to a halt. To each of them I express my sincere appreciation. □



Meetings Committee

***K.J. Puckall,** Chair*

Members

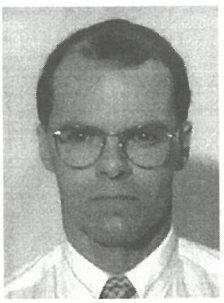
T. Chau
M.J. Coyne
S. Kass
R.R. McKibbin
L. Penner
B.R. St. Amant

In 1998 the Annual General Meeting Committee was redefined to become the Meeting Committee, reflecting the expanded role the committee has been doing in the last number of years, coordinating the Annual General Meeting (AGM) and participating in the awards evening held in conjunction with National Engineering Week events.

In an ongoing attempt to make the AGM both informative and an enjoyable event, the Committee attempts to put before the membership the issues most germane to the APEM and the profession of engineering. Many changes have been made to the format of our meetings, and it is a testimonial to the Committee members that fresh ideas and enthusiasm continue to be the principle characteristic of the Committee's events. In the last few years a primary issue of the APEM has been the Professional Development Program which is being proposed to ensure ongoing competence in the membership. This year the Professional Development Program will be one of the significant issues discussed at the AGM, and we in the Meetings Committee are making every attempt to ensure as many opportunities as possible for the membership to evaluate this program. With the ongoing cooperation of the Professional Development Committee, an information session will be held as a part of the Professional Development day on Friday, October 16, 1998. In addition, the Committee has recommended to Council, and Council has agreed, to create video/audio links to our chapters in Thompson, Flin Flon, and Brandon to enable members who are unable to attend the meeting to still participate in the AGM.

Attendance at the AGM continues to improve but we have a long way to go in making the AGM a significant event in the calendars of the APEGM membership. I thank the members of the Committee for their efforts this year and welcome our newest members T. Chau, EIT, S. Kass, EIT, and L. Penner, EIT, who have added to the process with their thoughts and comments. As always, our thanks to Dave Ennis and Joan McKinley. They make being a volunteer very easy.

See you at the AGM on October 16 and 17 at the Niakwa Golf and Country Club. □



Emerging Technologies Committee

***J.C. Bégin,** Chair*

Members

T. Bjarnason
L. Dacombe
D.J. Fedirchuk
R.J. Hamlin
E.E. Lach
D.G. Osman
E.A. Speers
D.R. Strang
J.B. Thorsteinsson

The Emerging Technologies (ET) Committee has a mandate to keep Council and members informed of scientific research, technological development and innovation in Manitoba and Canada, and to identify the implications of these activities on Association members and the public.

The ET Committee met eight times during the past year. A major activity of the Committee is to host luncheon meetings on topics related to research and development, either in Manitoba or having direct impact on the Engineering Profession in Manitoba. Presentation topics of interest to a broad cross-section of the Association Membership are selected. All presentations are videotaped, and copies of the tapes in VHS format are available at the Association office for loan to members. Reports on R&D Luncheons also appear regularly in the Manitoba Professional Engineer.

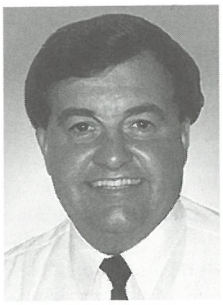
During the year, the committee hosted four luncheon presentations and co-sponsored one other, on the following topics:

- Science and Technology for the New Century, by Dr. Jon Gerrard
- The Canadian Technology Network, by Mr. Alfonz Koncan
- A Real Time Digital Simulator, by Mr. Rudy Wierckx, P.Eng.
- Quality Function Deployment, by Mr. Bryan Couch
- Developments and Applications in Wireless Communications, by Dr. Moe Barakat, P.Eng
- National and International Developments of Fuel Cells, by Mr. E. Wojczynski, P.Eng.

The ET Committee also publishes a series of articles in the MPE under the heading, "The Life Cycle of an Idea". These articles highlight innovation and entrepreneurship in Manitoba. Articles published this year include:

- ISIS Canada: Solution-Oriented Research Changes Approach to Infrastructure, by Lloyd McGinnis, P.Eng.
- WD Canada Supports Technological Innovation: New Loan Programs and Financing Information and Advice, by Ed Lach, P.Eng.
- Conception to Birth, a Product is Born, by Dave Fedirchuk, P.Eng.
- Employment Agreements, by Mr. Graham Robson

I would like to thank the committee members for their enthusiasm and their valued and varied contributions to the work of the Committee during the past year. On behalf of the Committee, I would like to thank Todd Bjarnason, EIT, for his services as recording secretary, and to extend sincere thanks to Dave Ennis, Jean McCorrister and other APEM staff for all their support during the year. □



Enforcement Committee

***B.R. King,** Chair*

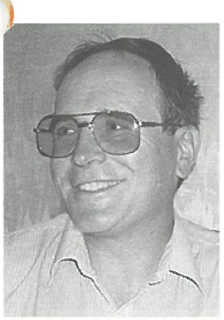
Members

R.L. Kennedy
R.J. Partridge
N.B. Ulyatt
M.G. Britton, *(Liaison Councillor)*

The Enforcement Committee's mission is to ensure that those practising or professing to practice engineering work are properly registered. Specific action was taken by the Association staff on a number of items brought forward throughout the year. The Council had asked the Enforcement Committee, as an Act Awareness Initiative, to develop an action plan for making personal approaches to corporations which engage or provide engineering services. The objective is to sell the concept and the value of the corporation's employees and/or consultants being Professional Engineers. To accomplish this important priority, the Enforcement Committee and representatives of other Committees conducted an action plan meeting. The sessions have resulted in a prioritized set of goals and objectives.

The committee would like to thank all members of APEM who have assisted us in pursuing our mission. A special thanks to Shirley Matile, Dave Ennis, and the staff of APEM who have helped the committee in pursuing our enforcement initiatives. Engineers can help the Committee by notifying the committee or Association office if they have any concerns or suggestions, or know of a potential need for enforcement. □

COMMITTEE REPORTS COMMITTEE REPORTS COMMITTEE REPORTS COMMITTEE REPORTS



Professional Development Committee

R.J. Bruce, P.Eng., *Chair*

Members

T.J. Cornell
V.L. Dutton
W.T. Jackson
G. Kibria
M.S. O'Laughlin
S.D. Spicer
M.B. Tokarz
H.M. Turanli
E. Eddy, *(Liaison Councillor)*

During the past year Professional Development (PD) committee has primarily been involved with:

- organizing its 'PD Breakfast' Meetings,
- developing, coordinating and reporting on the pilot project to test the proposed PD program
- revising the proposed Professional Development Program from the recommendations received during the pilot project

The PD breakfasts continued this year and the following topics were presented: Document and Drawing Management in Engineering; University of Manitoba Engineering Building Modifications; the pilot project to test the proposed PD program; and Electronic Commerce. Two presentations had to be canceled when speakers were unable to make their presentations. Planning is underway for several breakfast meetings this fall. Suggestions for topics of future PD Breakfasts are always welcome and may be made to any PD committee member or the APEM office.

Planning is also underway for a Management Seminar in late January of 1999.

The PDNETWORK is an initiative of the APEGM to work with other technical organizations to publicize each others' PD activities and to offer as wide a range of PD activities as possible to each others' members. This project has been put on hold for the last year awaiting the development of the APEGM web page. Now that this has been completed, we will be proceeding to develop and implement the PDNETWORK.

The PD Committee has been working with the Meetings Committee to produce sessions at the Annual General Meeting on the PD Program. Two sessions have been organized.

The MPDP sub-committee of the PD committee was involved with the organizing and co-ordinating the pilot project to test the proposed APEGM Professional Development Program. Ten groups of approximately 10 members each were involved with the pilot project, five groups were distributed throughout the province, and five were from Winnipeg. Each group member tested the program by planning their next year's PD, and by reporting on their previous year's PD using the forms and guidelines in the program. Each group submitted a report and many submitted the documents completed by each member. Based on the testing of the proposed program, the sub-committee has confidence that a practicing member who is currently taking steps to maintain their competence is easily meeting the requirements of the program.

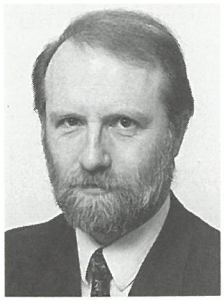
The sub-committee prepared a report to Council on the pilot project and recommended that:

- Council proceed with the steps to adopt the PD program
- more information sessions be held on the program
- the complete Continuing Competency (CC) program be developed, explaining the relationship of PD to CC
- the APEGM make a greater effort to offer PD opportunities to members
- the APEGM provide staffing to assist members with understanding the PD program and with monitoring it.

The PD Program document was changed in the following ways

- the forms were changed to reflect the group comments
- an executive summary was added to the document
- the maximum credits to be counted per year for formal courses was increased to 40 PDHs
- clarification of various points was added.

Another presentation on the PD program was presented in September discussing the details of the program as well as results from the pilot project and some of the issues and concerns that have been raised by members about the program. This presentation will be repeated at the Annual General Meeting. □



Academic Review Committee

D.G. Chapman, *Chair*

Members

K.M. Adam
S. Balakrishnan
E. Bridges
D.S. Jayas
W.M. Kinsner
R.J. Partridge
R.W. Menzies
H.M.H. Soliman
B. Stimpson
K.N. Tandon
D.M. Weiten

The Academic Review Committee (ARC) assesses the academic credentials of all applicants for registration who are not graduates of programs accredited by the Canadian Engineering Accreditation Board (CEAB) a committee of the CCPE, with the purpose of ensuring that everyone registered with the Association has attained a level of education at least equivalent to that obtained by graduates of CEAB accredited programs.

The ARC uses the degrees, transcripts, syllabi and other information submitted by the applicants to determine whether, and which, technical examinations should be assigned. The examinations are selected from 11 syllabi prepared by the Canadian Engineering Qualifications Board (CEQB), another committee of the CCPE. Joan McKinley, the Secretary to the ARC arranges for the preparation of the examination papers and organizes the examination sessions. The ARC monitors the progress of candidates who have been assigned examinations, evaluating their performance on these examinations, until the committee is satisfied that the applicant is academically qualified for registration. The ARC also establishes the date of academic qualification, which impacts on the acceptability of some of the work experience of the applicants. During the year 18 applicants completed their assigned examinations and 14 of these were considered academically qualified.

In the past year the ARC assessed 35 applicants, assigning a total of 122 examinations. The committee also considered three reassessments and four appeals on various grounds. In addition, approvals were given for two theses.

During the last year, the ARC also considered four applicants with accredited degrees who were not able to meet the admission criterion for experience to have been obtained within 10 years of receipt of the degree. In these cases the applicants were asked to pass at least one examination before registration.

The CEQB syllabi and associated recommendations for minimum standards for registration are reviewed and revised by CEQB, on a regular basis. In the coming year new syllabi and standards are expected to be completed and the ARC will be reviewing and updating its procedures and policies to reflect these evolving recommendations from CCPE.

I want to thank the ARC members for their conscientious work, dealing with difficult and unique situations. Special thanks to M.Yunik and D.H.Burn, who left the committee during the last year. I also wish to recognize the dedicated and very supportive work of Joan McKinley, who handles the administrative work of the committee and the examination process. □



Safety In Engineering Practice Committee

***F.A. Roberts,** Chair*

Members

M.S. Anderson
M.G. Britton
D. Burmey
D.E. Cross
A.O. Dyregrov
M.J. Frye
B.P. Gojkovic
W.T. Jackson
P.T. Sims
J.V. Weiszmann
L.P. Williams, *(deceased)*
K.J. Pratt, *(Liaison Councillor)*

The Safety in Engineering Practice Committee (SEPC) continues to function much the same after APEGM committee reorganization, focussing on issues which impact public safety as related to engineering design and construction.

Much of the work of the committee is carried out by subcommittees which include committee members often joined by specialists in the field of consideration. A number of the issues which have come before the committee are described. You will see that several have been the culmination of work which was begun over a year ago.

Snow Loading on Buildings – NBC 1995

Members may recall that, last year, the SEPC sent out a notice advising of the significant changes to the National Building Code with regard to the calculation of snow loads on buildings with large roof areas. Since the design loads under some conditions are more than double those calculated under the previous Code, the effects on building design and construction can be enormous.

In light of the above, the SEPC has been troubled that the new Manitoba Building Code did not take effect in the summer of 1997, thus creating uncertainty among designers and building officials as to the appropriate criteria. Designers will be aware that the City of Winnipeg began enforcement of NBC 1995 in August of 1998.

The SEPC has been in contact with ministerial representatives and has been pleased to have the participation of representatives from the Office of the Fire Commissioner and the Building Standards Board in considering recommendations for designers. We are pleased that the Province has advised enforcement of NBC 1995 effective October 1998. Designers should be aware that no "Manitoba Building Code" will be published. The National Building Code is in effect and Manitoba amendments will be forthcoming.

Joint Failures in Hollowcore/ Cast-in-Place Concrete Wall-to-Floor Connections

A study began last year, with the Subcommittee looking into a large Winnipeg structure where joints had been improperly constructed. Full-scale testing was conducted by the University of Manitoba Structures Lab to determine the scope of possible problems.

The subcommittee completed its work by sending out to building designers the recent notice outlining the problem. Any member who becomes aware of performance problems relating to this type of construction should advise the SEPC.

Practice Guidelines

The SEPC has found over the years that many problems could have been avoided had basic design or inspection procedures been followed. It has been our belief that the implementation and publication of Practice Guidelines would enhance the profession by helping to establish fundamental requirements for many engineering activities.

The SEPC prepared a brief to Council, recommending the implementation of Practice Guidelines, which was accepted.

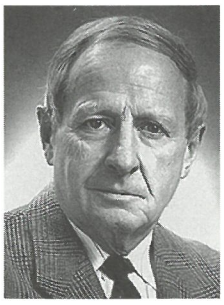
The decision to proceed with Practice Guidelines was coincident with the process of Committee Reorganization. While the SEPC had an opportunity to discuss the initial steps in the process, the development of the Guidelines will be undertaken by the newly formed Practice Standards Committee.

Thanks for Faithful Service

The SEPC has functioned by virtue of the donation of time by committee members and many other interested engineers who have contributed a great deal in the interest of ensuring the safety of the public in our Province.

We especially acknowledge the efforts of Larry Williams who has been a committee member since the inception of the SEPC. He became a close and respected friend to all who had the privilege of serving with him. Larry passed away this summer after struggling with cancer, and he will be sadly missed at our meetings.

On behalf of the committee I want to thank Dave Ennis for his personal efforts and support of the work of the SEPC. I want personally to thank all of the members of the committee and subcommittees for their excellent work on behalf of the profession. □



Investigation Committee

***W.M.A. McDonald,** Chair*

Members

D.E. Cross
T.H. Gillman
D.G. Hodgkinson
R.P. Hoemsen
R.A. Johnson
S.I. Kalichuk
D.J. Kramble
E.I. Lexier
W.J. McCulloch
J.R. McDougall
I.H. McKay
J.A. Terris
S.L. Ursel
A.E. Ball *(Liaison Councillor)*

The Investigation Committee is involved in the investigation of complaints and concerns received from both the public and members of the Association, as well as to consider questions on professional conduct received from Association members. The actions of the committee are conducted under the authority of By-Law 43 and guided by the Act, the Code of Ethics, and the Mission Statement of the Association:

> "To serve and protect the public interest by governing and advancing the practice of engineering in accordance with the Engineering Profession Act of Manitoba."

In the last year the committee held eleven meetings. In addition, numerous sub-committee meetings were held to review the various complaints, concerns and questions received. A total of 21 files were reviewed, of these, two were carried over from the previous year, three involved questions submitted by members and 18 were complaints and concerns. The present status of these files are as follows: 12 are ongoing, five were dismissed, one was dismissed with counselling, one formal caution was issued, one three month suspension was issued with the written consent of the member, and one was referred to the Discipline Committee.

Of the Complaints received:

- nine resulted from situations where an engineer was concerned with the action of another engineer.
- nine complaints resulted from concerns of various agencies and individuals on the conduct of engineers, including four which involved Residential design and/or inspection.

The Committee regrets the transfer of D. J. Kramble to Saskatchewan in May, but wishes him well in his new posting. We also welcome S. I. Kalichuk and Councillor A. E. Ball.

Support staff, as in the past, has provided enthusiastic and dedicated service, in numerous files before, during and after normal working hours. The assistance of Laverne Johnson, Jean McCorrister, Charlie Bouskill, and Dave Ennis allowed the committee to function in an effective, efficient manner. □



Women in Engineering Advisory Committee

***E.S. Swatek,** Chair*

Members

B.A.K. Danielson
C.E. Geddert
M.S. O'Laughlin
K.F. Olischefski
H.D. McKibbin
T.C.D. Rudachek

The mandate of the Women in Engineering Advisory Committee (WEAC) is to address issues involving the concerns of women in engineering, to enable their participation in the profession and Association activities. The majority of WEAC's activities in 1997-1998 focused on the challenges associated with the balancing of career and family.

The Flexible Workplace Subcommittee continued to work on the preparation of a flexible workplace handbook, tentatively scheduled for completion in the fall of 1998. This handbook is intended to serve as a reference tool for professional engineers and their employers when considering flexible workplace arrangements. The handbook examines seven practical flexible working arrangements: flexible hours, job sharing, permanent part-time work, telecommuting, v-time, on-site day care, and phased retirement.

Once again, the APEGM provided financial support to the *Capitalizing on Today's Challenges* Conference organized by the University of Manitoba Faculty of Engineering. WEAC members were actively involved in the preparation and delivery of a Flexible Workplace workshop for this conference. Information presented during the workshop was supplied to the Canadian Coalition for Women in Engineering, Science, and Technology (CCWEST) for inclusion on the CCWEST home page.

Meghan O'Laughlin represented WEAC on CCWEST. WEAC was pleased to be represented by Brenda Danielson, chair of the Flexible Workplace Subcommittee, at a CCWEST conference, *Women in the Workplace – Achieving Harmony* held in Vancouver. The conference provided an opportunity for engineers, scientists, technologists, and mathematicians to discuss issues affecting women in their professions and discuss projects to promote our professions to society.

Heather McKibbin, EIT, and Tina Rudachek, EIT, joined the committee this year. Bill Hamlin has resigned from WEAC.

I would like to take this opportunity to thank all committee members, Shirley Matile, and the APEGM office staff for their assistance throughout the year. □

Communications Committee



***B. Stimpson,** Chair*

Members

M.E. Baril
J.A. Blatz
J.W. Bogan
V.L. Dutton
A.N. Kempan
M.W. Morrison

The former Publications Committee metamorphosed into the Communications Committee in 1998 as part of the organizational restructuring of APEGM's operations. To continue the biological analogy, the year also saw some migration of Committee members. First, Calvin Gray, Chair, grasped a new but distant employment opportunity. His replacement, Steve Alford, also caught the wanderlust and resigned in June, 1998 to embark for New York where he will pursue an MBA. It remains to be seen what the fate of the current Chair will be. Bev Dobran, also, could no longer continue with the Committee. Calvin, Steve, and Bev – your hard work and enthusiasm has been instrumental in the success of the MPE in 1998. Two energetic EITs (James Blatz and Mike Morrison) stepped into the gap at just the right time, joining the Committee in July.

All committee members have contributed to every issue of *The Manitoba Professional Engineer* in preparing and/or reviewing articles, in proof-reading, and in being part of editorial decision-making. It has also been most pleasing to see the enthusiasm of EITs who have submitted letters or prepared articles for publication and thereby have shown their interest in the future of the profession. Certainly, there are any number of important and sometimes controversial issues. The Committee welcomes such contributions because they make the newsletter the two-way vehicle of communication it is meant to be and certainly more readable.

The production of a 12-page newsletter every two months would be impossible without the dedicated work of Shirley Matile and Lorraine Dupas in the APEGM office. Thank you, both.

Lastly, the Committee welcomes feedback from its readers as to what could be improved or what they liked. Thanks to those who have written and encouraged us in our efforts. □



Legislation Committee

***D.N. Spangelo,** Chair*

Members

D.G. Ford
R.M. Gordon
J.S. Hicks
R.A. Johnson
J.M. MacLeod
S.A. Mailey
J.E. Reimer
P.V. Remillard
D.A. Ennis, *APEGM Staff*
S.M. Matile, *APEGM Staff*

This was a memorable year for the Legislation Committee. The new Act, passed this June, represents almost ten years of committee involvement.

Members have worked within Committee meetings and with many stakeholders, both internal and external, to address the concerns of all. This has not been an easy task for the committee and others involved in the process. Most external concerns have been addressed with the signing of MOUs requiring the formation of joint boards. This process has allowed the Act to go forward and to be passed by the Legislature.

The most difficult negotiations, and the last to be dealt with, were the concerns of the Manitoba Association of Architects (MAA). The assembling of a joint board with MAA, and its initially favourable response during its first few meetings were major contributions to allowing the Act to proceed to the Legislature. Members of this Board require great recognition for their accomplishments!

MOUs were also signed, during this last year, with the Manitoba Land Surveyors and the Manitoba Association of Landscape Architects.

Now that the Act has received Royal Assent, the next major job is to develop and obtain membership approval of the new by-laws as required by the new Act. We have until June of 2000 to complete this task! Stay tuned for future developments as we will require your input to complete this job.

I would like to thank all Legislation Committee members, both existing and those involved over the last year, as well as Dave Ennis and other staff for your contributions and efforts. I also welcome new members S.A. Mailey, D.G. Ford, J.E. Reimer, and P.V. Remillard to the committee. □



Nominating Committee

J.M. Symonds, Chair

Members

D.G. Chapman
V.M. DeWiele
J.R. Hosang
W.M.A. McDonald
A.D. Silk
C.L. Stewart
E.S. Swatek
H. M. Turanli

Due to the reorganization of the committees under ORAP, the role of the Nominating Committee was greatly expanded this year. In addition to the normal nomination of candidates for the positions on Council, its responsibilities now includes the co-ordination of appointments of members to the other committees of the Association. As such, the transition of volunteers from the old to the new committee structure was facilitated by our committee. As well, members and EIT's, both those currently serving and those who are contemplating service, were asked to indicate their willingness and availability by submitting an information form. The Committee was pleased by the response from new volunteers – in particular the EIT's.

As in past years, potential candidates for the five Council positions were reviewed and a short list was approached and asked whether, if nominated, they would be willing to stand for election. It is felt that this year's slate of nine people is strong.

The transition to the new ORAP committee structure presented a new set of problems. On the first pass, members of committees that were being mapped directly into a parallel committee were canvassed for their desire to continue serving in the new committee. For those committees that were either being divided or eliminated, each member was asked to pick whichever new committee they wanted to serve on. In the final analysis, this represented approximately 85% of the requirement. The remaining 15 % of the required committee members had to be found from new volunteers. This has essentially been completed.

In the upcoming year, the new Act will bring yet additional work for the Committee. In the interest of openness and transparency, there is an opportunity, and in some cases a requirement, in the Act for the appointment of members of the public to certain committees. The Nominating Committee will be developing a process for those appointments.

As Past-President, and with the new Engineering and Geoscientific Professions Act, I have an additional one-time responsibility, one for which I have relied upon the Nominating Committee for guidance on policy and process. The Act requires that two members of the geoscience community be appointed to serve on the Council for the next two years. Since the infrastructure to meaningfully elect personnel for these positions is not in place, the Act requires that a committee consisting of the Past President (Chair and also Chair of this Committee), the Minister of Labour, the Provincial Ombudsman, and the Dean of the Faculty of Engineering, appoint those two councilors. At this writing, expressions of interest in serving on your Council have been solicited from members of the geoscience community, and the process should be complete by this year's AGM.

This has been a very busy year for the Committee, but it would have been impossible to complete our task without the able assistance of the APEGM staff, especially Dave Ennis. □



Consulting Engineers Committee

D.G. Mulder, Chair

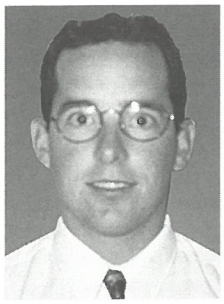
Members

K.G. Bolton
I.R. Dewar
R.J. Houston
W.J. McCulloch
R. Menon
R.H. Payne
B.J. Rossen
T.L. Stratton
J.A. Thomson
E. Weiszmann
K. Pratt, *(Liaison Councillor)*

During the past year, six meetings were held. The Committee considered and dealt with a number of items. An overview of some of the more significant items follows:

- The Committee completed the development of a Memorandum of Understanding between the APEM and the Association of Manitoba Land Surveyors. A joint committee between the two associations now exists to deal with issues as they arise.
- Recommendations were made to Council with respect to modifications to Guidelines for the Ethical Use of the Seal in connection with the requirements for As-Constructed Drawings.
- Appendix A of the Guide for the Engagement of a Consulting Engineer was updated for the current year.

The Chair thanks the Committee members as well as Dave Ennis and the APEGM staff for their valuable assistance. □



Sports and Social Committee

C.N. Perrett, Chair

Members

M.E. Baril
B.W. Biglow
J.F. Lavergne
H.F. Lobo

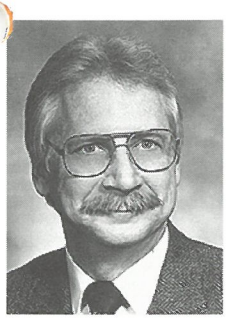
The purpose of the Sports and Social Committee is to organize and conduct sporting and social events as venues for member interaction and networking. The Committee helps to promote pride in, and a sense of belonging to, the profession.

This past year the Sports Committee organized a golf tournament at Quarry Oaks on June 16. The first few holes were played in the rain and remaining holes were shared with the mosquitoes. All in all, it was a great day of golf and socializing ending in a great meal and prizes being awarded to all golfers.

The first place team consisting of Dave Krahn, Carl Wiebe, Lance Vigfusson, and Bruce McPhail finished with a score of 10 under par and was awarded the Landon Cup. The second place team of Julien Lavergne, Brad Draward, Allan Coppinger and Mike Flynn finished with a score of 8 under par after a count back and was awarded the Sullivan Cup. Other winners included Marv McDonald (1st place putting contest), Rob Nichol (2nd place putting contest), Dan Wiwchar (closest to the pin), Andy Nagy (closest to the pin), Dave Krahn (closest to the pin) and Rick Carson (longest drive).

The MS Society ran a closest to the pin competition and raised $465. Kidsport ran a putting contest and raised $125 towards children's amateur sport. Thank you to all organizations that sponsored holes and donated prizes. Your continuing support is greatly appreciated.

Major changes in the committee membership occurred this year. I would like to welcome Marc Baril and Harry Lobo to the committee. I would also like to thank resigned members Murray Vanderpont, Dana Bell, Don Lecuyer, Keith Miller and Jeannie Paterson for their valuable contributions. □



Awards Committee

D.G. Osman, *Chair*

Members

L.R. Ferchoff
E.E. Lach
N. Maksymiw
S.H. Rizkalla
C.L. Stewart
C.V. Thio

The Awards Committee is responsible for providing recommendations to Council for recipients of APEGM Awards and for nominees for the CCPE Awards.

The Association of Professional Engineers of the Province of Manitoba's (APEM's) annual Evening of Recognition convened in March 1998 was very successful. There were three awards presented. Dr. Daryl M. McCartney, P.Eng., received the Early Achievement Award, and Dr. Moe Barakat, P.Eng., received the Merit Award. The Certificate of Engineering Achievement Award went to ISIS Canada (received by Dr. Sami Rizkalla, P.Eng.) the Province of Manitoba (received by Guy Cooper, P.Eng., Bridges and Structures Department) and Wardrop Engineering (received by Doug Stewart, P.Eng.).

This year, APEM was successful in its nomination of Dr. Garland Laliberte, P.Eng., for the CCPE Meritorious Service Award for Professional Service. Dr. Laliberte is among five Canadian engineers who were honoured by the Canadian Council of Professional Engineers for their outstanding contributions to their profession and the community. Dr. Laliberte, Dean Emeritus of the University of Manitoba's Faculty of Engineering, was awarded CCPE's Meritorious Service Award for Professional Service. Pierre Desjardins, Chairman of CCPE, said the five recipients were being honoured "Because they have achieved the high goals and expectations they have set for themselves and their work". Dr. Laliberte joined the U of M as an assistant professor in 1967. As Dean of Engineering, he launched three new NSERC Industrial Research Chairs, established the Winnipeg laboratory of TRLabs, and established one of the most successful university/industry interface programs (EASIAP) in Canada, CCPE said.

Looking forward to opportunities to continue recognizing the efforts of our members, the Awards Committee advises that there will be three awards recipients at the next Evening of Recognition in the fall. In addition to the above awards already granted this year, Council has, upon the recommendation of the Awards Committee, resolved to award the Outstanding Service Award to J. Malcolm Symonds, P.Eng. The Honorary Life Membership Award will be presented to both Russ Hood, P.Eng., and Dick Johnson, P.Eng. The Awards Committee has had the good fortune of having a very good slate of candidates for these awards and wishes to advise the membership that we are always looking for nominations from the membership. The above are considered to be very deserving of the awards for their considerable contribution to the APEM; the public's image of the engineers of Manitoba and Canada has been greatly enhanced by these individuals.

There is a new awards category for the committee to solicit nominations. The award is The Leadership Award. It will recognize those achievements where a person or group of persons initiated a project or undertaking and had the involvement of professional engineers thereafter. The revised Call for Nominations for Awards has detailed information on this new award. Please contribute to the process by making a nomination for any of the appropriate awards APEGM or CCPE have to recognize the efforts and achievements of its members. It is important the membership continue to contribute to the process.

I would like to thank Joan McKinley and all the Awards Committee members for their significant efforts over the last year. It has been a pleasure working with you. □



Registration Committee

K.J.T. Kjartanson, *Chair*

Members

J.W. Campbell
W.R. Newton
D.G. Osman
D.I. Waldman
C.S. Roberts, *(Liaison Councillor)*

The primary responsibility of the Registration Committee is to register members of the Association. This duty is carried out within the policies of Council as laid down in the Association's Manual of Admissions. The Committee reviews credentials of candidates and relies on recommendations from the Academic Review Committee, the Experience Review Committee, and Association staff in making decisions. Additional responsibilities of the Committee include the consideration of appeals against decisions of the other Committees and the staff, and the review of registration-related issues and provision of recommendations respecting the same to the Admissions Board, the Executive Director and Council.

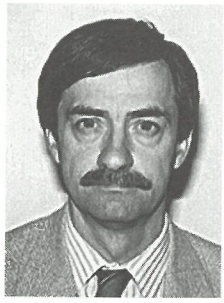
The Registration Committee has continued to be very busy during 1997-98. In this period, the Committee held 12 regular meetings. Insofar as statistics are concerned, during this past year: 185 EITs were enrolled, 68 members were registered under the Mobility Agreement, 22 members were registered by transfer, 70 members were registered for the first time, 71 licences were issued for practice, six reinstatements were approved, 14 Academic Review Committee recommendations were verified, and one appeal was considered. Several applications were reviewed and not approved by the Committee for a variety of reasons.

During the past year, the Committee has continued to work closely with the Academic Review Committee, the Experience Review Committee, the staff, and Council to ensure that registration procedures are appropriate. In several cases, recommendations were made to Council respecting proposed changes to the Manual of Admissions and/or the Committee Terms of Reference. It is intended that an Operations Manual be developed to assist the Committee in the carrying out of its duties. As a first step, staff, in consultation with the Registration Committee, undertook a major revision of the Manual of Admissions. Council has approved the revised Manual.

In addition to its baseline work, the Registration Committee also reviewed and made recommendations concerning the treatment of work experience by the Experience Review Committee, reviewed proposed revisions to the Mobility Agreement and made recommendations to Council, reviewed credit transfer arrangements between the Universities of Manitoba and Winnipeg, considered the status of the two-year experience grandfathering arrangement, and made recommendations to Council respecting the policies on back-payment of dues by written-off members and on reinstatement. Various miscellaneous tasks were also undertaken.

The Committee membership has not changed over the past year. As part of the overall committee re-organization effort of the Association, however, the old Registration Board was changed to the new Registration Committee with revised Terms of Reference. The Committee now reports to the Executive Director through the new Admissions Board. The Registration Committee has reviewed its new Terms of Reference and has recommended several changes to the Executive Director.

The Chair has appreciated the ongoing enthusiasm and dedication of the members of the Registration Committee over the past year. The Committee wishes to recognize and thank Shirley Matile, P.Eng., Donna Bilodeau and Dave Ennis, P.Eng., for their ongoing support and assistance which has, once again, proven to be invaluable. □



Salary Research Committee

***E.G. Parker,** Chair*

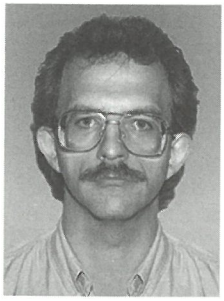
Members

W. Czyrnyj
L.J. Kuczek
I. Mikawoz
G.R. Norberg
W.R. Todd

To satisfy our objective of providing salary information for use by the public and Association members, the Salary Research Committee conducted its annual employer salary survey this spring. In addition, an employee survey was completed in May. The results will be published in an article in *The Manitoba Professional Engineer.*

This year our employer survey had an increase in both employers participating and the number of employees represented by the survey. For the employee survey, we received over 500 responses which is an increase of 10% from the employee survey completed in 1996. The members reported an average increase of 6.5% in base salary for the year ending April 1, 1998. The median salary increase reported is 3.0%.

Thank you to the members who completed our survey and a special thanks to those employers who provided their corporate salary data to the committee. Many thanks to the Committee members for their efforts this year and to Dave Ennis and Joan McKinley for their continued support. □



Public Awareness Committee

***R. Bernhardt,** Chair*

Members

J. Giesbrecht
A.M. Gole
K. Huminuk
W. Jackson
C. Nieuwenburg
A. Pollard
J. Prendergast
D.C.H. Prowse
J. Rooney
B. Thomson *(Liaison Councillor)*

The PA Committee's objective is to increase public awareness of the role that the engineering profession plays in our society. This is done in order to ensure support for APEM's legislated mandate, and in order to encourage individuals to consider engineering as a profession. The objective is fulfilled in a number of ways, such as organization of National Engineering Week events, participation in and/or sponsorship of similar events organized by other associations or interest groups, placement of newspaper advertisements, and preparation of public awareness literature.

The majority of the committee's time and energy during this past year continued to be devoted to National Engineering Week, which occurs in the first week of March. As in the past, this year's National Engineering Week featured a variety of competitions, displays and demonstrations. Returning events included the Spaghetti Bridge, Whizzer and Celebrity competitions, and a display area in Polo Park. New events this year included a Mir In Motion competition involving design of software and a special screening of the IMAX film "Journey to MIR". This special screening was available only to APEM members and their families. Also new this year was a charity fundraiser run by the University of Manitoba Engineering Society and which heavily involved APEM members at Manitoba Hydro. All events, and in particular the new ones, generated a great deal of interest and positive feedback.

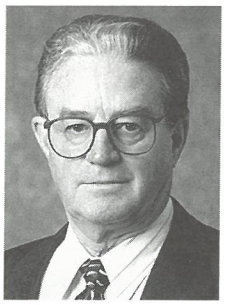
The PA committee continued its association with the Manitoba Schools Science Symposium through monetary support of the organizing committee, and by providing Special Awards for engineering-related projects. The winning projects were again selected by APEM members who volunteered to act as judges.

The PA committee also continued to provide support for the University of Manitoba Handbook by sponsoring an advertisement, and for the Innovators in the Schools program by providing financial assistance.

Membership activity saw Dan Dankewich resign from the committee as a result of his relocation to Alberta. The committee greatly appreciated his efforts and will miss his energy and enthusiasm. On the positive side, John Rooney and Kristin Huminuk joined the committee while Caroline Nieuwenburg rejoined after a brief absence.

With the implementation of ORAP, the terms of reference and even the name of the PA committee will be changed. The committee looks forward to this change as an opportunity to better serve the interests of the Association.

The committee thanks the large number of Association members, both P. Eng. and E.I.T., who had a hand in ensuring the success of the committee's initiatives during the past year. The committee also thanks Shirley Matile and Lorraine Dupas at the Association's office for their invaluable help and support. □



Discipline Committee

***R.E. Scouten,** Chair*

Members

R.A. Kane
D.M. Kilgour
B.R. King
E.E. Lach
W.C. Lee
A.M. Lohse
P.J. Mignacca
G.A. Morris
D.G. Osman
L.J. Penner
D.N. Spangelo

The Discipline Committee consists of members representing various disciplines who are prepared to serve on a disciplinary panel when called upon.

A disciplinary panel compares to a judge in a court of law. It has most of the powers of a court including the power to subpoena witnesses and evidence.

Typically, each case is heard by a selected panel of two or more members and a lay person (a recent requirement under the new Act). The panel has its own legal counsel to advise on procedure.

The Investigation Committee lays the charge and, through its legal counsel and witnesses, presents oral and documentary evidence to the panel.

The investigated member, usually represented by legal counsel, responds to the charge with countering documentary evidence and the testimony of witnesses.

The hearing might take several days after which the panel studies the evidence and makes its judgement.

Penalties, if any, range from a reprimand to restricted or total suspension of practice. All or some of the costs may be included in the penalty.

The hearing is conducted in a formal manner that follows many of the rules of court procedure such as prior disclosure of documentary evidence, examination and cross-examination of witnesses, and the recording of oral testimony.

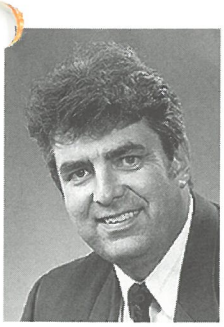
The panel must ensure and uphold the obligations of a court of law, including:

- the investigated person's right to a fair and impartial trial.
- a high standard of impartiality.
- judgment of the facts based on a standard of proof commensurate with the charge.

The full Committee met in September to review its practices and procedures and to consider changes resulting from the Engineering and Geoscientific Act that came into effect in June of this year.

Continued on page 19

COMMITTEE REPORTS COMMITTEE REPORTS COMMITTEE REPORTS COMMITTEE REPORTS



Experience Review Committee

A.D. Silk, Chair

Members

D.T. Anderson
C.R. Bouskill
R.J. Eschenwecker
D.S. Jayas
J.D.G. McInnis
P. Stanus
C.L. Stewart
C.D. Torpey
M.E. Wilkins
R.E. Willms

The Experience Review Committee assesses the experience of Engineers-In-Training and determines when they have sufficient experience to register. Engineers-In-Training are required to submit semi-annual accounts of their work experience, professional development, and professional service. A Committee member, who ensures that work experience is of an engineering nature and professional development and service requirements are met, will review each submission. The Committee member will report the findings at the Committee's monthly meetings. Each Committee member will have approximately three to four files to review each month.

During the past year, two major initiatives were undertaken. Since the inception of the pre-registration program, it has been a requirement that the EIT earn a minimum of one professional service credit each year. To date, this has not been enforced, as we could not agree upon a penalty for EITs who did not obtain this standard. This year, we implemented a practice that requires an EIT to obtain a minimum of one professional service point and 10 hours of professional development each year. Failure to do so would put the candidate in default and any experience that they gained would not be credited towards their four-year requirement until this obligation was met.

The second initiative was to ensure that candidates file periodic EIT reports. The pre-registration program, which requires experience submissions every six months, has always been mandatory for EITs. The intent of this policy is to monitor the EIT and make timely suggestions beneficial to their progress. It was also easier for the reviewer to review files periodically than to review four years experience at one time. Unfortunately, many EITs were saving their reports and filing only once. To discourage this, the Experience Review Committee implemented a practice that only allows an EIT to report on experience that was obtained during the previous eight months. Any experience gained prior to the eight-month window that was not reported in a previous submission will not be considered.

During the past year, Julien Lavergne resigned from the Experience Review Committee. Julien was a valued member of our committee and he will be missed.

I would like to thank all the members of the Experience Review Committee for their continued dedication to this process and to the new members for agreeing to participate in this process. □

Discipline Committee

Continued from Page 18

In October, a disciplinary panel is scheduled to hear a charge laid in 1997.

In September, the Committee Chair met with representatives of the Discipline Committee, the Investigation Committee and a person to be investigated to set a date for hearing a charge of unprofessional conduct. Subsequent to the meeting, a panel of three committee members was chosen and confirmed.

The limited number of cases brought to the Discipline Committee continues to affirm the ability of the profession to govern itself.

The work of the committee members, the panel's commitment of time, and the care and preparation by Dave Ennis are very much appreciated. □

COMMITTEE REPORTS COMMITTEE REPORTS COMMITTEE REPORTS COMMITTEE REPORTS

University News

By: B. Stimpson, P.Eng.

Department of Biosystems Engineering

Prof. W.E. Muir, Ph.D., P.Eng. is the 1998 recipient of the CSAE/SCGR Maple Leaf Award in recognition of his work in the creation and development of an internationally recognized program at the University of Manitoba in the area of grain storage research and education.

Department of Civil and Geological Engineering

Prof. D. Burn, Ph.D., P.Eng. (Water Resources), former Head of the Department, has taken up a full-time appointment at the University of Waterloo.

Prof. J. Graham, Ph.D., P. Eng. (Geotechnical), will become Director-General of the Canadian Geotechnical Society on January 1st, 1999, but will continue his association with the Department on a reduced appointment. He is currently the President of the Society, which has about 1400 members, sections in 23 cities and seven technical divisions. The Society's mission is "to initiate and pursue efforts leading to the technical competence and excellence of Canadian geotechnical and related geoscience professions."

Prof. J. Oleskiewicz, Ph.D., P.Eng. (Environmental), was awarded the Albert Berry Medal from the Canadian Society for Civil Engineering for his outstanding contributions to the field of environmental engineering.

Department of Electrical and Computer Engineering

Prof. L. Shafai, Ph.D., P.Eng., is to be inducted into the Royal Society of Canada in November (in 1984 he received APEM's Merit Award). Prof. Shafai is Director of the Antenna Research Laboratory at the University (one of the best equipped in the world) and major project leader for broadband wireless communications with the Canadian Institute for Telecommunications Research.

Dr. A. Cuhadar has joined the Department as an Asst. Professor in the area of computer engineering with expertise in parallel processing, medical-image processing, and computer vision. She received her B.Sc. and M.Sc. degrees from the Middle East Technical University, and her Ph.D. from the University of Essex.

Dr. B. Perkins has taken up an appointment as an Asst. Professor in the Department after spending one year with the Power Transmission and Distribution Group of Siemens in Germany. He will contribute to the Power Systems Group in the areas of power electronics, power quality, and systems controls. His B.Sc. and Ph.D. degrees were obtained at the University of Toronto and his M.Sc. at the University of British Columbia.

Dr. C. Shafai has joined the Department as an Asst. Professor and brings expertise in microfabrication techniques for microwave systems and other 'on-chip' mechanical and electrical devices. He received his B.Sc. and M.Sc. degrees from the University of Manitoba and his Ph.D. from the University of Alberta.

ISIS Canada Funding

NSERC has announced the renewal of funding for ISIS-NCE (Canadian Network of Centres of Excellence for Intelligent Sensing for Innovative Structures) in the amount of $2.65 million annually until the year 2002. This announcement follows an independent review and site visit by an expert panel. The network is centred at the University of Manitoba under the direction of **Prof. S. Rizkalla, Ph.D., P.Eng.** (Department of Civil and Geological Engineering). It involves 11 universities and over 215 researchers in the application of composite materials and fiber-optic sensing to civil infrastructure. Its annual budget is $5.5 million.

ISIS Canada Receives an Award

ISIS Canada received an award from the Society for Technical Communications' International Technical Art Competition for the 1996 Annual Report cover.

Annual ISIS Canada Award

Brea Williams, a 1998 graduate of Civil Engineering, who maintained a 4.5 average, has been awarded one of two $5,000 ISIS Canada Women in Engineering Scholarships. Brea is now doing graduate work at the University of Manitoba. □

Public Consultation on the Manitoba Drinking Water Management Program

The provision of drinking water to Manitobans through public drinking water systems is regulated and controlled through a Drinking Water Management Program established under the *Public Health Act* and administered by Manitoba Health and Manitoba Environment. The program has evolved over the years to adapt to new technology, new drinking water parameters, and to public concerns.

Constraints caused by increases in the number of plants and the complexity of the testing requirements under the Guidelines, budgetary limits on Manitoba Environment and Manitoba Health, as well as opportunities offered by new technology, suggest that the Program be examined for relevance of its components, and for its overall efficiency and effectiveness. The Canadian Water and Wastewater Association (which is the national voice on municipal water and wastewater issues) has been contracted by Manitoba Environment and Manitoba Health to lead a public consultation on the drinking water program, with the assistance of a Consultation Group of key Manitoba stakeholder organizations.

The consultation will provide individuals with the following opportunities:

- respond to a brief questionnaire regarding your ideas on the current program. (Sept.)
- review and comment on a Consultation Document outlining the new program. (Oct.)
- participate in any of 5 public town hall meetings (Nov.)
- review and comment on a "What you told us" report of the consultations (Dec./Jan.)

If you are interested in receiving the communications about this project, or have any questions about the project please contact either:

Canadian Water and Wastewater Association
Suite 402, 45 Rideau St.
Ottawa, Ontario K1N 5W8
Tel: (613) 241-5692
Fax: (613) 241-5193
E-mail: admin@cwwa.ca

The Union of Manitoba Municipalities
Box 397, Portage La Prairie, Manitoba R1N 3B7
Tel: (204) 857-8666
Fax: (204) 239-5050
E-mail: umm@mb.sympatico.ca

Thanking you in advance for your interest and cooperation.

T. Duncan Ellison, Executive Director □

Coming Events

Power Quality Issues, Standards and Solutions

A One-Day Conference for Metal Producers and Electrical Utilities

October 8, 1998 – Sheraton Winnipeg Hotel

For further information:
Phone: Manitoba Hydro at 474-4959
E-mail: jheppner@hydro.mb.ca
Web site: **www.cce.qe.ca**

Successful Construction Projects From Concept to Completion

October 15-16, 1998 – Crowne Plaza Winnipeg Downtown

For further information contact:
Educational Program Innovations Centre
Phone: 1-888-374-2338
Web site: **www.epic_edu.com**

Membrane Applications in the Agri-Food Industry

November 16 & 17, 1998 – Holiday Inn South, Winnipeg

A two-day seminar on product processing and water and wastewater applications to demonstrate the economic and process benefits of membrane systems using technology profiles, case study examples and pilot plant demonstrations of actual systems.

For further information contact:
Markus Schmülgen at the Food Development Centre, Portage la Prairie, MB
Phone: (204) 239-3150 or
toll-free at 1-800-870-1044

SAE Student Competition

Continued from Page 4

rugged vehicles are put through gruelling competitions where they bump over rough terrain and splash through water hazards. The competition took place in Cookville, TN. The UMSAE group decided that discretion was the better part of valour and postponed their entry into the competition until next year. However, Canada did not go unrewarded when Université de Sherbrooke placed third overall.

In Conclusion

Regardless of where our teams placed, the most rewarding aspect of these competitions was to be part of an exciting, creative, process and we are proud of them all. They did have an advantage - the dedication and commitment of Dr. Sandy Thornton-Trump. In speaking to him about these projects it is very evident that he is an immeasurable asset with his technical knowledge and boundless enthusiasm. Most important, he is willing to let the students make their own discoveries and learn from their mistakes.

Next year another group of students will take up the torch and enter these competitions. Remember, if you can assist with your knowledge, money, time, or a company sponsorship you can help a young engineer learn their craft.

Please show your support and interest by attending the UMSAE Wine and Cheese party.

When: November 4th, 1998
Where: Beausejour Room, University Centre
Time: Doors open before 6:00 PM
Speaker at 7:00 PM □

Are You Serious About Project Management?

By: J.S. McLeod, P.Eng.

Project management is gaining wide recognition as a profession with its own body of knowledge. Project management skills are a hot commodity in today's business market. The practice of project management is heavily populated with engineers and grew out of the construction industry.

The Project Management Institute (PMI) is a worldwide professional organization based in the USA. Its members include project managers from every different industry & discipline, including Engineering, Pharmaceuticals, Construction and Information Technology. They have over 37,000 members worldwide, as well as many prestigious Corporate Members such as Fluor Daniel, AT&T, and US West Communications. PMI is dedicated to the goal of enhancing the use of modern professional project management practices. The monthly publications contain articles on all aspects of project management and range from practical experience to scholarly research. A project of the year, which demonstrates the practical application of project management techniques, is extensively written up. An annual symposium, held in Canada or the USA, each year brings together over 2,000 project managers to share and learn about the latest advances in project management. Local chapters hold regular meetings where members share knowledge and network with their peers.

Benefits of membership in PMI include:

- Access to the Project Management Body of Knowledge (PMBOK)
- Certification program (Project Management Professional) – this is the only recognized PM certification in the Western Hemisphere
- Monthly magazine of PM topics (PM Network)
- Quarterly research journal on PM (PM Journal)
- Extensive on-line bookstore of PM books and resources
- Monthly Manitoba Chapter meetings featuring in-depth PM topics

If you're really serious about modern project management, look into membership in PMI. For more information, you can browse PMI's web site, **http://www.pmi.org/**. If you prefer to receive a membership kit, contact the Manitoba Chapter at (204) 943-0717. □