

# Professional Engineer



## The Good Old Days

By: B.A.K. Danielson, P.Eng.

In recognition of APEM's 75th anniversary, the February, 1995 issue of the MPE featured an article on the early beginnings of the Association (1920-1921). This article is a continuation of APEM's history, up to its 25th anniversary in 1945.

### Activities of the Association

In 1923, the President of the Association authorized a committee to act jointly with the Headquarters of the Engineering Institute of Canada (EIC) to study a means of co-ordinating the functions of the two organizations. A closer relationship between the Association and the EIC was hindered due to the objection by those who were members of one body only to the higher fees that this amalgamation might bring. In 1930, further effort was made to bring about joint control of the Winnipeg branch of the EIC and the Association. A General Meeting of the membership was called in 1934 to discuss the proposal with the requirement that 75% of the members be in favour. Unfortunately, attendance was poor (sound familiar?), and a questionnaire was sent to members of both bodies in order to determine their opinion on amalgamation. Unfortunately, again, the questionnaires returned were not sufficiently conclusive (clearly, there are some traditions that have remained steadfast over the years!) and a new approach to the subject was suggested. From this time until 1944, the question of amalgamation was studied by various committees, with several questionnaires and proposals being presented to the membership. Finally, in 1944, at a Special General Meeting of the Association, a motion for a joint agreement with the Institute was defeated and the matter laid to rest.

In 1934, a new "Engineering Profession Act", which would afford added protection to the public by clarifying what the practice of professional engineering embraces and who would be qualified to practice, was drafted. This act was passed by the Legislative Assembly and was given royal assent on April 6, 1935. The chief duty imposed on the Association by the Legislature of Manitoba is to administer "The Engineering Profession Act". In carrying out this duty, Council is concerned with ascertaining that all whom it registers are competent to fulfill the functions of a professional engineer, to the end that the public may be protected against incompetence in the

design, supervision, and inspection of engineering projects.

Other roles taken on by the Association included improving the social and economic standing of the profession (have we been successful? – see MONEY MATTERS); ensuring that activities of the membership did not infringe on the fields of other societies (e.g. mining, metallurgy, chemistry); establishing qualifications of foreign engineers; and, to a lesser extent, operating an Engineers' Club.

### Becoming an Engineer in 1940

Applicants for membership in the Association were required to write an examination consisting of a general-nature paper (no word-processors back then!) and a practical problem. Candidates were not allowed to take books, papers, or notes into the examining room. Slide-rules, however, were permitted (what's a slide-rule?). The examination was held on the second Tuesday and succeeding days of the month of February.

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### ASSOCIATION OF PROFESSIONAL ENGINEERS OF MANITOBA

# 75<sup>th</sup> Annual General Meeting

SATURDAY, OCTOBER 21, 1995 – THE WESTIN HOTEL

## AGENDA

- 8:00 a.m.** Registration
- 8:30 a.m.** Continental Breakfast
- 9:00 a.m. – 12:30 p.m.**
  - Official Opening – President Don G. Osman, P.Eng.
  - Notice of Meeting
  - Introduction of Councillors and Guests
  - Minutes of the 1994 Annual General Meeting
  - Declaration of Councillors Elected
  - Receipt of the Auditor's Report
  - Appointment of Auditors
  - Review of the 1995-96 Budget
  - Accountability Session:
    - The Manitoba Law Reform Commission's Report
    - Proposal regarding Mandatory Reporting of Professional Development
    - Women in Engineering Advisory Committee Survey on Workplace Conditions
    - Proposed Revisions to The Engineering Profession Act
  - Appointments to the Nominating Committee
  - Reports from Committee Chairs
  - Recognition of Retiring Councillors
  - Induction of the 1995-96 President
- 6:30 p.m.**
  - Dinner and Entertainment
  - Presentation of APEM Awards
  - The Westin – Lombard Room

(Please bring this Agenda to the Meeting)

## THE MANITOBA Professional Engineer

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P. Washchyshyn, P.Eng.

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S.M. Matile, P. Eng., Director of Admissions  
J.C. McKinley, Administrative Officer  
D. Bilodeau, Admissions Co-ordinator  
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M. Little, Administrative Secretary  
L. Dupas, Receptionist/Secretary

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L.Y. Ganetsky, P. Eng.; C.P. Gray, P. Eng.;  
A. Kempan, P. Eng.; J. Lucas, P. Eng.;  
W.G. McKay, P. Eng. (Ret.);  
H.S. Zbigniewicz, P. Eng.

### CORRESPONDENTS

J. Close, P. Eng., Portage  
D. D'Amour, P. Eng., Thompson  
R. Menon, P. Eng., Brandon

Opinions expressed are not necessarily those held by the APEM or the Council of the APEM



**WE HAVE LOST CONTACT.  
MAY WE HAVE AN ADDRESS?**



|                |             |
|----------------|-------------|
| R.R. Brodeur   | A.K. Kading |
| C.A. Carnegie  | A.F. Linden |
| A.Z. Delecki   | C. Mistry   |
| B.A. Gustafson | M. Pawlak   |
| N.Y. Haddad    | L. Stocco   |
| M. Husain      | E.B. Wilson |
| B.R. Jackson   | S.L. Wilson |
| R.A. Jeria     |             |

# New Department Heads Appointed in Faculty of Engineering

By: G.A. Morris, P.Eng.

**O**n July 1, 1995, three new department heads were appointed in the Faculty of Engineering at the University of Manitoba.

**Dr. Rob Menzies, P.Eng.** was appointed to a five-year term as head of the Department of Electrical and Computer Engineering. Following receipt of his Bachelor's degree from McMaster University, Rob was awarded an Athlone Fellowship to further his studies at St. Andrews University, Scotland, where he earned his Ph.D. degree in 1967. That year he joined the University of Manitoba Department of Electrical Engineering, specializing in the areas of energy conversion, machines and power electronics. In 1977, and again in 1979-80, Rob was Acting Head of the Department.

Dr. Menzies has held one-year industrial appointments with Westinghouse Canada, and with BBC Brown Boveri and ABB Drives AG, in Switzerland. He has also held consultancies with AECL Power Projects, Bristol Aerospace Ltd., the Canadian Electrical Association, Dickenson Mines Ltd., Flyer Industries, the Manitoba HVDC Research Centre, Du Pont Canada and others.

A member of APEM since 1968, Dr. Menzies has served on the University Liaison Committee, the Bulletin Committee, the Awards Committee and, for the past twelve years, the Board of Examiners. In 1983, he was awarded the APEM Merit Award.

**Dr. Hassan Soliman, P.Eng.** was appointed to a five-year term as Head of the Department of

Mechanical and Industrial Engineering. Dr. Soliman earned his bachelor's degree at Assiut University in Egypt, and his Masters and Ph.D. degrees at Kansas State University. Following a two-year appointment as a post-doctoral fellow at the University of Ottawa, Hassan joined the University of Manitoba Department of Mechanical Engineering in 1977. He has held Visiting Professor appointments at Florida International University, Dartmouth College and Rensselaer Polytechnic Institute. Winner of the U of M Merit award for outstanding achievement in teaching, research and scholarly work, Hassan has also served on a number of departmental and faculty committees.

Dr. Soliman has authored a large number of papers in the areas of heat transfer and two-phase flow and he currently holds research grants and contract with the Natural Sciences and Engineering Research Council and Atomic Energy of Canada Ltd. Hassan has served on the APEM Salary Research Committee and he has prepared and graded examinations for the APEM Board of Examiners.

**Dr. Don Burn, P.Eng.** was appointed Acting Head of the Civil and Geological Engineering Department for a one-year term. Don, who earned his Bachelors, Masters and Ph.D. degrees at the University of Waterloo, joined the University of Manitoba Department of Civil Engineering in 1985. He has published a large number of papers in the water resources and systems areas and has conducted a number of research projects for Manitoba Hydro.

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### LICENCES ISSUED JULY & AUGUST, 1995

R.L. San Giacomo  
(NY)

R.R. Lunt (MA)

### REINSTATEMENTS JULY & AUGUST, 1995

N.L. Diseko  
S.D. MacSwain

B.J. Ruzsicska

### NEW MEMBERS REGISTERED JULY & AUGUST, 1995

|                    |                     |
|--------------------|---------------------|
| M.H. Antonini (SK) | B.W. Lees           |
| H. Balodis (ON)    | J.E. Mueller        |
| P.R. Barnwell (ON) | A.L. Nychuk-Jensen  |
| L.A. Bermel (SK)   | J.F. Reysset (PQ)   |
| S.M. Bias          | C.C. Ross           |
| N. Blackburn (ON)  | C.B. Rushton (ON)   |
| R.W. Bruynson (ON) | M.C. Ruta           |
| M.M.R. Chang (AB)  | R.N.W. Sidders (AB) |
| W.F. Daniels (ON)  | B.S. Soora          |
| W.P. de Monye      | R. Starling (ON)    |
| D.C. Engel         | P. Sundararaj (BC)  |
| N.R. Evans (AB)    | J.D. Thomson (SK)   |
| M.B. Inglis (ON)   | W.K. Wong           |
| H.B.H. Janzen      | J.A. Wood (PQ)      |
| A.G. Kamerman (ON) | C. Zhou             |
| J. Konopka (SK)    | P.A. Zubick (AB)    |
| D.B. Leech (SK)    |                     |

### ENGINEERS-IN-TRAINING ENROLLED JULY & AUGUST, 1995

|                      |               |
|----------------------|---------------|
| H.E. Boge            | R.D. Hamilton |
| A.G. Clegg           | G.M. Lecuyer  |
| M.R. Friesen-Fischer | M.D. Penner   |

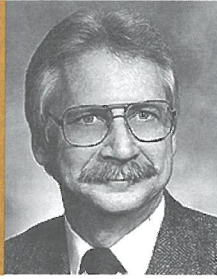
### In Memoriam

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

Donald E. Barchyn Neil C. Burgess

## President's Message

D.G. Osman,  
P.Eng.



As the 75th anniversary of APEM draws to a close, I take this opportunity to express my sincere gratitude to all those members who have supported the many committee activities of the APEM throughout the year and helped to make it a success. The profession is indeed fortunate to have so many members who in their day-to-day work are involved in shaping the future of this great province and nation. I would also like to make a special note of the contribution of all the members of the Council and the staff.

As I reach the end of my term as President, it is time to write my last President's report. In the past, the end-of-term reports were typically written on the "year-in-review" theme. Council has endeavoured to keep you apprised of the progress on the various issues through the Manitoba Professional Engineer. Since the Chairs have prepared reports from their Committees (the working bodies of Council), detailing the events of the year, I feel that there is no need to duplicate this information.

So, instead of looking back on this occasion, it might be more appropriate to look to the future. The APEM, CCPE and, it seems, nearly everyone these days are involved in a "visioning" process. It has been suggested that if we are to survive as a profession and continue to earn the right to self-governance we must adapt to the evolutionary

developments of the future. I would like to suggest that this is too much of a reactionary stance for the profession to really shape our destiny.

Let me tell the story I heard from a European gentleman while attending a conference. He titled it "The Boiling Frog Syndrome". It seems that there was this fellow who caught a frog in the swamp and scooped up a pail of the swamp water so as to provide the same environment for the frog in its new captive state. When the fellow got home he inadvertently put the pail with the frog in it on the wood stove and forgot about it. As the time passed, the water got warmer. Instead of jumping out of the pail, the frog, with its abilities, adapted to the change in temperature. Eventually the frog boiled. The message: it is not sufficient to be able to adapt to changes. We must anticipate the needs of the future and prepare for them today.

What, then, will be the needs to be met by the APEM and other professional engineering associations of Canada in the future? To be sure, there will be more varied moral and ethical issues facing the members. Genetic engineering, communications and privacy rights, economics and the priorities of society, and environmental preservation are some issues which will present ethical challenges. There will be increased availability of some rather powerful and sophisticated, yet user-friendly, computers and engineering software systems. On how many occasions will individuals lacking the proper engineering education hold themselves out to an unsuspecting public as capable of providing the "engineering design"? This can lead to something as simple as the roof-truss design for a cottage failing, with serious consequences to the occupants and contents. Could significant environmental damage occur in another similar situation? Society's need for assurance in the provision of its services and systems will

become more, not less, significant. Is there need for effective regulation?

The Manitoba Law Reform Commission has made some 90 recommendations regarding licensing and certification for the professions and occupations of Manitoba. If acted upon, there will, it seems, be a need to change the way that APEM will be doing business in the future. There would be a requirement for increased accountability and transparency for all professions and occupations, all to the benefit of the public. Many of the actions recommended by the Law Reform Commission APEM has in place, or has at least anticipated. However, issues such as the setting of entrance and practice standards by persons outside the APEM could be a concern if done independently.

I trust that the foregoing will provide you with an appreciation of some of the varied matters which are, and will be, addressed by your Council. I thank the membership for the opportunity to have served you as a member of Council and as President. It has truly been a rewarding experience.

I take this occasion to congratulate Cathy Stewart, P.Eng. on being elected by Council as the first woman President of APEM. I wish her every success as President and offer my continued support during her term.

I look forward to your participation in the Annual General Meeting that marks the 75th Anniversary of APEM on October 21, 1995. In case you hadn't noticed, there will be an "accountability" session. It should be an opportunity for all to anticipate the needs of YOUR Association and start preparing for them. □

## Apology

The Annual General Meeting Notice, included in the August, 1995 mailing, contained a HUGE error: the name of one of the Association's Councillors was inadvertently omitted from the list of Members of Council whose terms of office continue for another year.

Please rest assured that Councillor J.M. (Mal) Symonds is still alive and well, and will (assuming that he will accept our apology!) be serving this Association as a member of Council for the 1995-96 year.

Please forgive us, Mal. □

### YOUR COUNCIL 1994-95

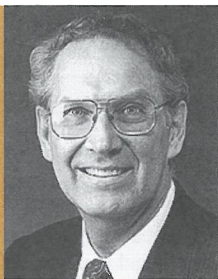


Back Row (from left): Stuart Ursel, Stella Fedeniuk, Doug Chapman, Bob Partridge, Arnold Permut, President Don Osman, Mal Symonds, Peter Washchyshyn  
Seated (from left): Ron Britton, Ertrice Eddy, Vice-President Cathy Stewart, Bonnie Thomson  
Missing: Arthur Kempan



## CCPE Chair's Message

Garry Wacker,  
P.Eng.



### *A National Vision for Engineering in Canada*

## The Challenge of Change

**C**PE and its constituent associations have embarked on a process to establish a vision for the engineering profession in Canada. Primary questions related to a vision are: "What is engineering and what constitutes the practice of engineering? What roles and responsibilities do engineers have? These questions prompt related

matters such as the appropriateness of the current form of governance of engineers, and questions regarding boundaries and relationships with other occupations or professions. While these are important issues in themselves, all are derivatives of a much more fundamental key question: "What are the societal perspectives and expectations of engineers?" Clearly, engineering has become a societal process as well as a technical activity. I believe it is imperative to incorporate this notion as we strive for a vision for the engineering profession.

A historical review of the evolution of engineering in Canada reveals that governance has been a key component. By act of legislature in each of the provinces and territories, engineers are given the exclusive right to practise engineering, and with it, as a kind of "social contract", the responsibility of self-governance so as to serve and protect the safety and interests of the public. Legislation contains provisions for licensure, codes of conduct, discipline and enforcement to ensure that only qualified people practise engineering. All engineering endeavours are covered regardless whether the signing and sealing of doc-

uments is involved, whether an engineer is an employee or self-employed, or whether the work is "in-house" or "fee-for-service". Such breadth of governance is not typical in other countries, and the Canadian model is often held up as exemplary. This is certainly a strength, but it is also a potential weakness, and has attracted numerous criticisms.

It is these weaknesses and criticisms along with the strengths which must be addressed as we review our role in society and re-cast a vision for the profession. In the brief space of this newsletter, I propose to touch on only a few of the issues and attempt to demonstrate their complexity.

One issue has to do with expanding the nature and extent of our accountability as professionals, individually and collectively. An expanded accountability would include educating the public about engineering matters, providing information on the longer-term impacts on society and the environment, working towards sustainability, and documenting publicly the adverse effects of rejecting sound engineering decisions. Notice that this includes not only accountability for detrimen-

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### *Professional Development Committee Breakfast Meeting, June 30, 1995*

## Impact of the 1994 California Earthquake on Structures

By: C.P. Gray, P.Eng.

**T**he Professional Development Committee held a Breakfast Meeting on June 30, 1995 with Dr. Ray Tide. Dr. Tide spoke on the structural impact of the 1994 San Fernando Valley earthquake.

Dr. Tide graduated from the University of Manitoba (B.Sc in Civil Engineering) and served as an officer in the Canadian Corps of Engineers. Later, he earned his Master's degree in structural engineering from Lehigh University and his doctorate from Washington University in St. Louis. Dr. Tide was an assistant professor and has worked for the American Institute of Steel Construction. Dr. Tide is presently employed with Wiss, Janney, Elstner Associates Inc.

Dr. Tide gave an overview of the magnitude of the January 17, 1994 earthquake, using various slides of buildings he inspected or visited and numerical data of the gravity forces. The majority of the damage was in the northern Los Angeles area. However, damage was random throughout the Los Angeles and Orange County areas with cases of buildings damaged beyond repair and adjacent buildings more or less intact. In one case, a residence acted as three separate structures; the brick chimney and a one-storey structure collapsed and the center two-storey structure remained standing. Another example discussed was a three-level wood apartment block, where the main floor collapsed because of a lack of lateral restraint. The apartment block had a car-parking area under the second floor, which is a fairly common layout. Dr. Tide showed a wood-framed apartment block which appeared undamaged on the front elevation. However, the side and back-

side exterior walls had numerous shear cracks and the interior wood support posts were severely tilted and the structure was teetering in an unstable condition. As well, Dr. Tide showed several examples of failures in concrete frame connections of various structures and a precast parkade that collapsed as a result of a faulty design of the interior columns (even though the exterior frame was designed to withstand an earthquake and the exterior column members deformed in a plastic fashion as intended). However, Dr. Tide emphasized that the concrete structures that followed the most recent ACI standards performed well. As well as stating the economic losses, Dr. Tide put a human face to the tragedy, recounting incidents of personal suffering.

Dr. Tide inspected and analyzed structural faults of many steel-framed structures in the northern Los Angeles area. Dr. Tide reviewed the Anaheim Coliseum, a two-tower 18-storey apartment block, and the University of California Library. The Anaheim Coliseum frame collapsed at the upper-deck end-zone area (where a video replay screen was supported). The 36" wide flange column members had developed plastic hinges where welds performed as designed. However, cracks to welds and the web occurred where there were faulty welds which caused a collapse of the upper-deck framing. One of the 18-storey apartment blocks had severe damage at connections, while the other apartment remained intact. Since the steel frames are identical, it is believed that workmanship (particularly welding) between the two buildings was the significant factor. Retrofitting of the steel frame connections of the

damaged apartment was done using stiffer plates and high-quality welding. Even though the top-floor displacement of both apartment blocks was in the range of 4 - 5 1/2", the structure was still deemed structurally safe since the original design allowed for up to 21" of permanent displacement. The University of California Library has a precast facade which had cracking and dislodged panels. The steel frame has 6" steel base plates that had brittle shear cracks and the anchor bolts were stretched several inches. Dr. Tide commented that had the earthquake continued longer, the structure would likely have collapsed.

Dr. Tide indicated that the vast majority of structural damage to steel structures can be attributed to poor welding quality and, to a lesser extent, to detailing flaws of connections. Generally, there was poor welding quality because there were numerous welding standard violations, such as too-large weld bead sizes in built-up welds, poor wire quality, poor fusion at roots and not using run-off bars. As well, welding inspection during construction is typically only at the surface of the weld, where only gross welding deficiency can be detected. Unfortunately, subsurface defects, which are common, can only be detected with careful ultra-sound investigations. Dr. Tide says the solution for better performance of steel structures is to ensure better weld quality, increase weld toughness, remove notch defects and reduce weld stresses. As well, the communication between the welding craftsman and engineer needs to be improved.

Dr. Tide then fielded questions from the audience. One question was on laminar tearing which Dr. Tide indicated was not of great significance to structural performance of the buildings that failed. Doug Kramble (Chair of the Professional Development Committee) then thanked Dr. Tide for his excellent presentation. It is safe to say attendees walked away with a better understanding of the structural impact of the 1994 San Fernando Valley earthquake. □

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## Executive Director's Report



D.A. Ennis

The Executive Director is responsible for four general areas of the Association's activities apart from those of the Boards and Committees. The activities of the Committees are reported on elsewhere in this publication.

### Registrar

The primary responsibilities of the office of the Registrar are processing admission to the profession, maintaining the official record of the status of members, and providing administrative support to the disciplinary process.

In the area of admissions, the Association is very ably and diligently served by the Director of Admissions, Shirley Matile, P. Eng. Her report is also elsewhere in this publication. There have been many improvements to the admissions process over the year. In particular I note the introduction of the Professional Practice Seminar and Exam. I recommend the Seminar as a very worthwhile continuing education opportunity for all professional engineers – regardless of their qualifications from the school of hard knocks.

Regarding the membership of the Association, the changes in membership over the year were:

|                             |               |       |
|-----------------------------|---------------|-------|
| Membership on July 31, 1994 |               | 3,465 |
| Plus – registrations        | 213           |       |
| – transfers-in              | 26            |       |
| – reinstatements            | 10            |       |
|                             | <u>+(249)</u> |       |
| Less – resignations         | 97            |       |
| – transfers-out             | 2             |       |
| – deregistered              | 56            |       |
| – deceased                  | 9             |       |
|                             | <u>-(164)</u> |       |

Membership on July 31, 1995 3,550

It is composed of various categories:

|                              |              |
|------------------------------|--------------|
| Full Members                 | 2,992        |
| Non-Resident Members         | 347          |
| Retired Members              | 158          |
| Members Paying Deferred Dues | 29           |
| Life Members                 | 24           |
| Total                        | <u>3,550</u> |

The number of members holding full practising membership increased by 131. This was probably due to the introduction of the inter-association agreement on mobility which simplifies the procedures for the registration of professional engineers registered with other

Canadian associations. Non-Resident and Retired membership has remained fairly constant. The Deferred Dues category was introduced in 1994 to provide some relief to those members who are unemployed. There was a slight decrease in the number of members in that category.

The disciplinary process involves receiving and processing complaints about the practice or conduct of members and the subsequent activities of the Investigation Committee and the Discipline Committee. The office of the Registrar provided the administrative support for one disciplinary hearing held under the Act and one suspension of membership following a conviction registered with the written consent of a member.

### Secretary-Treasurer

As Secretary, I report that the business of the Council has been duly recorded and that the required notices have been provided to the membership.

The deliberations and activities of the Council have been reported on a regular basis in The Manitoba Professional Engineer. They are also summarized in other reports in this issue.

As Treasurer, I report that the Association has had a surplus for the year and that it continues to be in a sound financial position. The accumulated surplus is invested in accordance with the By-law and the interest earned contributes to income in an amount roughly equal to \$14 per member.

### Enforcement of The Act

Enforcement activities are intended to prevent contravention of both the practice and title provisions of The Engineering Profession Act.

The report of the Enforcement Committee deals with the initiatives in this area.

There were no prosecutions initiated under The Engineering Profession Act over the year.

However, one person was criminally charged with fraud following an investigation by the City of Winnipeg Police Department for unauthorized use of the seal of a registered professional engineer. However, the Crown has recently stayed the charges. This matter will be appealed.

The Attorney-General does not lay charges against or prosecute persons for contravening the

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## Director of Admissions' Report



S.M. Matile

Once again, the Admissions staff at APEM has experienced an exhausting year! After more than two years in "overdrive", however, we can proudly announce that we have accomplished something significant! Not only have we developed and implemented completely new admissions procedures,

including a mandatory program for EITs, but we have done so in the face of record numbers of applications. And the EIT program, miraculously, appears to be operating as designed!

The four-year work-experience requirement ostensibly came into effect on January 1, 1995. However, Council's "grandfathering" policy (which turned out to be a moving target, with revisions taking place well into December, 1994) resulted in a veritable landslide of applications – for both EIT enrollment and registration – toward the end of 1994. (In fact, applicants were literally lined up outside the office door on December 30, to avoid having to comply with the Association's new admissions requirements!) In November and December alone, we processed 58 applications for registration and 78 applications for EIT enrollment; and in January and February, 36 reg-

istrations and 63 EITs. (In all of 1993-4, we processed 100 applications for EIT enrollment and 218 applications for registration!) Even in September, 1995, we are still processing the applications of persons who applied in 1994, under the "old" requirements!

By January, 1995, the Operations Manual for the Experience Review Board was completed, as were the Pre-Registration Program, the EIT and Supervisor Progress Report forms, and the information kits for EITs, their supervisors and their employers. (A dual system had to be developed and implemented: one for applicants under the four-year-work-experience requirement, and one for those "grandfathered" under the "two-year" rule.) A new application form, suitable for all types of applicants, was also developed and implemented in January.

The Interim Inter-Association Mobility Agreement, which was signed in May, 1994, was also implemented in January. We have had quite a number of applicants for "fast-track" registration under the terms of this agreement. This agreement continues to be a concern for the Admissions staff, to whom it appears that the Association is raising admissions standards for one set of applicants, and lowering them for another.

Over the fiscal year (August 1, 1994 to July 31, 1995), we assessed the academic credentials of 28 applicants, assessed the engineering work experience credentials of 171 applicants (50 of these during the month of December!), registered 249 new members, enrolled 278 Engineers-in-Training (EITs), and granted 79 temporary licences to Canadian and U.S. engineers to practise engineering in Manitoba.

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## Investigation Committee



Wm. M.A. McDonald,  
Chair

### Members:

N.C. Burgess  
D.E. Cross  
F.M. Fowler  
T.H. Gillman  
R.P. Hoemsen  
R.A. Johnson  
E.I. Lexier  
W.J. McCulloch  
J.R. McDougall  
I.H. McKay  
J.A. Terris  
S.L. Ursel  
(Liaison Councillor)

The Investigation Committee is involved in the investigation of complaints and concerns received from both the public and members of the Association. The actions of the committee are conducted under the authority provided by By-Law 43, and guided by 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 full committee held 10 meetings. In addition, there were numerous sub-committee meetings that considered the various files. A total of 18 files were considered with three of these being carried over from the previous year. At present, there are six open files under investigation.

### Types of Complaints:

- Four complaints were brought forward with respect to works involving residential buildings.
- One complaint was due to a structural failure.
- Three complaints resulted from instances where an engineer was concerned with the actions of another engineer.
- Ten complaints resulted from concerns from various agencies and individuals on the conduct of engineers.

### Disposition:

- Three members had formal charges laid against them. Two of these accepted the charges and these cases have been previously reported in this publication. The third member resigned from the profession before the matter was heard and hence the charges are being held in abeyance.
- Nine complaints were dismissed after investigation. In four of these cases, the engineer involved was provided with guidance.

In addition the Investigation Committee provided direction and advice on the following:

- The Association's brochure on "Making a Complaint"
- Practice notes on Conflict of Interest
- Recommendations on the proposed changes to The Engineering Profession Act
- The Council's review of the Report on the Building Envelope

The Committee is currently preparing another practice note at the request of the Council.

It was with regret that we accepted the resignation of Doug Grimes from the committee. His long-time leadership and guidance will be missed. We welcomed Stu Ursel, Jim Terris, and Warren McCulloch as new members of the committee.

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

## Safety In Engineering Practice Committee



F.A. Roberts, Chair

### Members

D.E. Cross  
A.O. Dyregrov  
M.J. Frye  
R.E. Gottfred  
J.V. Weiszmann  
L.P. Williams  
E. Eddy  
(Liaison Councillor)

The Safety in Engineering Practice Committee functions as a body interested in pre-emptive action to identify potential pitfalls to designers. Part of the process involves looking at specific problem cases, identifying what went wrong and passing along our findings.

The Committee serves as a sounding board for proposed changes in our profession and comments, where appropriate, on how these changes may impact on the ability of engineers to produce work which will ensure public safety. The committee's role has expanded over the past two years to include reviewing proposed provincial safety legislation and assisting Council in preparing a response.

### Building Envelope Sub-Committee

This Sub-Committee, under the chairmanship of Dr. John Frye, has concluded its work and the report has been approved by the main committee and APEM Council. Recognizing input from the Manitoba Association of Architects on the Sub-Committee, Council has invited the MAA to join in issuing the report to building authorities, the faculties of Engineering and Architecture at the University of Manitoba, as well as industry associations and other interested parties.

Deterioration of the building envelope is one of the greatest costs in building upkeep. It is hoped that the 16 recommendations in the report will assist engineers as well as others involved in building construction in improving the perfor-

mance and longevity of the building envelope.

### Consultation Paper No.II on Provincial Safety Legislation

Consultation Paper No.II, published by the Province of Manitoba, Department of Labour, outlines proposed substantive changes which combine under a single act The Oil and Gas Burner Act, The Steam and Pressure Plants Act, The Amusements Act, The Elevator Act, The Buildings and Mobile Homes Act, The Power Engineers Act, The Electricians Act and The Fire Preventions Act. The Committee has reviewed and submitted a response to this paper.

The Committee has identified a number of issues which, in our opinion, are contrary to the public interest. We outlined many of our concerns to the Department of Labour in a report of August 1993 and at a presentation in November, 1993.

We intend to ensure that any forthcoming changes to the Acts will be appropriate for protection of the public safety and provide the proper checks and balances. We are concerned that the Department of Labour may propose reducing its involvement or opting out of steps leading up to permit issuance and enforcement of safety legislation.

### Practice Guidelines

Practice guidelines have been identified many times over the years in almost every discipline as serving a valuable role in establishing a base level of performance and essential duties for the design and review of the construction process. The Committee began discussions at its July meeting and will consider recommendations to establish practice guidelines if it will enhance the practice of engineering.

This has been a synopsis of several of many issues before the Safety and Engineering Practice Committee. If members become aware of potentially unsafe engineering practice, they are obligated to inform the Committee or the Registrar. Enquiries or submissions will be dealt with in confidence.

On behalf of the Committee, I wish to extend my sincere thanks to Mr. Dave Ennis for his tireless efforts. I wish to extend my personal thanks to every member of the Committee and Sub-Committees for their diligent service and helpful input. □

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## Experience Review Board



N.P. Feschuk, Chair

Members

- D.T. Anderson
- C.R. Bouskill
- K.H. David
- K.R. Drysdale
- D.S. Jayas
- B.R. King
- J. Lucas
- R.J. Partridge
- A.D. Silk
- P. Stanus
- R. Trites
- S.L. Ursel

The role of the Experience Review Board in the past was largely to consider for registration those applicants who met the education requirements as set out in the Engineering Profession Act, but whose professional work experience was in question. During the past year, however, the Board has assumed the responsibility of evaluating the work experience of all applicants.

The adoption of the four-year-work-experience requirement resulted in an increase in registration applications as academically-qualified applicants pursued registration under the two-year "grandfathering" provisions. With the adoption of the Pre-Registration (EIT) program, the Board has taken on additional responsibility: to check EIT's work experience, professional development and professional services activities on a six month basis.

The work is assigned to individual Board members who report to the Board as a whole. Because of difficulties with assessing experience from documents provided by the applicants, the Board had to convene interviews with many applicants. This is done through sub-committees consisting of at least one Board member and one or more registered engineers qualified and experienced in the applicant's area of experience.

The transition from the minimum two-year to the minimum four-year-experience requirement and the implementation of the EIT program has resulted in a heavy load for the committee. It has been a new and learning experience.

I would like to thank the members of the Board; members who volunteered to serve on interview sub-committees; Shirley Matile, Director of Admissions; Dave Ennis, Executive Director & Registrar; and APEM staff for their contributions to the effective performance of the Experience Review Board in the past year. □

## Awards Committee



C.E. Anderson, Chair

Members

- D.G. Chapman
- L.R. Ferchoff
- N.P. Feschuk
- K.F. Olischefski
- J.M. Symonds
- D.A. Woodford
- P. Washchshyn

(Liaison Councillor)

The Awards Committee is responsible for recommending to Council the award-winners for the APEM Awards, the recipients of APEM Honorary Life Memberships, and the APEM nominees for the CCPE Awards.

The process involves soliciting the membership through a general mailing of Nomination Forms, as well as direct contact by the Awards Committee.

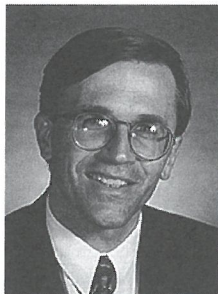
As of this report, two nominations have been put forward for CCPE Awards, namely, the Meritorious Award for Community Service and the Young Engineer Achievement Award. In addition, award recipients have been selected for the APEM Outstanding Service Award and the Honorary Life Membership.

Short-lists have been developed for the APEM Merit Award and Certificate of Engineering Achievement Award to be presented in March, 1996.

You, the Membership, are the key source of nominees for Awards. I encourage you to give consideration to recognizing the achievements of deserving members of APEM by putting their names forward.

I would like to thank Joan McKinley and the Committee Members for their dedicated efforts over the past twelve months. □

## Professional Development Committee



D.J. Kramble, Chair

Members

- R.J. Bruce
- T.J. Cornell
- M. DeWiele
- V.L. Dutton
- G. Kibria
- K.J.T. Kjartanson
- H.M. Turanli
- P. Wong
- E. Eddy

(Liaison Councillor)

The Professional Development (PD) Committee is perhaps best known for its breakfast meetings on topics of general interest to engineers, and its seminars for both new and practising engineers. However, this committee is also responsible for reporting to Council on matters which relate to professional development or continuing competence.

This past year we have met with Council to review the ramifications of mandatory reporting of professional development activity as a prerequisite for continuing registration. We are currently preparing an information package for Council and the membership. This will contain background on the need for this process and our sug-

gested implementation schedule. Mandatory reporting will be the subject of a special information session at the Annual General Meeting. Please give us your suggestions.

We have also organized the following activities:

Breakfast Meetings:

- Tom Pearson, The Winnipeg Aqueduct
- Jim Watling, Global Positioning System
- Steve Russell, Business Process Re-engineering
- Ray Tide, The Northridge Earthquake

Seminars:

- Engineering Management
- Concepts in Professionalism

I am only the Chair of this committee so, of course, most of the work is done by others. Please reserve all credit for the dedicated committee members.

In the coming year we will be:

- Continuing the breakfast meeting lecture series
- Providing a "Concepts in Professionalism" seminar
- Providing an "Engineering Management" seminar
- Furthering the implementation of Mandatory Reporting

If anyone has suggestions of topics for breakfast meetings or comments on any other of the committee's activities, please call me at 956-0980 or E-Mail to Kramble@Wardrop.mb.ca. □

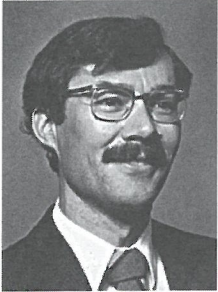
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## Public Awareness Committee



D.C.H. Prowse, Chair

### Members:

R. Bernhardt  
W. Brant  
A.M. Gole  
J.T. Linnen  
C.A. Nieuwenburg  
R.G. Payne  
A. Pollard  
B. Thomson  
(Liaison Councillor)

National Engineering Week activities involved more volunteers and received more public attention than ever before. The Manitoba Schools Science Symposium and the Innovators in the Schools program continued to bring engineers and students together, but unfortunately the career symposium was not held in Winnipeg this year.

A National Engineering Week subcommittee chaired by Dean Weiten did a tremendous amount of work to organize a booth at Polo Park (Claude Lorange), a career information evening (Bill DeGagne) and several competitions (Allan Polard). Strong corporate support from Boeing, Manitoba Telephone System, Manitoba Hydro and most importantly from INCO and Mind Computers, and extensive advertising (Sneha Attawar) were key to the success of the spaghetti

bridge and whisser competitions. Mailings to 900 schools, an announcement in the Free Press, a billboard, and attendance by hundreds of excited students and associated family members helped to make the Polo Park contests better attended (and more suspenseful) than most APEM-sponsored events.

Volunteers at the National Engineering Week contest day join the list of the ten judges at the Manitoba Schools Science Symposium (MSSS) who endured a tiring, chaotic, and stressful day to work with young people who have shown a special interest in engineering-related activities. This year, five Mini-University summer camp prizes, and 18 "Outstanding Achievement" ribbons were awarded at MSSS.

APEM again supported the Engineering Awareness Project with the Fort Garry School Division which allows elementary school students and teachers to visit the Faculty of Engineering at the University of Manitoba and as well helped to promote the Science Olympics competition for high-school students. A long-awaited position paper on education was completed. The APEM pamphlet on engineering as a career was updated. A comic-style publication, "Intergalactic Bob Beaver", is being printed in conjunction with CCPE to deliver action-packed messages about math, sciences and engineering to eight-to-twelve-year-old children. "...a bomb will explode if we try to open the door without punching in a secret code!" "...the secret code is (five term mathematical expression with two levels of brackets)..." "...I don't have a calculator..." "...lucky for us.. I learned so much math...." If you are visiting schools or otherwise encountering students who should understand that engineering superheroes don't leap over tall buildings without a

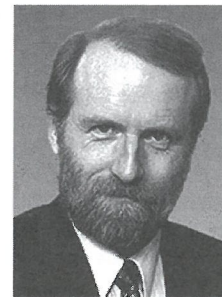
complete understanding of the forces involved, contact APEM to see if there are any copies left.

The Saskatchewan experience with billboards about the role of engineering in society and the information highway SchoolNet were investigated as potential ways to reach the general public and students.

We regret that Carol Roberts' long and productive membership on the Public Awareness Committee has ended.

Plan on getting involved now. Call the "Innovators in the Schools" program (Betty Anne Kilbrei, Museum of Man and Nature, 988-0699) and get registered so they can match you up with eager students and teachers before their funding runs out. Call Rob Henderson (284-8100) to offer photographs for an APEM collection that can be used during National Engineering Week displays. Or contact Public Awareness Committee members or the APEM office because, as in the world of Intergalactic Bob Beaver, we are already working on the sequel. □

## Nominating Committee



D.G. Chapman, Chair

### Members

C.E. Anderson  
M.G. Britton  
K.A. Buhr  
K. Koshelanyk  
D.J. Kramble  
W.M.A. McDonald  
E.A. Speers  
B. Stimpson  
J.M. Symonds

The Nominating Committee is responsible for developing and nominating a slate of candidates for election. This year, from a preliminary list of 27 possible candidates, the committee nominated eight to fill four positions. The amount of interest shown in the affairs of the Association by these candidates is very encouraging.

Subsequent to nomination, one of these candidates found it necessary to withdraw. Under the By-Laws of the Association, there may be additional candidates nominated by the membership.

I would like to thank the committee members for their ideas and their input to the process. I would also like to thank Joan McKinley for her guidance and her detailed notes. Lastly, thanks to those who were willing to let their names stand for a Council position. Council will gain from those elected and they, in turn, will find the experience valuable and educational. □

## Executive Directors Report

(Cont'd from page 5)

Acts of self-governing professions. The onus for such action is on the individual profession. The costs of a prosecution can become significant.

### "The Office"

One of the matters discussed in recent years has been the possibility of the Association purchasing its own building. While a number of opportunities have been examined, to date none have been sufficiently attractive to warrant such an action. However, the lease on the current premises expires at the end of September in 1996 and members should not be surprised if they receive notice of a change of address before then.

Last year the office at long last ventured into the world of computerization. This year the intention is to establish an Internet connection with a presence on the World Wide Web. A Bulletin Board service to accommodate employment inquiries from both members and employees is also under consideration.

A review of the other reports and messages in this publication will provide an understanding of the many issues and initiatives that are before the Council and its Committees. 1995 also saw significant changes to the admissions requirements not the least of which has been the change to the four year experience requirement. Introducing these changes while accommodating the needs of thirty or so Boards, Committees, Task Groups and Action Plan Teams can often be a daunting task. Were it not for the dedication and effectiveness of the staff, service to the public and the membership could not be maintained. To each of them I express my sincere appreciation.

No message of appreciation could be complete without recognizing the contribution of the elected and appointed volunteers who participate in the affairs of the Association. By going that "extra mile", they make an invaluable contribution to the governance and enhancement of the practice of engineering. Their contributions, not unlike the participation of members in the Association's electoral process, are essential to self-governance. □

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## Research and Development Committee



*E.E. Lach, Chair*

### Members

J. Begin  
L. Dacombe  
D.J. Fedirchuk  
R.J. Hamlin  
D.M. McCartney  
M. Paryniuk  
E.A. Speers  
D.R. Strang  
K.N. Tandon  
J.B. Thorsteinsson  
D.L. Woytowich  
C.L. Stewart  
(Liaison Councillor)

The Research and Development (R&D) Committee has a mandate to keep Council and the members informed of scientific research, technological development and innovation in Manitoba and Canada and to identify the implications of technological development on Association members and the public.

The R&D Committee held seven meetings during the past year. The Committee continued to focus on organizing luncheon meetings with topics relating to research and technological development in Manitoba and/or having direct impact on the Engineering Profession in Manitoba. The presentations were selected on the basis of being of interest to a broad cross-section of the Association membership. All presentations are videotaped and kept on file in the Association office for loan to members. They are also reported in The Manitoba Professional Engineer.

The committee organized six luncheon presentations and co-sponsored another with the Canadian Nuclear Society, Manitoba Chapter, during the past year, on the following topics:

- "Recent Developments in Tunneling Technology" by Brian Stimpson and Lawrence Martin.
- "Nuclear Waste Management in Canada" by Kenneth W. Dormuth.
- "R&D and Consulting Services as Revenue Generators for Electric Utilities" by two keynote speakers and a panel discussion.
- "Automatic Meter-Reading: IRIS Systems" by Erwin Holowick.
- "Nuclear Research: The Regulator's Perspective" by Agnes J. Bishop.
- "Telecommunications Research Consortium: TR Labs" by Michael Leung and Len Dacombe. Tour of TR Labs, 10-75 Scurfield Blvd., Winnipeg.

- "Air Pollution Standards and Science/Policy Interface: When to Measure and When to Act" by L. David Pengelly.

The following luncheon presentations, for next year, are in various stages of organizational development by the committee:

- "Refurbishment of Spacer Dampers on HVDC Transmission Lines: Mechanical Testing and Analysis" by Joe Begin.
- "The Effects of Wheeling & Deregulation on Electric Utilities" by two keynote speakers and panel discussion.
- "Solid Waste Management: Issues, and City of Winnipeg Initiative" panel discussion.

The committee is still following up on a series of articles for publication in the MPE under the heading, "The Life-Cycle of an Idea", and has the goal of organizing a tour of a research-and-development facility on an annual basis.

R.J. Hamlin participated in a meeting of the

Task Force on Organizational Review and D.M. McCartney was the committee representative at the August 25 Federal Science and Technology Review Community Workshop in Winnipeg. The committee received and reviewed the recommendations of the APEM Task Force on Sustainable Development.

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. APEM President Don Osman attended and contributed to a number of meetings and Council liaison member, Catherine Stewart participated via telephone at several meetings. On behalf of the committee, I would like to thank Eric Loewen, EIT, Robert Znidarec, EIT, and Patrick Pagtakhan, EIT, for their services as recording secretaries. On behalf of the committee, I wish to extend sincere thanks to Dave Ennis, Margaret Little and other APEM staff for all their support during the year. □

## APEM Women in Engineering Advisory Committee



*C.S. Roberts, Chair*

### Members

M.G. Britton  
K. Koshelanyk  
I. Mikawoz  
K.F. Olischefski  
K. Pratt  
S.K. Fedeniuk  
(Liaison Councillor)

A primary concern of the engineering profession is the possibility of insufficient numbers of qualified professionals in the future, and the corresponding risk to the public. In an effort to combat this problem, this committee is mandated to determine ways that APEM can improve in attracting and retaining women in the engineering profession, since women are the largest under-represented minority group in engineering.

Ongoing activities have included the review of funding requests for women in engineering initiatives, and attempts to encourage women to become involved with APEM committees and other activities. APEM provided funding to "Capitalizing on Today's Challenges", and several WEAC members participated in organizing the conferences, as well as creating the Terms of Reference for a scholarship endowment fund.

Approximately 300 APEM members (about 200 men and 100 women) were asked to participate in a national survey of workplace conditions for engineers, and responses were received from about 27% of those surveyed. The survey was coordinated by Hay Management Consultants of Toronto, and Professional Engineers Ontario's (PEO's) Women in Engineering Advisory Committee (WEAC). The results will be presented at the Annual General Meeting.

The Chair of this committee was invited to Co-Chair the U of M Faculty of Engineering Dean's Task Force on Equity Issues, which is attempting to establish a Code of Conduct for engineering students. WEAC will draw on the work of the Task Force to develop a harassment policy to be associated with the Code of Ethics, and an education program on diversity for APEM members.

As a follow up to an informal request in 1994, WEAC sent a letter to the Professional Engineers' Wives Association, formally requesting that the name and activities of the association be changed, to include partners of engineers who do not refer to themselves as "wives". However, no response has been received to date.

WEAC assisted the Awards Committee in the nomination of Judy Weiszmann for an APEM Merit Award, and also in the preparation of nominations for the 1995 Merit Award and the CCPE Young Engineer Award. Special thanks to members Kelly Olischefski and Kim Koshelanyk for coordinating the preparation of the nominations.

APEM sponsored the attendance of two people at the Canadian Committee on Women in Engineering's "More Than Just Numbers" update conference, and the Canadian Coalition of Women in Engineering, Science, and Technology national conference.

WEAC appreciates the valuable assistance provided by Lorraine Dupas and Shirley Matile. □

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## Sports Committee



*B.W. Biglow, Chair*

### Members

D.G. Bell  
J.F. Lavergne  
D. Lecuyer  
K. Miller  
N. Scott  
M.D. Vanderpont

The Sports Committee has added some new members to its ranks, new blood with fresh ideas, and we have been working hard to come up with one or two new events, attempting to appeal to a broader range of APEM members.

This past year we maintained the traditional spring golf tournament but unfortunately had to cancel the curling bonspiel. Curling interest has been declining over the past number of years, although we are considering another try at it next

year. The golf tournament was again very successful, and by the time you read this some of you may have participated in a fall golf tournament (tentative at the time of this report). The "Texas Scramble" format has proven to be quite popular although it's a little trickier to engrave four names onto the trophies to recognize the winning teams. Many thanks to the hole sponsors, and to the putters at the 19th hole who contributed to the KidSport charity.

Still on the subject of golf, the First Annual WEN Golf Classic (Women's Engineering Network) took place in August. Hopefully, this will become a popular annual event.

We are considering a broomball tournament as a possible way to break up the long cold winter. I encourage any members with ideas for sporting events or suggestions as to how we could improve the traditional events to contact one of the committee members.

APEM was represented by three teams of engineers in the annual Manitoba Marathon, held on one of the hottest Father's Days in history. This was our fourth straight year of running and, despite the heat, the engineers recorded some excellent times. Congratulations!

Thanks to the dedicated Sports Committee members who have all sacrificed many hours to ensure the success of the events. □

## Director of Admissions Report

*(Cont'd from page 5)*

In May and June, we conducted the first-ever APEM Professional Practice Seminar and Examination. Lawyers Richard Swystun, Wells Peever and Linda Kerr, patent expert Adrian Battison and our very own Dick Johnson, P. Eng. delivered an outstanding set of course notes, seminars and examination questions. Although attendance at the seminar and successful completion of the examination are now mandatory pre-requisites to registration, the 59 participants still admitted that they generally found the seminar interesting and worthwhile, and they all passed the examination. Congratulations, class, and thank you so much to Richard, Wells, Linda, Adrian and Dick!

A major disappointment was our continued failure (since February, 1994) to recruit a geoscientist member to each of our Experience Review Board and Registration Board. If this Association is to be expanded to include geoscientists, parallel academic and work experience admissions criteria will have to be developed and implemented for the professions of geology, geophysics and geochemistry. To date, absolutely nothing has been done in this area.

At the national level, there are several newsworthy items. The NAFTA agreement was signed, and the Associations are now busy developing lists of reservations to identify (and to protect, at least in the short-term, until legislation, policies, etc. can be revised) paradigms that might be viewed, by the other parties to the NAFTA, as discriminatory. A move is underway to develop a national program of examinations for people holding non-accredited degrees. (The Canadian Engineering Qualifications Board (CEQB) will be discussing this issue in detail at its September meeting.) The Interim Inter-Association Mobility Agreement is also being re-visited, and Associations are being increasingly pressured to remove admissions barriers for registered members of other Associations. The six-country mutual-recognition agreement, which recognizes the processes of accreditation of academic credentials, and whose seven signatories include Canada, the U. S., Great Britain, Ireland, Australia and New Zealand, was renewed in Dublin, Ireland in May, and extended to include Hong Kong (which, along with South Africa, has yet to be ratified by Canada). On top of all this, CCPE has embarked on a visioning exercise which, I expect, will have a significant impact on the admissions processes of all the regulatory bodies, including APEM – although not within the immediately foreseeable future!

My thanks to staff members Donna Bilodeau, Lorraine Dupas, Margaret Little and Joan McKinley for your assistance, support and plain hard work over the past year. It was a very difficult year, and those extra efforts certainly did not go unnoticed! □

## Salary Research Committee



*E.G. Parker, Chair*

### Members

W. Czyrmyj  
L.R. Ferchoff  
L.J. Kuczek  
I. Mikawoz  
G.R. Norberg  
S.J. Ormiston  
W.B. Todd  
A.N. Kempman  
*(Liaison Councillor)*

To achieve our objective of providing salary information for use by the public and Association members, the Salary Research Committee conducted its annual employee and employer salary survey this spring. The results were published and distributed with the August mailing of the Manitoba Professional Engineer. We were pleased with the positive comments on the revised and simplified questionnaire format and with the 33% increase in response rate from 1994.

This year was the first opportunity to provide written comments with the questionnaire and we received comments from 65 members (11% of

respondents). Comments on the survey questionnaire will be reviewed and possibly incorporated in the 1996 questionnaire. The comments were shared with the Council and administration.

New this year is a comparison of the salaries of Professional Engineers in Manitoba and Ontario. The PEO information is based on its December, 1994 membership survey and reflects its seven job responsibility-levels.

The tabulated results for the year ending March 31, 1995 show an average salary increase of 3.7%, with 37% of respondents reporting no increase or a decrease in salary. The mean salary of the respondents was \$59,040. The best-fit curve for mean salary versus APEM points indicated MEAN ANNUAL SALARY = \$11,845 + \$96.32P. The slope of this year's curve was notably higher than that of the last three years.

Our data not only presents salary scales, but also provides profile information on the members with respect to field of employment, size of employer, job function, experience level, employee benefits, and education level.

My thanks to those who completed the 1995 salary survey questionnaire and to the 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 for his continued support. A special thank you to Joan McKinley for her assistance in keeping the minutes and supporting our survey distribution and report preparation. □

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## University Liaison Committee



*E. Garfinkel, Chair*

**Members**

- D. Bishop
- A. Burachynsky
- P. Dalkie
- G.A. Morris
- G.O. Ouellette
- J. Reichert
- R.J. Waddell
- A. Woodbury
- A.H. Permut  
*(Liaison Councillor)*

The University Liaison Committee continues its diverse attention to issues in its efforts to provide liaison between the APEM and the Faculty of Engineering of the University of Manitoba.

With regard to Faculty Liaison, this year's annual meeting between Council, Faculty, and this committee dealt with one very introspective issue: "Breaking the Engineering Education Paradigms". The guest speaker for the evening was Professor Russell Radford, who is a graduate of the Royal Military College of Australia in Civil Engineering and is at present the Associate Director of the MBA Program in the Faculty of Management at the University of Manitoba. The meeting involved discussion of the issues of problem-solving vs. decision-making, the culture

for delivery of engineering education, and the time-element vs. lack-of-soft-skills conundrum in the delivery of engineering education. A new development for the meeting was the more modest and fiscally responsible setting – St. John's College as opposed to the Faculty Club.

Faculty Liaison was formalized by having a representative of the University Liaison Committee serve on the Engineering Faculty Council. This was another new development in 94/95 which we trust will be a productive arrangement.

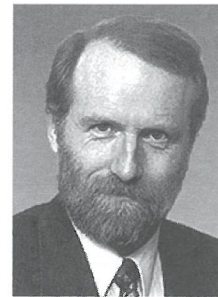
This committee also was involved in the review of the University of Manitoba Plan 2000 proposal to integrate the Donald W. Craik Engineering Library into the Science Library. The committee voiced strong opposition to the proposal.

Specific Student Liaison was provided through this committee's arranging speakers and assisting in the planning of "Careers in Engineering – Meet the Professionals". Through this event, students are given the opportunity to hear presentations in all engineering disciplines from practising engineers.

Other Student Liaison activities included: financial assistance offered to engineering conferences and design competitions such as University of Manitoba Society of Automotive Engineers design competitions; planning assistance provided to the Engineering Student Dinner, and sponsoring of the engineering graduation ceremony.

I would like to thank all committee members, Shirley Matile, and APEM staff members for their help toward another eventful year. □

## Board of Examiners



*D.G. Chapman, Chair*

**Members**

- K.M. Adam
- C.D. Anderson
- S. Balakrishnan
- E. Bridges
- A.D. Gerrard
- D.S. Jayas
- W.M. Kinsner
- R.W. Menzies
- D. Polyzois
- B. Stimpson
- K.N. Tandon
- M. Yunik
- J.M. Symonds  
*(Liaison Councillor)*

The Board of Examiners assesses the academic credentials of applicants who are not graduates of programs accredited by the Canadian Engineering Accreditation Board (CEAB). The Board uses criteria adopted by Council based on recommendations from the Canadian Engineering Qualification Board (CEQB). Where the applicant is not considered to be academically qualified, exams are assigned.

The Board's mission is to ensure that all applicants have attained a level of education equivalent to that obtained by graduates of CEAB-accredited programs. The process of evaluation can be difficult and time-consuming, requiring investigation of a wide range of credentials including degrees, transcripts, syllabi and information on the quality of the programs taken.

The Board meets quarterly. In the three meetings held before September, 28 new applicants were assessed. In addition, the Board dealt with six appeals, assigned 87 examinations, administered 45 examinations, and declared ten candidates academically qualified. Also, following a new procedure, two hearings of appeals of decisions of the Board were held by the Registration Board. In each case, the decision of the Board was upheld.

During the past year, we thanked A. Clayton, J. Cahoon, D.W. Ruth and F.R. Kaita for their valuable contributions to the Board, and welcomed S. Balakrishnan, D. Polyzois and K.N. Tandon to the Board.

I wish to thank the members of the Board for their contributions, both in the assessment process and in the debate and questioning which accompanies essentially every application. It is this active participation which helps ensure fair and equitable treatment of the applicants. As well, the Board functions smoothly because of the valuable contributions of Dave Ennis, Shirley Matile and Joan McKinley. Joan's contributions as secretary to the Board and administrator of the examination process are particularly significant. □

## Legislation Committee



*B.D. MacBride, Chair*

**Members**

- R.M. Gordon
- D.W. Gunter
- J.S. Hicks
- R.A. Johnson
- W.R. Newton
- D.N. Spangelo
- M.G. Britton  
*(Liaison Councillor)*

The committee met six times over the year. The major review of the Engineering Profession Act continued with APEM's solicitor and the committee going through the document. It seemed that every time we were done, someone found some other initiative that could not be left out of this revision. The revisions include group practice, licensing, inclusion

of geoscientists, a revised code of ethics section, changes in qualifications, gender neutrality and numerous other changes. Finally, a report dated January 30, 1995 was submitted to Council. The report was approved by Council on March 14, 1995. The Act will be introduced at the Annual General Meeting. Subsequently, a meeting will be convened for the membership to contribute to the Act. At the same time, it will be available for comments by other interest groups. After adjustments are incorporated, the Act will be processed through the Provincial Government, which has jurisdiction and control over any changes. The Minister of Labour has indicated he will deal with the revisions as quickly as possible.

The committee dealt with routine requests by Council for comments on proposed by-law changes.

This was all carried out with the cheerful participation of the committee members. Thanks to staff for their guidance and ideas on every issue.

The next project for the committee will be to rewrite the by-laws to be consistent with the revised Act. Since it may be some time before a new Act is in place, the committee will also have to keep updating the current by-laws as the needs arise. □

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## Consulting Engineers



*H.J. Haak, Chair*

### Members

I.R. Dewar  
R.J. Houston  
A.J. Kettler  
J.O. Klein  
W.J. McCulloch  
R. Menon  
D.G. Mulder  
B.J. Rossen  
T.L. Stratton  
E. Weiszmann  
P. Washchshyn  
(Liaison Councillor)

The purpose of the Consulting Engineers Committee is to review and recommend to Council matters relating to the activities of consulting engineers.

The Committee is comprised of consulting engineers and engineers representing organizations which utilize the services of consulting engineers. Liaison is also maintained with the Association of Consulting Engineers of Manitoba.

During the year, six meetings were held and the Committee considered and dealt with a number of items.

A brief list follows:

- The Committee recommended to Council the publication of a proposed practice note regarding the submission of basic information to the authorities issuing building permits. This practice note was subsequently approved by Council and published in the Manitoba Professional Engineer.
- Review and discussions are on-going on the subject of value-based selection of consulting

engineers. The Committee hopes to be able to present recommendations on this subject in the future.

- The Chair appeared before the Task Force on the Organizational Review of APEM and presented the Committee's mandate, recent successes and failures, as well as the Committee's view on possible improvements, overlapping of work with that of other committees, etc.
- Discussions with Manitoba Environment, with respect to the construction, inspection and use of sewage lagoons, continue, and recommendations on possible improvements have been made.

■ The committee reviewed information submitted to the Committee on the NAFTA Agreement and the influence it may have on the practice of engineering and the recognition of professional qualifications between Canada, the United States and Mexico.

■ The Committee completed its annual update of Appendix A ("Example Hourly Billing Rate Calculations") of the Guide for the Engagement of a Consulting Engineer.

As always, we wish to express our appreciation for the valuable assistance Dave Ennis and the APEM staff provided. My thanks to the engineers who served on our Committee. □

## Discipline Committee



*R.E. Scouten, Chair*

### Members

K.A. Buhr  
N.P. Feschuk  
R.A. Kane  
D.M. Kilgour  
B.R. King  
A.M. Lohse  
W.R. McQuade  
G.A. Morris  
D.N. Spangelo  
J.M. Symonds

The Discipline Committee continues to maintain a roster of members representing the various engineering specialties.

During the year the Discipline Committee

empowered a panel of three civil engineers and the Chair to hold a disciplinary hearing into charges made by the Investigation Committee against a member of the Association. The hearing resulted in a censure of the member and a fine of \$10,000. A detailed report of the hearing was carried in the February, 1995 issue of the Manitoba Professional Engineer.

On three separate occasions the Investigation Committee requested a designate from the Discipline Committee to consult in the matter of proposed penalties arising from complaints made by the public.

A hearing held in 1994 remains adjourned sine die (without assigning a day for resumption of the hearing). The member involved has ceased to practice and has returned his stamp to the Registrar. The hearing is not likely to resume for a number of reasons, including the health of the member.

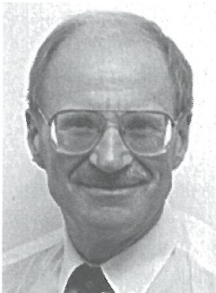
The Chair very much appreciates the work of the Committee members and the Committee is most grateful to Dave Ennis and the staff. □

## Fall Iron Ring Ceremony

The Fall Ritual of the Calling of an Engineer will be held on Tuesday, November 7, 1995 at the University of Manitoba Campus.

For those engineers who wish to be obligated, or for those requiring additional information, please contact Dave Sexton, P.Eng., 888-1926 or John Stefanson, P.Eng., 945-6117.

## Registration Board



*W.L. Pawlikewich, Chair*

### Members

K.J.T. Kjartanson  
W.R. Newton  
A.H. Permut  
D.I. Waldman

Eleven regular and three special meetings of the Registration Board were held since the last published report. The mandate of the Board and its relationship to the Board of Exam-

iners and the Experience Review Board have been topics of considerable discussion during the past year. Some differences of opinion in the interpretation of the policy manuals of the three Boards have been resolved, at times with assistance from Council. New problems have arisen, however, so that the registration process will be subject to further questioning. NAFTA and the mobility agreements with other provinces promise to provide considerable scope for deliberation in the forthcoming year.

Recommendations of the Board of Examiners and the Experience Review Board were scrutinized and accepted.

The Registration Board considered two appeals against decisions of the Board of Examiners. In both cases, the decisions rendered were upheld. One case was particularly contentious. It engendered two special meetings of the Registration Board and an opinion from Council on interpretation before a determination was made. □

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## Enforcement Committee



R.J. Partridge, Chair

### Members

R. Kennedy  
B.R. King  
J. Macdonald  
C.S. Roberts  
N.B. Ulyatt

- Monitoring applications to the Association to ensure that the process is completed, and that references are registered, where required.
- Monitoring advertising to ensure that firms offering engineering services have registered engineers involved.
- Monitoring business cards for use of engineering title.
- Monitoring employment advertisements to ensure that engineering functions require applicants to be registered.

Each of these initiatives has been assigned to a committee member and we are in the final stages of developing our strategies for dealing with the

identification and pursuit of enforcement opportunities. Once identified, the course of action will be to first make the individual aware of the requirements of the Act. In most cases, this is all that is required for the situation to be rectified. The next step will involve persuasion, and persistence to ensure compliance. If necessary, the committee is to provide recommendations to Council on prosecution.

To date, we have been relying heavily on Dave Ennis and staff for support in identifying and pursuing the enforcement initiatives. If any of our members have any concerns or suggestions, or know of any potential need for enforcement, please contact any committee member. □

The Enforcement Committee was established last year with the following objectives:

- Prevent those who are neither qualified nor registered from engaging in the practice of engineering.
- Encourage the registration of those individuals who qualify and who are engaging in the practice of engineering in Manitoba.
- Prevent the use of title by all residents of Manitoba who are not registered.
- Respond to inquiries from corporations on Act compliance.

Our first task was to identify the various categories of enforcement opportunities, and prioritize them according to the greatest potential impact on protection of the public, as follows:

- Monitoring drawings and submissions to ensure registration compliance.

## Publication Committee



J.W. Bogan, Chair

### Members

A.E. Ball  
B.A.K. Danielson  
B.A. Dobran  
V.L. Dutton  
L.Y. Ganetsky  
C.P. Gray  
J. Lucas  
W.G. McKay  
H.S. Zbigniewicz  
A.N. Kempman  
(Liaison Councillor)

The Publication Committee is responsible for producing the Manitoba Professional Engineer on a bi-monthly basis. Our objective is

to keep the membership informed of Association activities, which includes events that are educational, events that may be entertaining, reporting on Council meetings, and other engineering-related activities of interest. The committee, with the help of the many authors who have submitted articles, reports on APEM activities throughout the province.

The committee membership has increased by one over the last year. We would like to extend our standing invitation to any Association member who would like to join in the committee's activities. Participation in the form of submitting articles or taking photographs would be appreciated. As always, the committee welcomes constructive criticism or suggestions for interesting articles from the membership.

The committee would like to thank all members who have submitted articles, as well as Shirley Matile and Lorraine Dupas for their continued assistance in producing the Manitoba Professional Engineer on a regular basis. □

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## TRLabs: Alive and Well in Manitoba!

By: L.R. Dacombe P.Eng.

Earlier this year, the APEM R&D Committee sponsored a luncheon which featured two guest speakers from TRILabs – the newly-created telecommunications research laboratory in Manitoba. The two guest speakers were Michael Leung, Vice-President of Business Development from TRILabs Edmonton, and yours truly, Len Dacombe, Director of Data Networking, TRILabs Winnipeg. TRILabs is short for "Telecommunications Research Laboratories", and was first established in Edmonton, Alberta in 1986 (then as Alberta Telecommunication Research Consortium – ATRC). TRILabs is a not-for-profit research consortium representing a dynamic partnership between industry, university and government sponsors.

Michael Leung provided an excellent

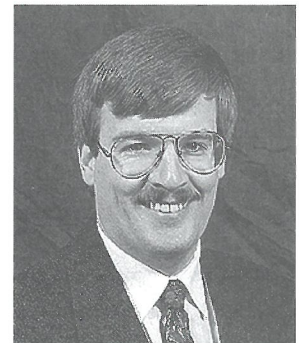
overview of the history and growth of TRILabs. Since its creation, TRILabs has expanded its operation to now include laboratories in Edmonton, Calgary, Saskatoon, Winnipeg and Regina. The consortium is unique in that its government funding is well below the typical norms for government-funded laboratories. The present funding ratios are in the order of 45% Industry, 45% Government and 10% self-generating. TRILabs takes great pride in maintaining these ratios which allow industry & government research dollars to leverage each other. Each TRILabs location focuses its research efforts in different areas: Photonics and Networks & Systems in Edmonton, Wireless in Calgary, Network Access in Saskatoon, Data Networking in Winnipeg and Expert Systems in Regina.

Michael Leung clearly identified the outputs of TRILabs as "people and technology". In fact, the TRILabs corporate motto is "People & Technology for the Future". Research undertaken at TRILabs on behalf of its industry sponsors is performed mainly by university professors and their graduate students. Intellectual property generated at

TRILabs remains the property of TRILabs, but is available to the industry sponsors on a non-exclusive basis. The beauty of the TRILabs model lies in the fact that all sponsors gain access to all intellectual property generated at all TRILabs locations.

As Director of TRILabs Winnipeg, I took the opportunity to share with the audience the

*Continued on page 15*



Len Dacombe, Director of Data Networking, TRILabs Winnipeg.

## Council Report

Tuesday, July 11, 1995

By: C.P. Gray, P.Eng.

### AT WHICH COUNCIL APPROVES A \$3 INCREASE IN ANNUAL DUES

The July 11, 1995 Council meeting proceeded with the usual orders of business of adopting the meeting agenda, adopting of the June 13, 1995 Council meeting minutes, a financial status review and a report from the Registration Board. Council moved to recommend to the University of Manitoba Senate Awards Committee to modify the classification of APEM scholarships for engineering students entering fourth year to the following categories:

- Civil Engineering
- Mechanical Engineering
- Electrical Engineering
- Computer Engineering
- Industrial, Biosystems (formerly Agricultural), and Geological Engineering

This move was to match the scholarships more evenly with the distribution of the student population. Previously, the groupings were agricultural and geological engineering, civil engineering, computer and industrial engineering, electrical engineering, and mechanical engineering.

Council discussed the matter of reducing or waiving the requirement that four of the required six years' engineering work experience be obtained after completion of examinations for a number of aerospace technologists who are currently in the process of meeting academic qualification (through upgrading courses at the University of Manitoba and APEM examinations). The technologists have been in the process of upgrading their academic qualifications for several years, and all have several years of work experience.

Council approved the 1995/96 budget and schedule of fees and dues, which included a \$3 increase to regular annual dues (all other fees remain unchanged). Council approved the revised Annual General Meeting format in principle and made recommendations to change the Business Meeting. Council accepted the report from the Salary Research Committee which was mailed to the membership with the last issue. Also, Council suggested that the Salary Research Committee publish an overview of the members' comments in the Manitoba Professional Engineer. Council received activity reports from the Liaison Councillors on the Legislation Committee, Research & Development Committee, Enforcement Committee and Women in Engineering Advisory Committee. □

## Letter from Manitoba Land Surveyors to All Engineers

July 11, 1995

Mr. Don Osman  
President  
Association of Professional Engineers  
of the Province of Manitoba  
530-330 St. Mary Avenue  
Winnipeg, Manitoba  
R3C 3Z5

Dear Sir:

Re: Land Surveyors Act

This Association would like to draw your attention to the fact that some of your membership may be performing land surveying or engaging in the practice of land surveying by accepting contracts for Manitoba Telephone System cable alignment surveys.

Contracts awarded recently by the Manitoba Telephone System for cable alignment surveys require that all cable is to be located relative to a property boundary. To this Association's knowledge none of your members have acquired the services of a land surveyor to determine the location of any property boundaries identified in those contracts.

I wish to draw to your attention the definition of the practice of land surveying as recited in the Land Surveyors Act L60 RSM and also the sections that pertain to unauthorized practice. Copies of the relevant sections of the Act are attached and high-lighted for your reference. It is this Association's belief that these persons are completing an illegal act under our Act and will be subject to prosecution by this Association.

I would appreciate it if you would advise your membership of our concern. I trust that your Association appreciates our concerns in this matter.

Yours truly,

G.S. Hawryluk, MLS, CLS  
President, Association of Manitoba Land Surveyors

## Engineers in the News

By S.M. Matile, P. Eng.

**Dr. Digvir Jayas, P. Eng.** has done it again! This time, he has been awarded the Young Agricultural Engineer of the Year Award by the Canadian Society of Agricultural Engineers (CSAE). (He has received numerous awards in recent years, including the American Society of Agricultural Engineers' (ASAE's) Young Researcher Award, the Applied Zoologists Research Association (India) Young Scientist Award, and the University of Manitoba's Rh Award for Outstanding Contributions to Scholarship and Research.

Dr. Jayas, who serves the Association as a member of both the Board of Examiners and the Experience Review Board, and who serves the profession nationally as a member of the Canadian Engineering Qualifications Board and Chair of the Foreign Engineers Qualifications Committee, is a Professor of Biosystems Engineering at the University of Manitoba. In his ten years at the university, he has obtained almost \$1.5 million in research grants and contracts, published close to 100 refereed papers, contributed to 15 books, and authored or co-authored over 100 reports and conference papers. (It is true: the man seldom sleeps!)

Congratulations, Digvir! □

### New Department Heads Appointed

(Cont'd from page 2)

Since joining the University of Manitoba, Don has served on many department and university committees. He has also helped to organize five Canadian and international conferences and workshops. In 1989, he received the prestigious University of Manitoba Rh Award. He is a member of the APEM, the Canadian Society for Civil Engineering, the American Society of Civil Engineers and the American Geophysical Union. □

## Network of Centres-of-Excellence to be Headquartered at the U of M

By: G.A. Morris, P.Eng.

On July 5, 1995, Jon Gerard, Secretary of State for Science, Research and Development, announced the establishment of a network of centres-of-excellence in Intelligent Sensing for Innovative Structures (ISIS), to be headquartered at the University of Manitoba. The network, to be headed by Dr. Sami Rizkalla, P.Eng., comprises centres-of-excellence at the Universities of British Columbia, Calgary, Alberta, Manitoba, Toronto and Sherbrooke and at Queen's, McMaster and Carleton Universities and the Technical University of Nova Scotia.

The researchers in the ten centres will conduct 17 complementary research-and-development projects on the use of advanced composite materials in building and bridge construction and rehabilitation. In addition, full-scale field tests will be conducted at a number of sites throughout Canada. A major feature of the work will be the integration of fibre-optic sensing systems into structures, and the development of data-acquisition-and-reduction software and hardware, and communication systems, that will permit the remote monitoring of the behavior and condition of structures.

Benefits that are expected to flow from the work include: lighter, stronger structures; improved structural safety and reliability through the use of sensors to provide early warning of distress; improved understanding of structural behavior; longer structural life; drastically reduced infrastructure rehabilitation costs; and economic opportunities for producers and fabricators of the new materials. Indeed, a number of private- and public-sector engineering organizations, including several Manitoba ones, will be participating in some of the projects.

In addition to his role as chief executive officer for the Network, Dr. Rizkalla will be the Project Leader for one of the projects to be undertaken, that on Integrated Sensors and Advanced Composite Materials for Concrete Structures. Dr. Dimos Polyzois, P.Eng. will be the Project Leader for work on applications of advanced composite materials for transmission-line poles. □

*Editor's Note: The engineering profession in Manitoba is delighted to report that Dr. Sami Rizkalla, P.Eng. is not moving to Montreal, as previously reported!*

## TRLabs: Alive and Well in Manitoba

(Cont'd from page 13)

progress of the Winnipeg operation and provide insight into the key area of research with which we have been entrusted. Data Networking (or Multimedia Networking) is a fast-growing research topic that has been fueled by the rise of the "information highway". Many challenges exist and hurdles need to be crossed before the "highway" is truly accessible to all in Canada. Telecommunications bandwidth limitations and transporting multimedia traffic (voice, image, video and audio) within the same network infrastructure are major hurdles. To this end, TRILabs Winnipeg has taken a leadership role in establishing an ATM (Asynchronous Transfer Mode) research test-bed sporting the largest and fastest ATM switch in Canada. Dubbed FASTNet, the ATM test-bed is capable of switching 20 Gigabits per second; the equivalent of 5000 full-motion video feeds! The test-bed was officially announced on June 20/95 and will be a cornerstone in multimedia networking research.

The Manitoba sponsors of TRILabs are: Manitoba Telephone System, ISM, AT&T Network Systems Canada, Broadband Networks Inc., Linnet Geomatics, Integrated Messaging Inc., Informagnetic Technologies Inc., and Iris Systems Inc.

For further information, please call TRILabs at 1-204-489-6060. □

## Memorial Foundation Seeking Donations to Expand Programs

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

1995 marks the fifth anniversary of the founding of the 1989 Canadian Engineering Memorial Foundation (CEMF).

A registered charitable organization, the CEMF was founded to commemorate the tragic deaths of 14 women, including 12 engineering students, at École Polytechnique on December 6, 1989.

In the five years since its inception, the Foundation has gained national recognition for its scholarships and awards, which are regarded as among the most prestigious in the engineering community. Each year, three \$5,000 scholarships have been awarded: one each to a female student entering first-year engineering, a female student entering the final year of an undergraduate engineering program, and a female student enrolled full-time in graduate studies in engineering. In addition, a \$10,000 Engineering Students Project Award has been offered to the team of engineering students whose project is judged to have the most potential to attract students to engineering and to generally increase public awareness of the engineering profession. The CEMF Corporate Award is presented annually to a corporation which has demonstrated a commitment to the promotion and advancement of women engineers.

The Foundation is led by prominent members of Canada's engineering community and funded

entirely through donations. The \$900,000 contributed to date provides an annual interest income of approximately \$50,000, which has been sufficient to finance the three scholarships, one prize and one award each year. But the Board of Directors would like to do MORE! To commemorate the fifth anniversary of the Foundation's inception, the Board would like to increase

the value of its graduate-level scholarship, to provide seed money for engineering student projects, and to provide funding to enable underprivileged children to attend summer science camps across Canada.

WE NEED YOUR HELP. Sponsorship categories include Patrons (\$40,000+), Benefactors (\$20,000 - \$39,999), Donors (\$10,000 - \$19,999), Supporters (\$5,000 - \$9,999) and Contributors (\$1,000 - \$4,999); and all individual donations will be gratefully acknowledged (income tax receipts issued for donations of \$25.00 or more).

Please consider adding your name, or that of your company, to our list of generous sponsors. □

To: **1989 Canadian Engineering Memorial Foundation**  
401-116 Albert St.  
Ottawa, Ontario  
K1P 5G3

From: \_\_\_\_\_  
Name  
\_\_\_\_\_  
Mailing Address  
\_\_\_\_\_

- Please accept my donation of \$ \_\_\_\_\_  
(Please make cheques payable to "1989 Canadian Engineering Memorial Foundation")
- Please send me additional information on the 1989 Canadian Engineering Memorial Foundation

(Note: receipts issued for donations of \$25.00 or more)



## Dinosaurs Don't Die Easily

By: C.S. Roberts, P.Eng.

One of my favourite myths about attitudes towards women in engineering is the one that assumes that sexism and chauvinism come from men who are approaching retirement age. A common view is that "once these dinosaurs retire, things will be better". Well, this is not fair to senior members of the profession who are supportive and forward-thinking. And it is not reality.

Reality is the experience of a group of U of M engineering students who were confronted by a "dinosaur" at a plant tour. They bought the myth: though they were angered by this man's sexist monologue, they could justify it by virtue of his age. What they were not prepared for was the reaction of their classmates. The young women, who had come to expect support and equal treatment from their male peers, saw them turn into dinosaurs before their eyes! Instead of supporting the woman who was the object of the ridicule, the male students chose to join sides with the older

man, who vowed that he would never hire a woman in a non-traditional position.

The outrage these women felt caused some of them to question whether this was the career they wanted to choose. I do not doubt that many women engineers have had several similar experiences. As a result, some of them are no longer in the profession. The rest manage to put up with the shunning by reminding themselves that they love the work.

During the dozen or so years in which I have been involved in engineering-related work, I remember a couple of pleasant experiences which were quite opposite to that experienced by the students on tour. They stick out in my mind, because these were specific incidents where my male colleagues stood up and supported women engineers in front of their peers. It is sad that these positive incidents are rare; usually a woman engineer is on her own.

The engineering profession constantly states that women are accepted, and that women should be encouraged to enter the profession. But if we put on blinders when women are faced with unfair treatment, acceptance in the profession is lip service. And the next generation of dinosaurs will not be retiring for a long time. □

## The Good Old Days

(Cont'd from page 1)

### Money Matters

In 1939, the annual fee payable to the Association was \$15. The registration fee for new applicants was \$25 which included the current year's annual dues. Candidates for the General Qualification Examination were required to pay a fee of \$15.

APEM provided a schedule of minimum charges for services rendered by Association members. For consultations which did not necessitate a written report, the engineer was to be remunerated at a rate of \$50 for a professional day of six hours, \$30 per half-day, and, for shorter times, \$15 per hour or fraction thereof. For investigations with a preliminary written report (not involving detailed surveys or preliminary plans), valuation reports, or testimonials, the client was required to pay, in addition to the salary of the engineer as stated above, all out-of-pocket expenses incurred by the engineer and all salaries paid by the engineer to his (there were no "her"s!) assistants together with an additional sum equivalent to 100% of all salaries to cover overhead expenses. For large projects, the engineer's fee was based on a percentage of the estimated cost of the project.

Readers may be interested to know that, according to Statistics Canada, \$10.71 in 1995 dollars is required to purchase what \$1.00 would purchase in 1940. Based on an hourly rate of \$8.33 (\$50 per six-hour day) in 1940, the yearly salary of an engineer working a standard 40-hour week today should be \$185,640 in order to maintain the same standard of living. Also, our annual dues, similarly adjusted, would be \$160.65. (How's that for progress?!)

Happy 75th anniversary APEM!! □

## The Challenge of Change

(Cont'd from page 4)

tal consequences but also a promotion of our assets such as the ability to stimulate development and create wealth. Moreover, simply being accountable is not enough. Our accountability must be visible to the public. Vestiges that engineering is the "hidden" profession still remain, but the public expects those who are technically knowledgeable to play a prominent and visible role...and public accountability is the essence of this issue.

What I have called expanded accountability, others might label responsible stewardship, and yet others would describe as self-serving advocacy. An aspect of the evolution of engineering associations not mentioned in the historical perspective is that admonitions against advocacy, made by engineering business interests and governments at every level, together with limited resources available to the associations, commonly resulted in the regulation of the engineering profession as their sole purpose. Such admonitions continue today. However, a regulating function alone is simply not adequate to sustain a profession in the public interest over the longer term.

An engineering model illustrates the rationale. Regulating or controlling functions, such as guidance systems or brakes, are essential to engineering systems. However, such controlling capabilities are useful only in systems with engines or "prime movers" that make them "go"; regulating or controlling functions never make a system "go". Applying this logic to the objectives of engineering associations and the profession means that some forms of advocacy, are necessary within the context of professional governance if the profession is to be sustained. It is important for us to learn to distinguish between

## Coming Events

### The American Concrete Institute – Manitoba Chapter

#### 5th Annual Fall Seminar

Do's and Don'ts of Vertical Formwork and Concrete

November 28, 1995  
Holiday Inn South  
Winnipeg, Manitoba.

Contact: M.A. Hatch, P.Eng.  
Telephone: 943-3178

## 1995 Salary Survey Correction

There was a mistake made in APEM's 1995 Salary Survey results, which were included in the Association's July mailing. Table 1: Year of Graduation (\$/Year) 1990 Lower Decile should read 33210, not 46711. □

public oriented advocacy and self-serving advocacy, and to promote the former.

One can look at this issue another way. It has often been said that many of the major "engineering" decisions are made by boards, councils or executives consisting mainly of individuals with little or no technical background. Hence, the decisions are based largely on political factors, incomplete understanding of the technical or economic factors, special interests or emotion. Moreover, such decisions are often contrary to sound engineering recommendations and not in the best public interest. Is it possible that engineers could play a more active role in such engineering decisions to the benefit of the public? To do so requires us to re-evaluate and change some of our basic philosophies and means of interacting with those we serve...a fundamental adjustment in our role.

Perhaps the most enduring reality is that change will occur. It has often been said that long-term survival of any body – from the smallest organism to the largest organization – is highly dependent on its ability to cope with change. In simple terms: adapt or perish. The engineering profession and the associations which govern it across Canada are not immune from the effects of, or need to, change. Indeed, the issues confronting us today, and their fundamental and far-reaching nature, may well test our survivability as a professional. The underlying changes are particularly critical because they will affect, and require the involvement of, all of us if they are to succeed. Such changes must be based on a clear vision, within the current societal context, of who we are and where we are going.

If you would like more information or would like to express your views please contact the CCPE at 613-232-2474, fax 613-230-5759, or CCPE, Suite 401, 116 Albert Street, Ottawa, Ontario, K1P 5G3. □