THE MANITOBA
Professional Engineer
December, 1992
APEM

Annual General Meeting – Passing the Buffalo Horn

By: W.G. McKay, P. Eng.

The 72nd annual APEM business meeting was underway shortly after 9:00 a.m., with 86 members and representatives from visiting Associations present. Business proceeded routinely. Council membership was announced as follows: newly elected – James Hildebrandt; Don Osman; Arnold Permut; Eva Rosinger and Mal Symonds; returning for a second term – Bob McKibbin; Cathy Stewart; Doug Chapman; and Pat Feschuk, as Past-President. Carl Anderson is the new President, and the appointed members of Council are Mel Cornell and Gail Fyfe.

Dean Laliberte, on behalf of CCPE President [illegible]heline Bouchard (who was unable to attend), g[illegible]ve a detailed outline of the new programs and services scheduled by CCPE for 1993 and onward.

Finances

Arising from the Auditor's Report and the 1992 Budget was considerable discussion on the proposed increase in fees ($23.00); the size of the reserve in relation to the operating budget; and the use of this reserve to deal with legal and administrative costs arising from the investigative action of members.

By-Laws

The proposed By-Law change dealing with reinstatement was uncontested. The By-Law relating to the EIT membership, however, was contested at length. The problem of the young graduate engineer employed in a position of little or no direct supervision by a professional engineer is somewhat complex, especially in these times of limited employment. As presented, the proposal was passed by the meeting, and both By-Laws will go to the letter ballot.

Resolution – Creation of Chapters

One resolution pertaining to the formal approval of Chapters was presented by the Brandon Chapter, which has been in operation for some time. The resolution received approval. It is likely that other informal Chapters will follow this procedure and become formally recognized.

Visitors

Garry Wacker, President, APES; Debra Dileo, Deputy Registrar, APEO; Barry Lester, President, APEGGA; Kathleen Gissing, President, APEGBC; and Raymond Rolshoven, President, North Dakota Society of Professional Engineers brought greetings and highlighted their Associations' programs and discussions.

The meeting closed with the signing of the scroll of the Past-Presidents and the handing over of the buffalo-horn gavel from Pat Feschuk to Carl Anderson.

An observation from a not-so-senior member: the same seniors in attendance, with a distinct lack of young members. Perhaps the whole function should be held on a non-working day in order to provide a better occasion for attendance! □



Eur Ing Axel Meisen addresses luncheon

APEM Annual Awards and How to be a Eur Ing

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

The 1992 Awards Luncheon was held in conjunction with the Annual General Meeting at the Holiday Inn Crowne Plaza. This year, Merit Awards were presented to William M. McDermid and Andrew Taylor.

Bill McDermid has worked in the Electrical Utility Industry for 31 years since graduating from the University of Manitoba. He is responsible for all diagnostic testing, processing and functional evaluation of electrical insulation materials and systems at Manitoba Hydro. Mr. McDermid is well known and respected for his energy and commitment to the refinement of insulation system evaluation and test techniques. He has been active in professional associations both nationally and internationally. The APEM Merit Award was presented to him for his outstanding creativity and technical leadership.

Andrew Taylor graduated from the University of Manitoba in Civil Engineering in 1931. He worked as a surveyor and as Municipal Engineer, City of Flin Flon before being commissioned in the Royal Canadian Engineers. During his career

Continued on page 6



THE MANITOBA
Professional Engineer

December, 1992

Published by the Association of Professional Engineers of the Province of Manitoba
530-330 St. Mary Avenue
Winnipeg, Manitoba R3C 3Z5
(204) 942-6481 Fax (204) 942-3718

APEM COUNCIL

C.E. Anderson, P.Eng., President
N.P. Feschuk, P. Eng., Past-President
D.G. Chapman, P.Eng.
M. Cornell
G. Fyfe
J.G. Hildebrandt, P.Eng.
R.P. Hoemsen, P. Eng.
R.R. McKibbin, P.Eng.
D.G. Osman, P. Eng.
A.H. Permut, P. Eng.
E.L.J. Rosinger, P. Eng.
C.L. Stewart, P.Eng.
J.M. Symonds, P. Eng.

APEM STAFF

D.A. Ennis, P. Eng., Executive Director and Registrar
S.M. Matile, P. Eng., Director of Admissions
J.C. McKinley, Administrative Officer
E. Ryan, Membership Administrator
D. Bilodeau, Admissions Co-ordinator
H. Kitchen, Administration Secretary
S. Reid, Receptionist/Secretary

PUBLICATION COMMITTEE

Jerry Bogan, P. Eng., Chair;
Allan Ball, P. Eng.; Brenda Danielson, P. Eng.; Bev Dobran, P. Eng.; Vern Dutton, P. Eng.; Len Ganetsky, P. Eng.; Digvir Jayas, P. Eng.; Joe Lucas, P. Eng.; Bill McKay, P. Eng.; Halina Zbigniewicz, P. Eng.

CORRESPONDENTS

Dick Menon, P. Eng., Brandon
Robert Cotterill, P. Eng., Thompson

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

Filmon Wins National Engineering Award

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

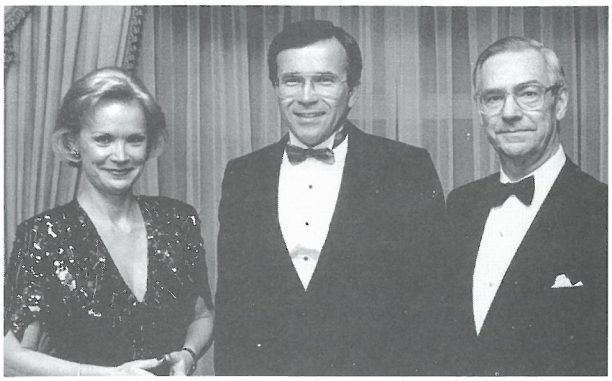
Honourable Gary A. Filmon, P. Eng. was presented recently with the Canadian Council of Professional Engineers' (CCPE's) Meritorious Award for Community Service.

Micheline Bouchard, President of CCPE, made the presentation at a gala awards ceremony on November 5, 1992 in Ottawa.

Mr. Filmon graduated from the University of Manitoba with a B.Sc. in Civil Engineering in 1964, and earned his M.Sc. in Civil Engineering in 1967. His engineering career began with the Winnipeg consulting firm of Underwood McLellan Ltd., with whom he was employed for five years. For the next 11 years, he was owner and President of Success/Angus Commercial College.

Mr. Filmon was elected to the Winnipeg City Council in 1975, and to the Manitoba Legislature in 1979. He became leader of the Manitoba Progressive Conservative Party in 1983, and was sworn in as Manitoba's 19th Premier in 1988.

APEM is extremely proud of its best-known member. Congratulations, Premier Filmon. □



Gary Filmon, P.Eng. receives national award from CCPE President Micheline Bouchard and Executive Director Don LaPlante.

NEW MEMBERS REGISTERED SEPTEMBER & OCTOBER, 1992

M.G. Allard
C.A. Anderson
M.S. Anderson
B.A.J. Boutin
R.G.S. Brodie
E.C.A. Brown
B.J. Carlson
K.J. Carriere
I.R. Dewar
D.W. Dowhan
S.A. Evenson
R.G. Fay
P.W.L. Fenato
L.H. Frost
K. Gartly
T. Gaudio
D.A. Irvine
L.A. Isliefson
B.H. Kautz
B.J. Keiser
K.F. Leong
Y.C. Leong
H.P. Lepp
D.H. McKinnon
K.B. Mann
J.G. Mayor
A. Ochonski
W.T. Reynolds
J.A. Rooney
B.A. Ross
D.C. Rothenberger
J.J. Staples
G. Van Uytven
D.A. Warren
G.S. Waschuk
M.P. Wiebe
R.O. Woodason

LICENCES ISSUED IN SEPTEMBER & OCTOBER, 1992

R. Adhikary (Colorado)
H. Balodis (Ont.)
S. Basappa (Alta.)
D.N. Birenbaum (Ont.)
K.G. Blakely (Que.)
B.S. Brown (B.C.)
G.C. Carson (Alta.)
D.W. Chambers (Alta.)
B.L. Coates (Alta.)
D.G. Delaney (Ont.)
D.N. Delen (Ont.)
H.F. Feldkamp (Sask.)
R.J. Frehlich (Alta.)
M.D. Gallant (Ont.)
J.R.N. Graham (B.C.)
B.M. Granfield (Alta.)
T.C. Greenlaw (Wis.)
A. Haberling (Ont.)
W.N. Hasegawa (Alta.)
T.A. Keith (Sask.)
M. Kinash (Alta.)
J.W. King (Kansas)
L.L. Kitchen (Alta.)
G.A. Kroening (Alta.)
P.J. Leduc (Sask.)
E. Lim (Ont.)
T. Loo (B.C.)
G.J. MacDowall (Ont.)
R.E. McCallum (Alt
R.H. McCartney (Kansas)
D.R. McIntosh (Alta.)
E.C. McRoberts (Alta.)
Z.A. Marsic (Ont.)
L.M. Paley (Sask.)
C.J. Payne (B.C.)
G.G. Powell (Ont.)
K.P. Ratzlaff (Alta.)
H.D. Reilly (Que.)
L.M. Sargent (Iowa)
J.T. Scarlett (Alta.)
G.E. Selme (Alta.)
C.J.M. Smith (Alta.)
J.P. Sprentz (Sask.)
C.G.A. Straub (Sask.)
Y. Sze (Ont.)
R.I. Tibbs (Ont.)
A. Vertolli (Ont.)
A.D. Wasnea (Alta.)
H.G. Wiber (Alta.)
J.A. Wilson (Missouri)

WE HAVE LOST CONTACT. MAY WE HAVE AN ADDRESS?

R.D. Altarui
J.C. Costa
N.R. Krpan
P.W. Lai
D.D.D. Macnamara
A.M.A. Mahmoud
L.S. Man
G.S. Mychajlyszyn
N. Peters
E.A. Richardson
D.A. Schesnuk
T.P.A. Small
R.S. Solmundson
K.B. Yukon

ENGINEER-IN-TRAINING MEMBERSHIP SEPTEMBER & OCTOBER, 1992

J.R. Aitchison
P.J. Cesario
J.D. Close
P.M. Dixon
G.P. Gerhardt
R.B. Henderson
R.J. Johnson
M.R. Klein
K.M.A. Koshelanyk
R.D. McKibbin
W. Mueller
G.V. Nelson
G.R. Paskaruk
D.S. Rea
T.H. Tonner
K.R. Zink

– Notice –

New Building & Plumbing Codes Adopted

The Manitoba Gazette has published notice of the adoption of the Manitoba Building and Plumbing Codes based on the 1990 versions of the National Building Code and Canadian Plumbing Code. The Manitoba Plumbing Code went into effect on November 20, 1992 and the Manitoba Building Code becomes effective on December 18, 1992. Copies of the Manitoba Codes may be purchased from the Queen's Printer by calling 945-3101.

WITH DEEP REGRET THE ASSOCIATION RECORDS THE PASSING OF:

D.S.G. Ross M. Stanson D.S. Swain

CCPE President's Message -

Increasing Public Awareness Of Engineering: A Challenge For The Profession

By: M. Bouchard, ing.

It has long been recognized by the profession that engineers and wealth-creation go hand-in-hand. However, despite the profession's confidence in that statement and the concurrence of some business leaders, economists and other cognoscenti, Canadians by and large are not aware of this fact. What is the relationship between engineers and economic prosperity? A precise answer may be hard to find but one thing is certain: there is a need for greater awareness of the engineer as a contributor to the quality of life Canadians have learned to take for granted.

Canadians must be told that engineers are the providers of a wide range of solutions to society's long list of needs and concerns. Canadian engineers today are involved in such fields as infrastructure repair and maintenance, medicine and health, telecommunications and sustainable development. Their work not only contributes to raising the standard of living of every Canadian but also to the protection of public safety.

Entering the 2lst century, Canada is becoming a knowledge-based society. As such, technology will be the key to the creation of value-added products and services and Canada will depend more than ever before on the unique knowledge and skills of engineers to meet the challenges that lie ahead. We must work to ensure that this country will continue to have adequate numbers of appropriately trained professionals to meet future requirements. One way to do this is by making sure the public understands the vital link between engineers and economic prosperity. If this message is clear, then perhaps more young people will choose engineering as their career.

It is important that industry and small and medium businesses in particular recognize the value of engineers in implementing new technologies that can improve our productivity and increase our chances for success on the international market. We must therefore develop a technology culture that supports enhanced research and development – the basis for new products, services and industrial processes. We must also encourage the hiring of more engineers by small and medium businesses.

For many years Government touted the benefits of increased research and development but their policies largely supported basic scientific research while the market-driven development that engineers excel at has been late in receiving attention. It seems that engineering is not well understood, less well used and not included in the government lexicon which favours the generic term 'science and technology'. Government policies, whether they have a technology component or not, are too often developed by professionals from other disciplines – lawyers, accountants, economists and political scientists. Engineers have a limited presence on committees, boards and other advisory groups in which economic policies are discussed and formulated.



As a result, engineers are seldom the object of media attention even when the issues concern the profession. Instead, it is often interest groups that take public positions and command media attention on complex issues that require the technical knowledge that engineers have. It is true that in the past engineers have not been the greatest communicators. That is why it is important to encourage the prominent members of our profession to speak out publicly on engineering-related issues.

It is also important that students understand the critical role that they can play in society as engineers. The engineers of tomorrow will solve many of the social problems we face today by improving living conditions around the world, working to clean up and protect the environment, and developing clean, safe and sustainable energy sources. Young women too must be convinced that engineering offers them an excellent opportunity to contribute to the public good.

Professional engineering associations recognize the need to create a greater awareness of the profession and some have embarked on major communications programs in this respect. Over the last three years CCPE has undertaken a number of studies aimed at better understanding the profession – its strengths and weaknesses. The outcome of this work is contained in the recommendations stemming from three sources: the 1990 Outlook Conference on the Engineering Labour Market; More Than Just Numbers – the final report of the Canadian Committee of Women in Engineering; and The Future of Engineering Education in Canada, the just-released joint report of CCPE and the National Committee of Deans of Engineering and Applied Sciences. The more-than-200 recommendations indicate that there is a great need for the profession to communicate a better understanding of the important role engineers play in society by working to solve such problems as environmental pollution, infrastructure deterioration, mounting energy requirements and hazardous waste management, to name but a few.

Further, the profession must reach out further to Canadian women, a great and largely untapped potential of engineering talent that will make our country an even better place to live. Engineers must play a stronger leadership role in society, and the pride of being an engineer must be demonstrated in word and deed.

Recently, CCPE undertook a survey of 200 business leaders, government officials and university presidents. They were asked to prioritize six target areas identified by the Council. These include: professional practice standards, public awareness, mobility, self-governance, supply/demand monitoring and public policy positioning. Systematically, the respondents from both the private and public sectors gave public awareness of engineering the highest priority next to maintaining high educational and professional practice standards. Two consultation sessions with senior representatives from among the respondents confirmed the overwhelming need to act swiftly in this area.

CCPE, with the support of its 12 provincial and territorial constituent associations, is now working on the development of a national action plan on engineering public awareness. I am a strong believer in the notion that CCPE should act at the national level to strengthen the actions taken by its constituent associations. For this reason, I have become personally involved in preparing this action plan with the participation of OIQ, APEGGA and APES.

A number of actions have been proposed to address six key objectives targeted at the media, professional engineering associations, industry, the federal government and interest groups. A

Continued on page 9

– Notice –

This is notice that on September 1, 1992 a conviction on a charge of conduct in the practice of engineering detrimental to the public interest was registered against and a reprimand issued to P.A.A.R. Beach, P. Eng., in accordance with Section 43.4.8(e) of By-Law 43.

At no time has this matter altered Mr. Beach's right to practise as a professional engineer in the Province of Manitoba.

D.A. Ennis, P. Eng., Registrar

1992 CCPE Annual Meeting

By: K.A. Buhr, P. Eng.,
Manitoba Director, CCPE

The 1992 Annual Meeting was held in Whitehorse, Yukon on June 4th and 5th. It was preceded by the President's reception on the evening of June 3rd.

The 1992 Annual Meeting consisted of a one-day Board of Directors' Meeting followed by a one-day Members' Annual Meeting.

The Board of Directors' Meeting dealt with a number of items which affect all the Associations. As well, a number of items were dealt with that affect Manitoba specifically.

One of the items that affects all of the Associations is that CCPE approved a motion to support the Canadian Engineering Human Resources Board (CEHRB) in the adoption of a new mission statement: to become the recognized authority on the engineering labour market in Canada.

Every year, CCPE appoints members to the National Awards Committee. This year's appointees include Micheline Bouchard, Chair; Bill Kerr, John Bate, Pierre Desjardins, Ed Hauptmann, Jim Morrow and Ken Buhr. The committee reviews the nominations for the CCPE Gold Medal Award, the Professional Service Award, the Community Service Award and the Young Engineer Award.

It was announced that Citadel is backing out of the national insurance plan. Westbury has been appointed as an interim carrier, while CCPE, searches for a new underwriter. The change is not expected to affect the members.

It was noted that negotiations are progressing with the U.S. National Society of Professional Engineers (NSPE) with respect to the Free Trade Agreement. Although progress was slow, agreement had been reached to concentrate on similarities – not differences. The Board of Directors gave CCPE the mandate to deal with the North American Free Trade Agreement, as well.

The Board of Directors adopted in principle the long-touted CCPE Strategic Plan. The plan targets six specific areas to be dealt with over the next five years. In order to implement the long-range plans, member Associations have been asked to take on the responsibility for developing the action plans. APEM & APEGBC agreed to take on the pre-university education target area.

The proposed long-range plan had an impact on the budget of about 18 percent. This, in light of the low inflation rate and high unemployment, was considered out-of-line by the Board of Directors. Executive Committee was requested to rework the budget to keep the increase to less than 10 percent.

CCPE had received a request to consider a national points-rating system for determining salaries of engineers. The CEHRB has agreed to undertake the task and will report back by November 1992.

CCPE is developing an appropriate mechanism to facilitate the free flow of disciplinary information between the Associations.

One of the issues that concerns CCPE is that, although it thought there was agreement last fall on the four years of apprenticeship to replace the current two-year period, it now appears that some of the Associations may be having second thoughts. CCPE is concerned that this could be an issue in negotiating mobility for engineers under the NAFTA. The Directors were asked to return to their Associations and request that a formal position be adopted as soon as possible.

The Annual Members' Meeting was held on the day following the Board of Directors' meeting. Reports of the Presidents of all the Associations were presented.

There were two vacant positions to be filled on the Executive Committee of CCPE. Three candidates appeared on the ballots: Don Bellow, Dana Ferguson and Garland Laliberte. Garland Laliberte and Dana Ferguson were elected.

The next Annual Meeting will take place in Charlottetown, Prince Edward Island on May 28th and 29th, 1993. □

Contents of Mystery Box Revealed

By: H.S. Zbigniewicz, P. Eng.

The Campaign Room at the Holiday Inn Crowne Plaza was the site of this year's annual Wine and Cheese reception in honour of award recipients, delegates, Council and committee members.

After everyone had a chance to sample the wonderful selection of wines and cheeses, our President, Pat Feschuk started the formal part of the evening. He welcomed everyone to the reception and introduced Awards Committee Chair, Ken Buhr. Ken presented scholarships to eight outstanding University of Manitoba engineering students: Vince Gaudet, Scott Widford, Brent Timmerman, Dale Goehring, Craig Murray, Joel Shapiro, Kai Tai Jung and Maureen Lawton.

To conclude the formal part of the evening, incoming President Carl Anderson thanked Pat Feschuk on behalf of the APEM for his service, this past year, as President. Carl also presented Pat with a gift of thanks, from the Association.

The nature of the gift, as is often the case with such presentations, was a great mystery to most of us in attendance. (We usually ***never*** know what's inside that blue box!) This time, curiosity got the better of one of us, and cries of "What's the box?" rang out through the room. We all have, at one time or another, thought those exact words but never had the courage to utter them. This time, the words were spoken, and we all got to see the beautiful bronze statue of a bison that Pat received. □



Carl Anderson (l) presents Pat Feschuk with mysterious blue box.



Ken Buhr with six deserving scholarship winners.

Garrison Diversion Re-visited

: W.G. McKay, P. Eng.

The Annual Meeting started with a breakfast meeting having 60-65 persons, including some of the other provincial association representatives, in attendance.

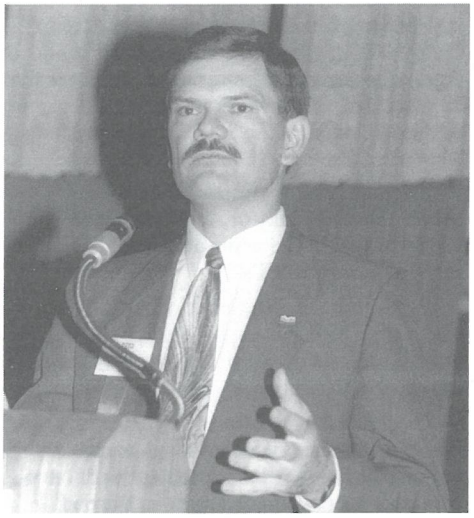
The guest speaker was Dave Sprynczynatyk, P.E., from the North Dakota State Water Commission, speaking on the topic of "Garrison Diversion Development Plan". Dave is well known to the Provincial Water Resources personnel, and his topic has been the subject of much debate between Manitoba and North Dakota engineers, environmentalists and many others for quite a number of years.

He reviewed some of the earlier history of this major project on the Missouri River, which comprises 96% of the total stream-flow in North Dakota. He noted that there were federal agreements for financial support, not yet fully received, promised in lieu of land given up to the various reservoir projects. In 1986, the Garrison Diversion Unit Reformulation Act turned the emphasis off irrigation and toward the deliveries of water for municipal, rural and industrial projects. There are now such projects as a 350-mile southwest pipeline to give 21 communities an improved water supply in both quality and quantity. A similar plan is also projected for the Northwest area, which could be of interest to Canadian communi-s immediately across the border.

Improvements to Devil's Lake, one of the major recreation and tourism areas of the state, are also projected. Two major canals are to be completed to take water over the continental divide into the Cheyenne and Red River systems. Water which may enter the Red River will receive sterilization, likely ozonation, for destruction of biota which could be unfavourable to the aquatic life in the Red River and other subsequent water bodies in Canada.

The water rights of states along the Missouri River is, of course, a contentious point; the upstream states (Montana, Idaho etc.) and the downstream states (South Dakota, Nebraska etc.) all relate to the general riparian right of "use it or lose it". The lecture was concluded with a video presentation prepared for public information.

It was an interesting, well-presented lecture, on a project of continuing interest to two neighbours- Canada and the USA. □



Dave Sprynczynatyk, P.E.

APEM Code of Business Conduct

The Association of Professional Engineers of Manitoba (APEM) endorses the tenet that applicants for registration, members, guests, vendors, employees of the APEM and all others shall be treated in a fair and equitable manner regardless of race, nationality, religion, colour, sex, age, marital status, physical handicap, ethnic or national origin, political beliefs or family status.

The APEM Council, its committees, task forces, joint committees or groups with APEM representation, employees of and individuals representing the APEM shall treat all persons fairly and equitably in accordance with this tenet.

When a written allegation is made or when the President is of the opinion that this Code of Business Conduct has been violated, the President shall cause a review to be undertaken and report the results of the review to Council. Council shall notify the complainant of the findings of the review. If, in the opinion of Council, a violation of the Code of Business Conduct has occurred, Council may issue an apology on behalf of the Association, order the offending practice cease and take whatever additional action Council deems appropriate.

More Than Just Numbers

Condensed from an excerpt of the report "More Than Just Numbers" Canadian Committee on Women in Engineering

The following are some highlights of an excerpt from the report entitled "More Than Just Numbers" released by the Canadian Committee on Women in Engineering (CCWE) in Ottawa on April 7, 1992. The report was written after six public forums were held by CCWE across Canada during the past two years to address the problems of attracting, retaining and advancing the careers of women engineers. The women attending the forums shared their experiences, which varied widely from positive to negative, and also provided suggestions and comments on how to approach and deal with the low percentage of women in engineering.

Some of the comments suggested that women e discouraged from pursuing engineering and science-related activities beginning very early in life and that parents' attitudes play a crucial role. During their school years, exposure to predominantly male math and science teachers and male engineers suggests to young women that gender plays a determining role in these professions. In fact, females are often told that subjects such as physics will be too difficult for them. Consequently, many girls do not have the academic prerequisites needed to undertake engineering studies. At the university level, there are even fewer role models in engineering faculties. Some women felt that being a female in engineering was a balancing act – a constant struggle between maintaining their femininity and, at the same time, trying to be "one of the guys".

Once in the workforce, many women continued to encounter difficulties. Interestingly, younger women appear to experience fewer negative situations compared to those who have been working for more than 10 years. The report suggests that this may be the result of engineering faculties becoming more supportive; or that the younger women have simply not been in the workforce long enough to experience the frustration of discriminatory practices in hiring and job assignments, sexist attitudes and difficulties in balancing career and family responsibilities, all of which can contribute to the "glass ceiling effect" – an invisible barrier to senior management that women cannot pass through. Some women spoke of lack of respect on the job (e.g. their answers to questions had to be backed up by male engineers) and others felt added pressure over their male counterparts to prove that they

Continued on page 16

– Notice –

This is notice that on October 13, 1992 the registration of P.A.A.R. Beach, P. Eng. was suspended for a period of 30 days following a conviction, in accordance with Section 43.4.8(e) of By-Law 43, on a charge of conduct in the practice of engineering detrimental to the public interest. This charge was with respect to the design of a certain component incidental to the construction of the building structure located at 1330 Taylor Avenue in the City of Winnipeg in the Province of Manitoba which resulted in a failure causing bodily injury and property damage.

D.A. Ennis, P. Eng., Registrar

APEM Annual Awards

Continued from page 1

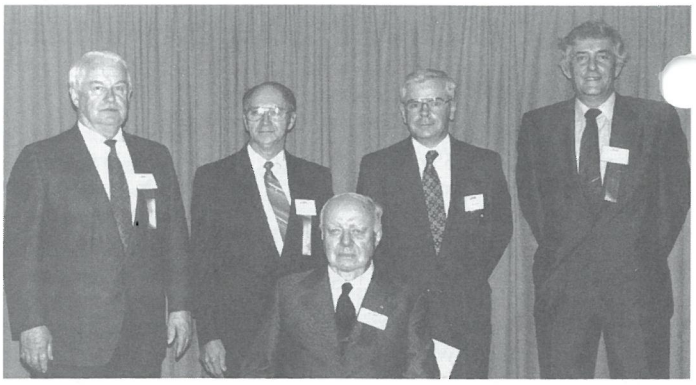
Mr. Taylor extensively surveyed the coasts of Antarctica and was awarded the Polar Medal for his work. During his time in the permanent force, he worked with the US Corps of Engineers and was a member of the Snow, Ice and Permafrost Sub-committee of the Building Research Council of Canada. Mr. Taylor has published the ***History of the Exploration of the Queen Elizabeth Islands and The Physical Geography of the Queen Elizabeth Islands***. He was appointed an Officer of the Order of Canada in 1986 and received the Vilhjalmur Stefansson Award for "Excellence in Canadian Northern Studies" in 1990. He has been recognized as a pioneer in arctic engineering under permafrost conditions and as a geographer, historian, author, and polar scholar. The Merit Award was conferred upon Mr. Taylor as a tribute to his patience, persistence and hard work.

Certificates of Engineering Achievement recognizing engineering excellence were presented to Manitoba Safe-T-Base for the development of a breakaway pole-to-base coupling device and Versatile Farm Equipment Operations Ford New Holland of Canada Ltd. for its efforts in the conception, development and versatile application of the bidirectional agricultural tractor.



Paul Zanetel (l) receives Certificate of Engineering Achievement for Versatile Farm Equipment.

The Outstanding Service Award, recognizing service rendered to, or on behalf of, APEM by a member, was presented to Ted Clarke. Mr. Clarke has been a member of the Association for 30 years. He has served on Council, as President (in 1986), on the Publication, Awards and Nominating Committees, and on the Admissions Review Board, the Ad Hoc Committee to Review the Code of Ethics, and the Ad Hoc Committee on Technologists.



1992 APEM Award Winners: John Shewchuk (l), George De Pauw, Bill McDermid, Ted Clarke (r) and Andrew Taylor (seated).

Honorary Life Membership was granted to George DePauw, a continuous member for 38 years, who has served on various committees for 28 years. Mr. DePauw is now writing a book, to be titled "Pioneer of Highway Bridges in Manitoba".

After the Awards presentation, Dr. Axel Meisen, Dean, Faculty of Applied Science, University of British Columbia discussed the European Engineer (EUR ING).

Presently, the federation of national European engineering associations, known as FEANI, comprises 21 members. Most, but not all, of them are members of the European economic community.

One of FEANI's objectives is to facilitate the freedom of engineers to move and practise within and outside Europe. It has one register of members who meet minimum academic standards and a second register for engineers with relevant work experience. FEANI also has a Code of Conduct. Unlike Canada, engineering practice in Europe is generally not governed by law. Also, there are large variations in engineering education, minimum professional experience, languages and culture.

To become a FEANI member, an individual must complete a secondary education and three full years of university education at a FEANI-accredited institution. To qualify for the second FEANI register, in addition to the previous requirements, two years' university and/or relevant engineering experience plus two more years of relevant engineering experience are necessary. (The total requirement is seven years.)

Application to become a EUR ING is only open to members of engineering associations represented by FEANI. Candidates from outside FEANI (including Canada) are only considered if they are sponsored by a FEANI member association and they meet education and experience conditions.

At present, there is an agreement between the accreditation bodies in Australia, Canada, Great Britain, Ireland, New Zealand and the United States recognizing the basic equivalency of engineering education. However, there is no similar agreement concerning equivalency of experience. As a result, Manitoba experience would not be considered equivalent for registration in Europe.

In summary, there is no legal requirement for registration to practise engineering in Europe. There is right-to-title legislation, and the use of "EUR ING" is protected. Europe provides a large market for Canadian engineers and EUR ING also offers business advantages.

After Dr. Meisen's presentation, an award was presented to Kathleen Gissing, President, Association of Professional Engineers and Geoscientists of British Columbia, in recognition of the celebration of Women's History Month, 1992. Ms. Gissing was the first female graduate from the University of Manitoba to register with APEM. □

Tax Incentives For Scientific Research and Experimental Development (R&D)

By: G. Meger, C.A., Sill Streuber Fiske & Co.

Is your company carrying out R&D? Many companies are not aware that they are and, as a result, are missing out on the lucrative tax incentives available to them.

To answer the question, we must define what R&D is. Revenue Canada is vague in its definition of R&D as it wishes to encourage R&D without specifying its exact nature. However, in order to qualify as R&D, the activities must meet the following tests:

1. There must be a technological advancement in the standard practice or an advance in the technology of the business entity doing the research.

   Standard practice refers to the direct adaptation of known engineering or technological practice to a new situation where there is a high degree of certainty that the desired objective will be achieved.
2. There must be a technological uncertainty facing the company requiring the research to be carried out (i.e. the project may fail).
3. The research must be undertaken in a systematic manner following a scientific method and be carried out by qualified personnel (experienced in engineering, science and technology).

Revenue Canada has published Information Circular 86-4R2 which explains the above three tests in more detail. In general, if new ideas are born, if new products are created or if new products are manufactured in Canada by your company, it is highly likely there are substantial benefits to be realized.

Once it is determined that your company is performing qualifying R&D, it will be eligible for the following tax incentives:

1. A deduction from income for all current R&D expenses as well as capital (e.g. equipment) expenditures.

Continued on page 13

Whistle-Blowing

A.E. Ball, P. Eng.

The panel discussion at this year's Annual General Meeting centred about an issue that is more in the public eye as of late: Whistle-Blowing. The role of the engineer is continuing to evolve from that of a pragmatic problem-solver and component-designer to that of a globally aware sophisticate who must consider all sides of every issue, including socio-economic and environmental aspects and the impact on future generations.

Walter Harrison, Director of Nuclear Services at AECL Research and moderator of this panel discussion, introduced this subject as a blend of philosophical reasoning, licensing and regulation of the profession, and legal matters. To support each of these aspects, the panel consisted of Dr. Arthur Schafer, Professor of Philosophy, Ms. Debra Dileo, P.Eng., Deputy Registrar, APEO, and Stuart Whitley, Assistant Deputy Minister, Manitoba Justice Dept.

Professor Schafer felt it prudent to immediately draw a line and separate significant and sensationalistic issues from the everyday ethical problems that many of us face. The resulting definition of whistle-blowing was circumventing normal channels of protocol to inform superiors, authorities or the public of a perceived danger. The public is aware of many catastrophes, such as the exploding Pinto gas tanks, improperly closing DC-10 cargo doors, infection-promoting IUDs, and of course, the controversial Challenger space-shuttle explosion. All of these catastrophes were recognized by engineers as potentially dangerous prior to the actual failures taking place, but unfortunately these engineers were unable to convince their superiors of the dangers.

These are all very weighty examples; hundreds and thousands of lives and billions of dollars were at stake. Obviously, a decision to circumvent normal reporting channels (that were not getting results) became almost a life-and-death decision for the informed individual, who had to weigh job security, professional reputation, and moral obligations against what he or she believed to be the truth. To make unsubstantiated claims would mean certain professional and financial ruin, but to wait for indisputable evidence might be too late. There is certainly a heavy burden and sacrifice imposed on the whistle-blower. Professor Schafer suggested that if society wants the engineer to act with the best interests of the public in mind, then legislation should be enacted so that the public protects the engineer in whistle-blowing situations. He suggested that the Association should carry a certain power to lobby for protective legislation, boycotts, and other measures necessary to protect its membership from the consequences of whistle-blowing. He encouraged us to not fall silent on either the small or large issues, but to voice genuine concerns through the traditional channels as far as possible.

Ms. Dileo reported on the procedures and protocols currently in place in Ontario that improve the process of reporting violations of the Engineering Act. As far back as 1985, APEO organized a workshop dealing with the issue of whistle-blowing and established a task force to help the Association and public come to terms with whistle-blowing in the profession. Through this early work, the Ontario Association enacted By-Laws that place a "duty to report" on members who are privy to information that could harm the public. Failure to report such a situation to the Association would constitute professional misconduct. Within the Association's Code of Ethics is a guideline to responsible disclosure in the public's interest. Having established the requirement to report meant a responsible reaction on the part of the Association. Ms. Dileo and four other staff are dedicated to responding to questions and counselling members on their duties and obligations in certain situations. Staff will give advice on the perceived magnitude of the issue and advise members of the alternative actions they may take. All calls are treated with extreme confidence. For safety issues for which the staff may not have sufficient technical knowledge, the Association will enlist a specialist. The Association will even act on behalf of the member in discussions with the parties or employer involved.

Mr. Whitley highlighted the consequences of whistle-blowing. In the USA, where 55 professionals had reported incidences to the authorities, all had experienced some loss of stature, through loss of job or promotion opportunity, peer ridicule, black-listing and other actions.

Mr. Whitley suggested that the threshold values for small or large issues are very different. It may be easier to discuss small issues with superiors and obtain satisfactory resolution. It can also be easier to accept the inequalities of society when issues are of limited consequence.

The law prescribes a minimum standard of conduct, whereas professional ethics prescribe a very high standard of conduct. As such, whistle-blowing is not compatible with engineering or any other profession, because the professional owes a special duty to the public, but receives no protection in return. Current court settlements usually allow for one or two years of severance dismissal damages, which is not always adequate for senior professionals to re-establish themselves after a whistle-blowing incident. Mr. Whitley feels it is unreasonable for any professional to lay his or her career and professional reputation on the line without some form of protection from the public.

Legislation, then, may be the answer to ensuring protection of the whistle-blower. This should be pursued within the engineering profession, but could also be combined with other professions under a wider legislative umbrella. Mr. Whitley believes that our Association should expand its boundaries beyond that of an Act-enforcement agency and implement a process that will deal with whistle-blowing.

Mr. Harrison concluded the afternoon discussion with some brief but pertinent observations:

- APEO has a reporting process in place which has been very successful in educating and counselling the membership in this area.
- Wrongful-dismissal laws legally apply to situations of this nature, but they do not offer the real protection required.
- There is extreme logic in the concept of Quid Pro Quo where the engineer protects the public and the public protects the engineer.
- Our Association needs to promote the progression of such legislation, but it may be in the realm of the Canadian Council of Professional Engineers (CCPE) to champion this cause across Canada. □



Moderator Walter Harrison (l) with panelists Arthur Schafer (at microphone), Debra Dileo and Stuart Whitley.

Congratulations!

Congratulations to the winners of the Annual General Meeting Early Bird Draw: Brian King and Bill McKay, who won two Winnipeg Blue Bomber tickets; and Carol Roberts, who won two tickets to the Manitoba Theatre Centre.

Council Reports

September 14, 1992

By: W.G. McKay, P. Eng.

AT WHICH COUNCIL CONSIDERS ITEMS OF NATIONAL CONCERN AND GENDER EQUALITY

With members Cathy Stewart, Walter Harrison, Bill McDonald, Carl Anderson, Doug Chapman and Mel Cornell providing a slight majority for a quorum, chair Pat Feschuk opened the meeting.

Financial Statements

The Auditors' statement for the year ended July 31, 1992 was approved, and some further aspects of the year's operations were discussed. Although this report will be read after the annual meeting, it should be noted that the matters of the $48,000 surplus and the fee increase to meet the expected 1993 expenses were discussed. The continued use of the ratio of reserves to operating expenses, currently set at 1.2, and the allocation of portions of the Association's capital for expenses such as computerization will be reviewed. Inasmuch as fees are paid on a yearly basis, would it be less confusing if the financial year end coincided with the fiscal year end? It might mean a change in the time of the annual meeting, but this could be accommodated.

Licences, Registrations, etc.

With a few exceptions requiring some clarification, these were quickly approved. However, there was no August Council meeting, and while the Executive Committee had the authority to approve applications of an emergency nature, the staff reported that they had received some expressions of dissatisfaction from persons whose applications had not been approved in August. It was also pointed out that there are some provinces wherein applications are only approved on a twice-a-year basis.

National Guideline for Professional Practice Examination

Approval was given to a proposed national guideline presented by CCPE, which, when followed, should give a more uniform national examination and in turn lead to a more meaningful examination of the candidates' knowledge of the profession prior to registration.

Years of Experience Prior to Registration

There has been general agreement across the country that the current two years of experience prior to registration should be increased to four years as proposed by CCPE as a national standard. Such an increase has been supported in discussion by Council members with practising engineers. APEGBC has already implemented a program of four years as of January, 1993.

Council decided to implement the CCPE recommendation of a three-year requirement in 1994 and four years in 1996.



Thank you, 1991-92 Councillors Pat Feschuk, Bill McDonald, Cathy Stewart, Ray Hoemsen, Mel Cornell, Doug Chapman, Vish Gupta, Gail Fyfe, Walter Harrison, Bob McKibbin and Carl Anderson

As the implications of additional years were examined, it was apparent that the quality of the experience during those four years is of equal importance. Likewise, the maturity of the applicant should be considered: a graduate with pre-university experience in the engineering workplace as compared to a high-school graduate. Likewise, the work experience of the Co-op program and the mentor program should be considered. As an aside, it was commented that a guideline should be available to those engineers who provide references, since it is upon their reply that the experience of the applicant is evaluated. APENB has such guidelines in use. Overall, the increase must be promoted as a step in upgrading the value of the newly registered engineer, not as an impediment to his advancement in the workplace.

CCPE – Reorganization, Budget & Assessments

CCPE, not unlike many other organizations, has reassessed its goals and strategies and has prepared a new program of operations – basically to improve its services to Provincial Associations and hence to the membership. Council endorsed the proposed assessment in order that the CCPE Director for APEM may support this action at the forthcoming meeting. While such services as public awareness may be useful to the smaller Associations, it may be expected that some of the larger Associations will not be as supportive, since they may view it as duplication of services within their own organization.

Mutual Recognition Agreement – United Kingdom

The Canadian Engineering Accreditation Board (CEAB), a Board of CCPE, has entered into agreements recognizing the accreditation of academic programs by the Institutions of Engineers of Australia, of Ireland, and a number of Institutes in the United Kingdom. Based on the review and recommendation of the Board of Examiners, Council endorsed the recommendation of the CEAB which, when adopted on a national basis, should facilitate the r istration of engineers from these countries.

Engineers in the Economy

President Bouchard of CCPE is encouraging the use of engineers in an advisory capacity by direct participation with the Provincial Governments in the stimulation of the economy. In review of her request, it was noted that the Provincial Government has in place the Economic Innovation and Technology Commission, chaired by R. Hood, P.Eng., Past-President of APEM and CCPE, with eight other professional engineers among its 29 members. Such engineering participation would appear to fulfill her request of this Association.

Meeting with the Minister of Labour – Minister Responsible for the Engineering Profession Act

A brief but meaningful meeting had been held with the Honourable Darren Praznik. President Feschuk reported that the Minister was pleased that the Association had taken the initiative to resolve problems relating to the Act, and to work with other similar Associations such as the technologists. Mr. Praznik indicated a strong preference that such matters be resolved by the Associations rather than by his department. A return meeting is scheduled for January, 1993.

By-Laws Pertaining to Late Payment of Fees

Council endorsed the changes proposed by the Legislation Committee on the By-Laws pertaining to penalties and periods of grace all in connection with the payment of fees. These are changes which will clarify and improve the administration of these regulations. It was commented that the ultimate goal of legislation is to have only those matters in the Act pertaining to the enforcement of the Act and protection of the public and to have matters of administration defined by the By-Laws and regulated by policies and direc tions of Council.

Meeting Facilities

The Research & Development Committee function recently held at the Winnipeg Squash Club has given rise to considerable controversy, both verbal and written, as to the appropriateness of using a facility which has an aspect

Continued on page 9

September Council Meeting

Continued from page 8

gender restriction. After much discussion, Council agreed that the use of such facilities, which may give rise to such conflict, should be avoided.

With assistance from Councillor Cathy Stewart, a directive based on equal gender policy of the Association will be put forth by Council at its next meeting with respect to the use of external facilities by the Association and its committees.

Canadian Engineering Memorial Foundation

Council approved the solicitation of funds for this Foundation by direct member contributions instead of an overall Association contribution.

Report of the Investigation Committee

This committee has received a large number of complaints in comparison to previous years, all of which has meant a very strenuous schedule of meetings. It was noted that those notices arising from the committee decisions, which are published in the Manitoba Professional Engineer, will in the future carry a description of the matter investigated so that the members will be aware of the general nature of the problem and be able to guide themselves accordingly.

Liaison with the Manitoba Association of Architects

In the interest of developing an understanding between the two design professions, Council has appointed Carl Anderson as representative, and two members from the Consulting Engineers Committee who, along with two members appointed by the Association of Consulting Engineers of Manitoba (ACEM) to a Task Group, will work on this objective.

Engineering Faculty/APEM Council

The APEM Council appointed S. Matile and K. Buhr as its representatives to the Faculty Council at the University of Manitoba. There will also be an annual meeting of APEM Council and Faculty of Engineering representatives for the discussion of relations between the two organizations.

Indeed a lengthy meeting of 24 agenda items, which was finally completed at 6:30 p.m.; perhaps a retribution for the August Council meeting holiday! □

October 13, 1992

By: V.L. Dutton, P. Eng.

AT WHICH COUNCIL ADOPTS A CODE OF BUSINESS CONDUCT

This being the final meeting of Council under the gavel of President Feschuk, it was interesting to note (as can be confirmed by checking the minutes of the meetings of Council) that this was the first meeting at which the entire Council was present.

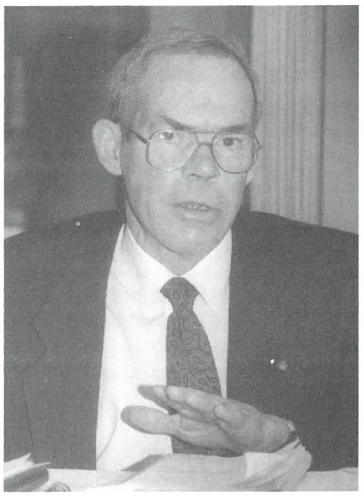
Arising from the recent incident of a meeting being held at the Winnipeg Squash Racquet Club (which does not admit women), Council has adopted a Code of Business Conduct. This Code is to be printed in the MPE (but space limitations may mean a delay until the February issue). Please give it your consideration. Will the Association now be able to hold meetings at the Squash Club?

One of the actions taken by this Council has been toward the creation of a Registration Board. As you will have assumed, its purpose will be to deal with registrations and the problems that often arise. The terms of reference of this Board may be seen at the office.

A couple of interesting items came onto the table in connection with education. The first to be noted is that the University Education Review Commission (to be Chaired by Senator Roblin) will receive a submission from the Association. We will see if there is room in a future MPE to carry it.

The second was the receiving, by Council, of the National Action Plan for Teachers in the Pre-University Education System. This Plan has been developed by APEGBC and APEM. My spies tell me that our Councillor Hoemsen contributed mightily to the Plan. There is much in this Plan so you may want to take a look at it at the Office. One idea that I think is great is "Specific Objective 3.4: Achieve the 'adoption' of every Canadian school by at least one engineer by 1995." With this challenge, if no one objects, I am hereby adopting the schools at Birtle, Foxwarren, and Shoal Lake and would be happy to share them with partners. Hmmm. Yes, and Frontenac, here in my own community.

Speaking of partners, this seems the right place to report that the project, Homework Help, is now "up and running" at Louis Riel Library. Yes, there have been a few teething problems – but nothing major. What we do need are three or four more engineers to share the load with us. Telephone the office and we'll touch base with you.



CCPE Director Bob Burridge addresses Council.

Past-President McDonald presented a report on "Joint meetings APEM/MANSCETT on Licensing of Technicians/Technologists: A Summary of Points of Agreement and Disagreement". This committee will be continuing with its work.

Shirley Matile reported on the work of the Canadian Engineers' Qualification Board (one of three standing committees of Canadian Council). This Board is investigating the establishment of common standards amongst the Associations. As she points out, 14 European countries have managed to set a common standard for achieving the designation "Eur.Ing." so why cannot 12 provincial Associations in the same country adopt a common standard throughout Canada? Watch for significant changes, amongst which will be

Continued on page 16

CCPE President's Message

Continued from page 3

career-awareness initiative is being developed separately to target educational institutions. Moreover, a gender-equity plan is being developed by APEO. It will propose initiatives aimed at enhancing the image of the profession with respect to women and will aim to create a more positive working environment for women engineers. This is a major undertaking that will require full support and appropriate funding from the constituent associations.

I hope that these initiatives, undertaken locally by the provincial associations and nationally by CCPE, will enhance the feeling of pride and ownership in the profession within the engineering community.

A substantial number of engineers in this country occupy very powerful positions within industry, government and academia. However, it seems that, once in these senior positions, they seldom identify themselves as professional engineers. Neither their business cards nor any write-ups about them mention their professional-designation: P. Eng. When asked, they will reply that their engineering training is no longer relevant to their work. This may be true, but by downplaying their identity as professional engineers they deprive our society of much-needed role models. The use of the P. Eng. designation is a bold statement of pride in the profession. When used by senior professionals it sends a strong message to society that engineers are in the vanguard using their unique problem-solving skills to better serve society in their decision-making roles.

But raising public awareness of engineering is not a role relegated to the leaders of our profession or to the engineering associations. Each engineer has a responsibility to contribute to this worthwhile initiative aimed at telling Canadians why they should be proud of their engineers. You should be proud as well. Show it. Next time you identify yourself to your peers or the public, use your professional designation; it is the first step in increasing the public's awareness about who engineers are and what they do. □

Personal Liability Insurance for Engineers

Editor's Note: The following information was received in a memorandum from the Canadian Council of Professional Engineers. It is presented here for the information of the Association's membership.

Individual engineers can and are held personally liable for damages resulting from the negligent performance of professional services. This means that the personal assets of such professionals may be exposed in the event of judgements against them.

ENCON Insurance Managers Inc., endorsed by both CCPE and ACEC, is a manager of professional liability insurance programs for Canadian engineers.

The professional liability insurance provided by ENCON for consulting engineering firms covers all employees and former employees of the insured firm. There are, however, many engineers employed by firms which are not able to purchase professional liability insurance. These firms may include manufacturing concerns, general contracting companies, mining companies, and various levels of government and utilities. In addition, most comprehensive general liability policies purchased by these firms specifically exclude coverage for professional services, thereby effectively eliminating any protection for the employed engineers. Professional engineers may be exposed to liability through their employment as well as through their self-employment. There are many instances when professionals offer consulting services during their own time (moonlighting) and thereby attract further exposure to professional liability claims.

Professional liability insurance for individual engineers is available through ENCON to provide coverage for those engineers who may have an exposure either through their employment or in their own right. The insurance policy provides protection to employed professionals for claims that may be advanced by parties other than their employers. The coverage is extended for errors, omissions or negligent acts arising out of the performance of professional services for the employer. In addition, the policy provides coverage for incidental consulting activity an engineer may become involved with outside the realm of employment. Engineers who are exposed to liability through incidental consulting activity, and who are employed by consulting firms, may also purchase this coverage.

The ENCON professional liability policy provides limits of insurance up to $1,000,000. For further information you may contact your independent insurance broker or ENCON's Marketing Department in Ottawa. □

50th Anniversary of Rural Electrification of Manitoba

By: Earl Mills
Edited By: W.G. McKay, P. Eng.

To evaluate the requirements and costs of rural electrification to Manitoba farm residents, the Manitoba Electrification Enquiry Commission was created in 1942 with E.P. Schmidt of Minnesota as Chairman, E.B. Caton, P. Eng., Chief Engineer of Winnipeg Electric Company, J.W. Sanger, P. Eng., Chief Engineer of City Hydro, and H. Cottingham, Chairman of the Manitoba Power Commission, as members.

Dr. Schmidt had previous experience with the American Rural Electrification Administration.



Air-operated tamping machines.

Before the Commission began its study, Manitoba was lagging far behind in Rural Farm Electrification. In western Europe, 50% to 90% of farms had power, compared to 40% in the United States, 35% in Minnesota and 6% in North Dakota. At that time, only 2% of Manitoba farms were electrified.

The Commission's 211-page report was explicit in its key finding: "To bring electrical power in the post-war period to the majority of the 58,686 farms in the province of Manitoba is entirely feasible". The Free Press was critical that



"Rocking" a pole set in swamp country.

rural electrification would likely be carried out at the expense of the city power users.

By 1941, the Manitoba Power Commission had 2000 miles of transmission lines serving 19,000 customers in 151 cities, towns, villages, but only 561 of these customers were farm residents.

By 1945, with the war drawing to a close, a test program was put together to service 675 farms in six widely diverse areas of the province. In addition, power was to be extended to 42 towns and villages. This program was carried out successfully, yielding valuable information and considerable interest in the total program.

The 1946 program was stepped up to 1500 farms. However, the 1945 program revealed a serious problem: the shortage of qualified electricians. To offset this shortage, the Manitoba Power Commission began a training program for rural residents to qualify as "Limited Licence" electricians. By 1947, over 100 of these personnel had been approved to practise.

The 1946 program was successfully completed, and the goal for 1947 was raised to 3500 farms. In 1948, and thereafter, the goal was 5000 farms per year.

Electrification proceeded on an area coverage basis, with 65% of the farms in each township required to sign up for service before the township could be served. Each farm had to service at least two buildings involving two major and five minor appliances. The farmers did not pay for the cost of the lines to their property, but bore all the costs of the individual building wiring.

The 1942 Report forecast that after 10 years, the average farm would be using about 100 kwhrs per month. Today, that consumption is being approached on the average farm on a daily basis. It could be argued that, next to the coming of the railroad, it is doubtful if any event had a greater impact on the social and economic life of rural Manitoba than the provision of electrical service . □

Note: This article is a shortened version of the initial article prepared by Earl Mills who is a retired public relations official of Manitoba Hydro. The original article is on file at the Association office.

Consulting Engineers' Guide Update Available

By: D. Whittaker, P. Eng.

In the current "Guide for the Engagement of a Consulting Professional Engineer", adopted by the Association in January 1991, the billing rates shown in Appendix "A", Example Hourly Billing Rate Calculations, are shown as "Based on Selected Annual Salaries from the 1990 APEM Survey". The "Employer Salary Survey" was used.

It is intended that the figures in Appendix "A will be updated after the completion of each salary survey. This has now been done, to reflect the 1992 survey.

The updated version of Appendix "A" is now available on request at the Association office. □

The Great Unseen Resource

J. Lucas, P. Eng.

The October 15th luncheon was overflowing, in terms of both numbers and enthusiasm, to hear Larry Whitney, P.Eng. speak on the "Sustainable Use of Underground Water".

The introductions by John Thorsteinsson included impressive groundwater information, such as: 90% of the world's potable water is underground; and 25% of Canada's population depends on groundwater as a drinking source. These facts showed the importance of proper controls being applied to safeguard this invaluable resource.

Mr. Whitney, who is Director of Water Resources with Manitoba Natural Resources, is more than familiar with the challenges, problems and opportunities associated with groundwater in our Province.

Mr. Whitney began his presentation by explaining that he felt like a dentist performing brain surgery, but it soon became evident that a doctor was on the case.

Extending Mr. Thorsteinsson's comments about the value of our groundwater systems, he pointed out the devastating impacts we are having on our natural resources, such as destroying the rain forests and creating acid rain. It is important that we safeguard our groundwater resources because, unlike most other systems, we cannot see the damage we are doing until water sampling begins to show contamination. At that point, it is already too late.

Potable aquifers will become more necessary to supplement diminishing surface water supplies, and also to satisfy ever-increasing populations. Droughts, climate changes and global warming all contribute to the reduction of surface water supplies. Mr. Whitney mused that, as previous wars have been fought over oil supplies, there may be future battles waged over groundwater supplies. These water resources are presently being used as potable water supplies, sources of brines for the chemical and oil industries and as a source of thermal energy.

To ensure a continued and useable supply of groundwater, sustainability becomes the watchword. This requires that we maintain both capacity and quality of aquifer systems.

To maintain capacity, we must examine each groundwater system through drilling and study, to determine the basic characteristics and aquifer capacity. Once the sustainable yield is established, we can only live on the "interest on the bank account" or end up depleting the resource.

In addition to controlling the use of the water source, potentially damaging influences must be controlled and avoided. Such harmful activities include improper de-commissioning of wells, waste disposal, transportation systems, mining, agriculture, land development and land use.

The Manitoba Perspective has four main initiatives for each aquifer system:

- Define System
- Define Yield Potential
- Control Development
- Control Non-Aquifer Development

Since the 1960 well-system program began in Manitoba, data has been collected on over 70,000 wells, which may be accessed by interested parties to aid in future projects. Other on-going activities include the Green Plan, which is in development, the Red/Assiniboine River Basin Initiative, which is just beginning, and also the evaluation of the Assiniboine Delta Aquifer, which began in 1987. Manitoba has been moving ahead to reduce future problems with groundwater systems.

The 1988 Environmental Act was enacted to control non-aquifer developments that impact on groundwater systems.

Despite extensive preservation efforts, there are still problems being uncovered with contaminated aquifers.

Fuel spills, brine floods, water depletion and toxic dump-sites all reduce the value of our groundwater resources. Another major concern is the aging of the existing wells in Manitoba. The useful life of a typical well is between five and 30 years. In 1992, over 40,000 wells are at least five years old. As these continue to age, they will become environmental hazards.

The Manitoba outlook must be effective.

Sustainability cannot be achieved by regulation alone. All sectors have to be knowledgeable and act responsibly. Also, proper technological evaluation of groundwater systems is needed at the infrastructure development and de-commissioning stages.

The bottom line is that everyone has to work together. We cannot have one person in our lifeboat drilling holes only under his seat. If any part of the system fails, we must suffer the consequences.

Mr. Whitney applauded the engineering community for the initiative shown in the area of Sustainable Development. However, this must be expanded to include stopping problems from occurring and also fixing old problems in time and before they can cause any damage.

A lively questions-and-answers period followed Mr. Whitney's presentation, which reconfirmed that there was indeed a doctor in the house. □

The Mussels Are Coming

By: J.N. Harvey, P. Eng.

The mussels are coming! The mussels are coming! For those who have been reading the newspaper or the mailings from corporations such as Manitoba Hydro, you are well aware that the Zebra mussel is slowly migrating west from the Great Lakes Region. Although newspaper columnists, such as Dave Barry, can muse about Zebra mussel encrusted brassieres, the fact remains that these pests are causing considerable problems for surface water users in the Great Lakes Region. Estimates for the clean-up and mitigation of the mussel run into the billions of dollars over the next few years.

Although no mussel sightings have been reported in Manitoba, it is anticipated that the mussel may enter Manitoba waterways within the next year or so. This potential time frame has prompted Manitoba Hydro and the City of Winnipeg to begin monitoring programs near their infrastructures, and to investigate ways of dealing with the mussel.

At present, we in Manitoba are in a position to be prepared to deal with this problem before it occurs. We should focus on sound engineering solutions for each surface water user in the Province and begin implementing these solutions in a pro-active, not reactive, manner. Water users in the Great Lakes Region had no alternative but to be reactionary, as they had no warning that the Zebra mussel was there.

To address the mussel problem, the Province has set-up the Zebra Mussel Technical Advisory Committee which includes professionals from both the public and private sectors. The committee was formed so that information about the mussel could be shared. At present a large amount of information on the mussel has been gathered. This information includes articles from research on controlling the Zebra mussel, to updates on locations of the mussel in the Great Lakes Region and North America. If you would like more information on the Zebra mussel or the committee, contact: Dwight Williamson, Chair, Zebra Mussel Technical Advisory Committee, c/o Dept. of Environment, Bldg. 2, 139 Tuxedo Ave., Winnipeg, Manitoba R3N 0H6 Telephone: 945-7030. □

Notice – Payment of Your 1993 Annual Fees

Membership fee invoices have been mailed to all members. Please be reminded that, according to the By-Laws, MEMBERS SHALL PAY THE ANNUAL FEE IN ADVANCE, ON OR BEFORE JANUARY 1, 1993. If you have not received your invoice, please contact the APEM office.

For those members no longer practising in Manitoba, and wishing to resign in good standing, letters of RESIGNATION of membership must be received in the Association office on or before DECEMBER 31, 1992.

Members who are unemployed may qualify to transfer into the non-practising category of membership. The notice accompanying the invoice provides information on this.

Applications to transfer into the NON-PRACTISING or NON-RESIDENT category must also be received in the Association office by DECEMBER 31, 1992.

Wardrop Engineering Wins Memorial Foundation Award

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

Wardrop Engineering Inc. of Winnipeg has received the first national Canadian Engineering Memorial Corporate Award for its leadership in integrating and promoting women engineers.

The award was presented in Ottawa, at the CCPE Canadian Engineers Awards Gala in November to Lloyd McGinnis, CEO, and Carol Roberts, the Wardrop employee who nominated her firm for this prestigious award.

Claudette MacKay-Lassonde, P.Eng., President of the Canadian Engineering Memorial Foundation, praised Wardrop for "the tremendous leadership and community involvement...demonstrated in encouraging and supporting women engineers, and in promoting the engineering profession to all young people."



Carol Roberts thrilled as boss receives award.



Lloyd McGinnis accepts Memorial Foundation Corporate Award from Claudette MacKay-Lassonde.

Wardrop has been developing forward-thinking programs since 1982, when the topic of women in engineering was far from everyone's mind. These programs, the judges felt, "reflect a genuine attitude" throughout the corporate hierarchy of the company. As Carol Roberts put it in her submission, "not all companies value their women engineers like Wardrop Engineering." □

New Associate Dean for University of Manitoba Faculty of Engineering

Dr. Sami Rizkalla was appointed recently as Associate Dean in the Faculty of Engineering at the University of Manitoba. In his new post, Dr. Rizkalla will be responsible for research, postgraduate studies and continuing education in the Faculty. He also assumes community outreach and international program duties.

Dr. Rizkalla will retain many of his duties as Professor of Civil Engineering and, in particular, his duties as Director of the Structural Engineering and Construction Research and Development Facility.

He is currently the Chairman of the Structural Engineering Division of the Canadian Society for Civil Engineering, following completion of his term as Vice-President of the Society for the Prairie Region.

He is also currently Director of the Manitoba Chapter of the American Concrete Institute. In 1988 he was elected a Fellow of the American Society for Civil Engineers and in 1992 a Fellow of the Canadian Society for Civil Engineering. Dr. Rizkalla has been active in the Association of Professional Engineers of Manitoba as chairman and member of several committees.

Dr. Rizkalla obtained his B.Sc. from Alexandria University, Egypt, and his M.Sc. and Ph.D. from North Carolina State University, USA. Dr. Rizkalla has published and presented over 100 technical papers in journals and conferences in the field of reinforced and prestressed concrete structures.

His current research is in the use of advanced composite materials for civil engineering applications and he is a member of the recently-established national network in this field. He is co-author of four technical books in the fields of structural engineering and advanced composite materials. □

Attention Curlers!

The next Annual APEM Curling Bonspiel will be held on Tuesday, January 12, 1993.

Mark your calendars now!

Engineering More Important Than Baseball

By: J.T. Linnen, P. Eng.

On October 20, 1992, 80-90 prospective engineers and parents decided to forego game three of the World Series and gathered at the University of Manitoba to learn about engineers and engineering. They ranged in age from grade nine to very experienced technologists. Carol Roberts of our Public Relations Committee co-ordinated and hosted the evening.

University of Manitoba Faculty of Engineering Director of Student Recruitment, Irene Mikawoz, spoke on the engineering program at the university. This included the Chemical Engineering affiliation with the University of North Dakota and the various co-operative programs.

Shirley Matile led us through becoming a Professional Engineer. Her presentation included why one needs to be registered, and the transportability of the P.Eng. designation.

John Zadro was the lucky one. He got to speak about what engineers do in the workplace. He was, of course, able to use examples from his own experiences as an engineer.

A lively question-and-answer period follow the presentations. Of particular concern to our prospective engineers were: the job potential (can I get a job when I graduate?); job description (what is it that engineers do anyway?); and degree respectability (will my University of Manitoba degree be as good as that of a graduate of a program elsewhere?). There were also some questions concerning foreign qualifications.

It was time well spent, and we did get home in time to see the Jays win. □

Share Your Wisdom

University of Manitoba undergraduate engineering students request engineering professionals to be mentors.

If you can remember what it is like to be a student and would like to share both your work and school experiences, we would like to hear from you.

All that is required is a few hours of your time to enlighten students about what to expect after graduation. This could be accomplished by allowing the student to shadow you at work, by going out to lunch, or by just answering questions.

For more information please contact: Kara Wright or Lianne Kleinsteuber, Room 102 Engineering Building, University of Manitoba, Winnipeg, Manitoba R3T 2N2, or call (204) 261-8864, by January 10, 1993. □

Canadian Engineering Memorial Foundation Still Seeking Donations

The Canadian Engineering Memorial Foundation was established in 1989, following the deaths of 14 women – including 12 engineering students – by a gunman at Ecole Polytechnique.

The Foundation's goal is to establish a $1 million endowment fund. To date, a total of $680,000 has been raised. The interest income from this money has been used to establish three scholarships, one prize and one award: a $5,000 scholarship for a female student entering each of first year of engineering studies, fourth year of engineering studies and post-graduate engineering studies; a $10,000 Engineering Students Project Award; and a corporate award for a company demonstrating leadership in the promotion of women engineers.

The Foundation would like to offer more scholarships and awards. This will only be possible with the receipt of additional donations.

APEM strongly endorses the objectives of the Foundation, and encourages your support.

Please send your contributions directly to:

Canadian Engineering Memorial Foundation
401-116 Albert Street
Ottawa, Ontario K1P 5G3

The Foundation is registered as a charitable organization, and will issue receipts, upon request, for all donations of $25 or more. □

Tax Incentives for Scientific Research

continued from page 6

2. An investment tax credit of 20-35% of all R&D expenditures which may be applied against tax payable in the year, the three previous years or the following 10 years.

Any investment tax credits on current R&D not used to reduce income taxes payable will be eligible for a 100% cash refund.

The investment tax credits are added to income for tax purposes in the year following the claim. After taking into account income taxes, the net benefit (cash savings) for a large corporation is 11% of R&D expenditures incurred. For a Canadian-controlled private corporation, the net benefit can be as high as 27% of R&D expenditures incurred.

This article has only briefly touched on some of the key points of R&D. It is our hope that you take the time to investigate matters further when your company may be carrying out R&D as the tax benefits available are substantial. □

Profession and Professors Discuss Future of Engineering Education in Canada

By: R.J. Partridge, P. Eng.

Members of APEM's Council and University Liaison Committee met recently with members of the Faculty of Engineering at the University of Manitoba. After enjoying some fine conversation and a delicious dinner, it was this writer's pleasure to introduce an evening of thought-provoking presentations and discussions based on the report on "The Future of Engineering Education in Canada". Dean Garland Laliberte offered a welcome from the Faculty, and recognition of APEM's support of university activities.

We were fortunate to have Ralph Bullock make the first presentation. He addressed the question: "Do More Engineers Create More Opportunities?" Through the use of some compelling data, he was able to demonstrate that Canada's wealth consumption has exceeded our wealth generation for quite some time. In order to increase the prosperity of our nation and keep pace with other industrialized countries, we will need more technology in our products. Since current supply-and-demand models predict a shortage of engineers of some magnitude by the turn of the century, we need at this time to begin to educate more people to satisfy this requirement. The students required to satisfy this demand are already in the school system, so action should be underway now to attract those students, especially women, to engineering careers.



James Hildebrandt addresses continuing education.

In the discussion that followed, the issue of the quality of the engineers, not just the quantity, was raised as an important consideration. Perhaps, by promoting engineering in our public schools, we can draw from a larger talent pool and attract more and higher-qualified individuals to the profession.

Our second speaker, James Hildebrandt, presented the issues surrounding the pressures and responsibilities for compulsory continuing education for engineers. While the pressures on the demand side for continuing education should be coming from the public, employers, and clients, the ultimate responsibility currently resides with the individual. The supply side should be shared between the Associations and CCPE, employers, societies, and educational institutions.



Ralph Bullock discusses employment opportunities.

The dilemmas raised in the ensuing discussions centred around how to provide continuing education on what might be a vast array of subjects where there may not be significant interest in any one subject. It seems worthwhile to explore how other Associations approach this issue and what innovative approaches might be used to ensure that individuals with similar needs can be provided with continuing education opportunities.

The stimulating presentations and lively discussion provided considerable food for thought and some positive suggestions for improvements in the future. □

– Notice –

This is notice that on September 14, 1992, following the registering of guilty pleas on three charges of misconduct and unprofessional conduct, arising out of violations of The Engineering Profession Act of the Province of Saskatchewan in 1983, filed by the Practice and Ethics Committee of the Association of Professional Engineers of the Province of Manitoba, L.E. Frovich, P. Eng. was fined $3,714.89 by the Council of the Association of Professional Engineers of the Province of Manitoba.

At no time has this matter altered Mr. Frovich's right to practise engineering in the Province of Manitoba.

D.A. Ennis, P. Eng.
Registrar

Sustainable Development

by: G.N. Cook, P. Eng.

Job Opportunity:	**Primary Environmental Care of Planet Earth**
Qualifications:	**Strong leadership, action-oriented individual with innovative problem-solving capabilities and an extraordinary knowledge of what makes things tick. Followers need not apply.**
Location:	**Planet Earth**
Salary:	**Negotiable**
Start Date:	**Yesterday**

Dr. Gabriel Regallet, a Program Officer at the International Institute for Sustainable Development (IISD) in Winnipeg, presented a paper entitled "Sustainable Development: New Challenges and Opportunities for Engineering" following an interesting repast at an APEM-sponsored luncheon meeting on September 15, 1992.

Pat Feschuk, President of APEM, introduced the presentation as part of the follow-up by the Research and Development Committee to APEM's commitment to take a leadership role in the development of codes and practices in support of Sustainable Development. Dr. Eva Rosinger, Director-General of the Canadian Council of Ministers of the Environment (CCME), introduced Dr. Regallet, who attended on behalf of Dr. A.J. Hanson, President & CEO of IISD.

Dr. Regallet began by highlighting the new challenges and opportunities for engineers in the Sustainable Development field.

He noted that the changes that have taken place in the last 25 years in the engineering community with respect to Environmental Management have grown in significance in the engineering profession. Sustainable Development moves a step further than Environmental Management by linking environmental protection and management, economic development and the well-being of people. This triangulation requires additional new and innovative approaches by specialists from many fields to create win-win solutions which are beneficial to the environment, alleviate poverty and provide wealth creation.

Dr. Regallet also reviewed the obligations and commitments made by the participating countries at the UN Conference on the Environment and Development (UNCED) in Rio De Janerio (Earth Summit 92), and what these obligations mean to the engineering community. He indicated that there are three main areas in which opportunities will exist for engineers to provide leading support and development: ***'Capacity Building'***, which involves experimentation, transfer of experience and institutional change regarding Sustainable-Development concepts; ***'Information Support'***, which includes the development and use of the software and hardware for expanding information networks that will utilize expert systems and GIS's; and ***'Technology Sharing and Transfer'***.



Pat Feschuk (l), Dr. Gabriel Regallet and Eva Rosinger.

Dr. Regallet went on to describe the driving forces behind the sustainable-development themes in Canada and elsewhere in the world. The national and provincial Round Tables on the Environment and Economy, and the Federal Green Plan, are the main driving forces in Canada. On the international front, the Global Environment Facility (GEF) of the World Bank and the Canadian International Development Agency (CIDA) are now adopting a sustainable-development focus in their support of projects for the developing world. International trade is now affecting how products are manufactured, pressuring companies to adopt broad-based sustainable-development themes in order to survive in the market place. The liability issue facing commercial banks in Canada, which provide credit to developers of environmentally sensitive projects, has also become a driving force for sustainable-development themes. Broadbased environmental management standards are also being proposed by international organizations to tighten up weak links in industrial operations. This will also create pressure to conform to sustainable-development themes.

Dr. Regallet reviewed IISD's mandate 'to promote sustainable development in Canada and abroad', and indicated its intention to be a catalyst to encourage the engineering community to become a partner in the evolving sustainable-development world and to take the initiative to capitalize on the potential for economic success in an almost unlimited and untapped area.

IISD's first initiative in this area will be the Partnerships 93 series, starting in mid-1993, on the subject of trade and sustainable-development. There will also be follow-up events that the local engineering profession is encouraged to get involved with.

Dr. Regallet concluded by stating that there is a challenge for the engineering profession to link sustainable-development themes into the fundamental ways it carries out private-sector and public-sector initiatives. Canada has stated that it wants to be a leader in this area, and it is the responsibility of its professionals to translate this into action.

Dr. Regallet entertained questions from the audience which had a large contingent of university students. Mr. Ted Speers concluded the session by thanking Dr. Regallet for his presentation and presenting him with a commemorative plaque.

Copies of Dr. A.J. Hanson's paper and the video of Dr. G. Regallet's presentation are available from the APEM office. □

Registration of Consulting Engineers by The City of Winnipeg

The City of Winnipeg is implementing a registration system to ensure consideration of the credentials of all consultants wishing to provide services to the City.

The registration process will begin shortly, starting with the City's Operations Department, Streets and Transportation Department, and Waterworks, Waste and Disposal Department. Engineering consultants who have worked for these departments in 1991 and/or 1992 will automatically receive copies of the new "Application for Consultant Registration" form.

Others wishing to provide engineering services to these civic departments should contact the Association of Consulting Engineers of Manitoba (if members), or should write to: The City of Winnipeg, Works and Operations Division, Streets and Transportation Department, 100 Main Street, Winnipeg, Manitoba, Canada R3C 1A4.

More information can also be obtained from Ted Clarke of the Streets and Transportation Department (986-5285), Kel Stewart of the Operations Department (986-5350), or Steve Yoshino of the Waterworks, Waste and Disposal Department (986-3252).

The City policy requiring a registration system also requires that civic departments regularly and formally evaluate consulting services obtained. □

News From Other Associations

L.Y. Ganetsky, P. Eng.

Saskatchewan

Science and Technology Boring – Not!

You've heard of sport camps, bible camps, girl guides and scout camps, ...but a science camp? That's right. SCI-FI is Saskatchewan's own engineering summer science camp. SCI-FI offers eight week-long camps held in Saskatoon from June 29-August 21. The camps introduce young students to a number of sciences, from biology to computers.

The program itself is unique. It is designed to demonstrate to young students in grades five through eight that science is fun and more than just a 400-page, hardcover text-book. SCI-FI uses a hands-on approach when teaching science. Basic scientific principles are taught at the camps and the students are supervised in the design and construction of numerous projects. Past projects have included a protective system for a raw egg and a water balloon, both of which were tossed off the roof of the engineering building. Other projects are built to last. These include making a pinhole camera using only a long piece of tape, cardboard, and a roll of film; a crystal radio that works with no batteries; slime-Ghostbuster's ectoplasm; periscopes; electronic games; and reflective holograms.

SCI-FI is more than just building projects. Tours of on-campus research and engineering facilities are also provided.

Although the camp is based on the University of Saskatchewan campus, students from far and wide attend. Approximately 25 per cent of the students registered this year are from rural communities; the remainder are from Saskatoon.

This summer will be SCI-FI's third year, and the demand is high. The 208 available camp spaces were quickly filled, with 134 applications submitted on the first day of registration. By the end of May, all the spots for the camp were filled and the waiting list had grown past 100. A fundraising campaign has been started to ensure that SCI-FI will double its camp size for next year.

SCI-FI is a non-profit organization, funded by major corporations, local engineering firms, and the Governments of Canada and Saskatchewan. The program is run by engineering students from the University of Saskatchewan. During the months of May and June, SCI-FI also provides science workshops for elementary schools in Saskatoon and within a 200-km radius. SCI-FI will reach at least 1,400 elementary students this spring, before the camps begin.

Newfoundland

NRC Announces Canadian Science and Engineering Hall of Fame

The National Research Council (NRC) has announced that it will be joined by Industry, Science and Technology Canada, the National Museum of Science and Technology, the Association of Partners in Education, and other public- and private-sector organizations to establish a Canadian Science and Engineering Hall of Fame.

The Hall of Fame will honor Canadians who have contributed to Canada's rich heritage in scientific, engineering and technological achievement, and encourage young Canadians to pursue careers in science, engineering, and technology. The announcement was made as part of the Festival of Engineering, a national celebration of engineering accomplishments in Canada. The Hall of Fame will also be one of NRC's contributions to Canada's 125th anniversary celebrations.

The Minister for Science, The Honorable William Winegard, commended NRC and its partners for the initiative.

"Canadian science and engineering achievers are not as well-known as they should be," said the Minister. "Because the term "hall of fame" is widely understood and appreciated, it gives us an exciting way to inform Canadians about the many outstanding innovators this country has produced, and it gives us a unique way to encourage young Canadians to consider careers in science, engineering or technology."

In addition to providing the administrative support for the Hall of Fame, NRC also announced that space will be made available for a Hall of Fame portrait gallery in its historic laboratories at 100 Sussex Drive in Ottawa. The building will be 60 years old this summer. To mark the anniversary, NRC will conduct a special summer program of public tours and public lectures at the site.

Joe Ploeg, NRC Vice-President, Engineering, said the new Hall of Fame will have several unique features.

"First of all, we want to build a Hall of Fame with no walls," said Mr. Ploeg. "This means that we want it to be more than a portrait gallery or a room full of static displays. We want to make it accessible to people in every part of the country.

Mr. Ploeg explained that NRC and its partners hope to develop the Hall of Fame as an electronic interactive multimedia package that would be available to schools, science centres and museums across Canada.

"We would like Canadians to be able to 'call up' the Hall of Fame on an interactive computer database and find out all they want to know about the men and women who embody Canada's exciting achievements in science, engineering and technology."

Inductees to the Hall of Fame will be chosen with the help of a committee of distinguished Canadians who share NRC's desire to promote science and engineering. The committee will be chaired by Genevieve Sainte-Marie, Director of the National Museum of Science and Technology, one of the partner organizations in the initiative.

Other founding supporters of the Hall of Fame include the Association of Partners in Education (a consortium of education and high-technology organizations), and two secondary schools in the National Capital region, with which NRC has established special partnership arrangements. NRC hopes to involve students from these schools, and eventually from schools in other parts of the country, in Hall of Fame activities, including the selection of inductees. CCPE has endorsed the Hall of Fame and will be represented on its selection committee.

The official launch of the Hall of Fame, along with the announcement of its first inductees, was scheduled to take place during National Science and Technology Week, October 16-25, 1992. □

Coming Soon!

APEM Concepts in Professionalism Seminar

Thursday, February 18, 1993

Plan to attend!

Winnipeg Businesses Provide Work Experience for Immigrant Engineers

Winnipeg businesses are hosting 15 immigrant engineers and technologists to give them Manitoba work experience. Market Connections Inc., the manager of the PREP Program, wishes to thank the following participating work-placement hosts:

- A.E.B. Engineering Group
- Agriculture Canada
- City of Winnipeg
- J.R. Cousin Consultants Ltd.
- Linnet Graphics International Inc.
- Manitoba Government Services
- Manitoba Highways and Transportation
- Manitoba Hydro
- Standard Aero Ltd.
- Teshmont Consultants Inc.
- University of Manitoba

The PREP Program began with a six-month classroom component and ends with a four-month work placement. The goal of the program is to assist immigrant professionals to re-enter their professions in Manitoba.

The program is funded by Employment and Immigration Canada, and was developed in consultation with APEM.

For more information, contact Glenda Gerbrandt, President, Market Connections Inc. at 943-5777. □

More Than Just Numbers

Continued from page 5

could, in fact, do the job. Still others felt compelled to be tough and aggressive and refrained from asking for help in order to avoid being labelled incompetent. Many women have left the field of engineering after being unable to overcome some or all of these difficulties. Sadly, some have even come to the realization that they cannot recommend the profession to other women and would not encourage their daughters to become engineers.

On a more positive note, the forums provided an opportunity for women engineers to share experiences which many said helped to reduce the isolation they often felt. Stories were heard of enriching and rewarding careers and of the important responsibility women feel to promote engineering to other women. Students told of valuable friendships made with male students during university and recent graduates were given practical advice on how to handle difficult situations on the job. Encouragingly, several young women reported positive experiences in the workplace.

Women engineers of the previous generation were acknowledged for their effort in breaking barriers to this male-dominated profession, and comments were heard suggesting that in order to achieve full equality in the workplace and to make life easier for female engineers in the future, we must continue to encourage more women to enter the field of engineering. The Committee also heard concerns about fairness and the need to ensure that special initiatives for women don't cause further segregation. In order to create an atmosphere that is acceptable to ALL members of the engineering profession, changes are required in attitudes and in learning and working environments. The report concluded that ***"the ultimate solution is a change in social attitudes, and that involves more than just numbers".*** □

Coming Events

CANADIAN SOFTWARE RE-ENGINEERING & MAINTENANCE CONFERENCE

January 19-21, 1993
Toronto, Ontario
Telephone: (508)470-3880
Fax: (508)470-0526

ESTABLISHING AND IMPLEMENTING PRODUCT SAFETY DEVELOPMENT PROGRAM

February 1-3, 1993
August 2-4, 1993
University of Wisconsin-Madison
Telephone: (800)462-0876

EFFECTIVE METHODS FOR IMPROVING CONSTRUCTION ENGINEERING

March 15-18, 1993
University of Wisconsin-Madison
Telephone: (800)462-0876

1993 STRUCTURAL CONCRETE CONFERENCE

Canadian Portland Cement Association

May 19-21, 1993
Toronto, Ontario
Telephone: (613)236-9471
Fax: (613)563-4498

WATER AND THE WILDERNESS: DEVELOPMENT, STEWARDSHIP AND MANAGEMENT

CWRA 46th Annual Conference

June 16-19, 1993
Banff, Alberta
Telephone: (403)220-5503
Fax: (403)282-7026

1993 CSCE ANNUAL CONFERENCE AND 11TH HYDROTECHNICAL SPECIALTY DIVISION CONFERENCE

July 8-11, 1993
Fredericton, New Brunswick
Telephone: (506)453-4521
Fax: (506)453-3568

TRANSFORMING SCIENCE AND TECHNOLOGY: OUR FUTURE DEPENDS ON IT

7th Biennial GASAT *(Gender & Science & Technology)* **Conference**

July 31-August 5, 1993
University of Waterloo,
Waterloo, Ontario
Contact: Ann Holmes,
Ontario Women's Directorate
Telephone: (416)597-4587
Fax: (416)597-4594

3RD CANADIAN SYMPOSIUM ON CEMENT AND CONCRETE

August 3-4, 1993
Ottawa, Ontario
Contact: Nicole Leger,
National Research Council
Telephone: (613)993-9431
Fax: (613)957-9828

Call for Papers

CANADIAN DAM SAFETY ASSOCIATION 5TH ANNUAL CONFERENCE

September 19-23, 1993
Submit abstracts up to 1000 words by January 31, 1993
Contact: R. Barnes
Telephone: (709)737-1266
Fax: (709)737-1972

– Notice –

Use Of Pressure-Treated Wood Peeler Cores/Mini Ties

Peeler cores are a by-product of plywood/veneer mills which remove the outer layers of wood for the production of panels. Mini ties are peeler cores which have been sawn on two sides resulting in flat surfaces.

In recent years the pressure treatment of peeler cores/mini ties has made them physically uniform and therefore very appealing for use in projects where appearance is a prime concern, such as landscaping for residential or commercial sites. However, the nature of these items makes them unsuitable for certain applications.

Peeler cores/mini ties are composed almost entirely of heartwood (the inner section of the tree). The pressure treatment of heartwood of Canadian species is very difficult due to the structure of the wood itself. This difficulty is compounded by the fact that incising cannot be performed on all faces of the piece. The result is a product with varying degrees of treatment quality and an unpredictable service life.

The Canadian Institute of Treated Wood strongly cautions all users of pressure treated wood peeler cores/mini ties against the use of this product for applications where structural integrity is vital (e.g. retaining walls, fences and barriers).

Other pressure treated wood products are available for these applications. Users should specify products according to the product standard CSA 080 Wood Preservation.

For more information contact the Canadian Institute of Treated Wood, Ottawa, Ontario (phone 613-234-9456 or fax 613-234-1228).

October Council Meeting

Continued from page 9

the adoption of a four-year program of work experience for EITs. British Columbia will be instituting such a standard at the end of this year.

There was one delegation: Dr. Burridge (an EE and retired Dean of Engineering at UNB) appeared on behalf of Canadian Council. It seems that a new Board – the Canadian Engineers Public Awareness Board – is being established with, as always, the problem of matching hopes with available funds. The "purpose of this Board would be to oversee and implement programs and activities." It sounds pretty deadly but, as is shown by the work on which Shirley Matile reported, these plans of CCPE are important to the profession.

Another topic discussed by Dr. Burridge was the "permanent plan to implement programs to ensure the optimum management of the engineering labour force in Canada" under the Canadian Engineering Human Resources Development Committee. □