

Professional Engineer



APEM Has A Vision!

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

At its long-range planning session on Saturday, January 11, 1997, your Council, with considerable assistance from facilitator Brian King, P. Eng., developed a vision for APEM:

APEM IS THE LEADER AND A FACILITATOR OF THE PROCESS THAT ENSURES EXCELLENCE IN ENGINEERING AND APPLIED TECHNOLOGY FOR THE PUBLIC OF MANITOBA.

The development of the vision was a major step for APEM. The new vision will serve as the fundamental principle underlying everything APEM does; it will be the "yardstick" against which the relevance of activities undertaken by the Association will be measured; and it will assist the Association and its members in focussing on their "customer": the public of Manitoba.

Defining the Association's vision is only the first of many steps to be taken in the reorganization of the Association and the streamlining of its activities. □

1999 Pan American Games Society

The 1999 Pan American Games Society is looking for volunteers to provide advice and direction on Engineering and Project Management issues.

All disciplines will be required and involvement may be immediate and may run into the events in July of 1999.

If you are interested and require more information, please contact: Stu Ursel, P.Eng. (Co-Mayor Athletes Village) 488-7303 or Cy Howard, P.Eng. 837-3218

Please fax your name, address, telephone number, and the area of expertise you wish to offer to the APEM office – Fax 474-5960. □

National Engineering Week: An Egg-tra-Ordinary Kickoff

By: B. Thomson, R.N.

On Wednesday, March 5, at Polo Park, the Public Awareness Committee kicked off National Engineering Week with a Celebrity Egg-Drop Contest. The contestants in this competition comprised two teams: one representing the Manitoba Government, and the other representing the media. On the Manitoba Government Team were Premier Gary Filmon, the Honourable Mike Radcliffe – Minister of Consumer and Corporate Affairs, the Honourable Linda McIntosh – Minister of Education and Training and the Honourable Glen Findlay – Minister of Highways and Transportation. Their worthy opposition from the media were Lindor Reynolds from the Winnipeg Free Press, Laurie Mustard from the Winnipeg Sun, Diana Swain from CBC Television, and Barbara-Lee Edwards from CKY Television. Our honourable judges were Dr. Ron Britton and Dr. Don Shields – both of whom, we were pleased to see, were above accepting either bribes or kick-backs!

The politicians were the first to launch their egg – and the first and only team to break an egg! The media's creativity came into play quickly with a landing vehicle that would make NASA

proud. After three attempts, the media had a clear record and the government had broken one egg and had survived an official vote of non-confidence for using illegal packing material. There was a slight incident when Dr. Shields dropped a media egg and we momentarily feared for his life – but the moment passed without injury! The "Filmon Team" did attempt to gracefully concede, but the media would have nothing to do with this and the scores were announced: The Government – 502 points; The Media – 711 points. After a short dance of joy, both teams shook hands and congratulated each other on a job well done.

The Media donated their first prize of \$500 to Winnipeg Harvest and The Government donated their second prize of \$250 to The Manitoba Cancer Research Foundation. There were definitely only winners this evening. We were extremely appreciative to all the participants who took time from their very busy schedules to help APEM kick off National Engineering Week. This was only the first event in a very busy week of events, displays and competitions that would bring engineering to the public of Manitoba. □



"The Media": The Winning Team.

(See pages 6 & 7 for additional photo coverage of this and other Engineering Week events!)

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R. Menon, P. Eng., Brandon

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



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



S.S. Attawar
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A. Festa-Bianchet
T.H. Higgins

A.J. Kondel
J.A. Longbottom
G.D. Marshall
C.B. Saunders
R.W. Smith

Did You Know...

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

That one of the world's leading think-tanks on sustainable development is located right here in Manitoba.

The International Institute of Sustainable Development (IISD), located in Winnipeg, was established in 1990 with the mission to promote sustainable development in decision making internationally and within Canada. IISD is active in several areas, dealing with both global environmental issues, which have implications for government policy makers, and also with business and local issues, which may be of use to individuals or private enterprise.

Of particular interest to engineers, may be some of the publications that IISD has produced for use by business operations. Within their catalogue of available products, can be found books covering a variety of topics, including: the integration of sustainable development principles into business strategies; corporate reporting of environmental performance; and new opportunities for enterprises to market green products. Also available is information for particular business sectors such as forestry and agriculture.

IISD is primarily funded by grants from both the Provincial and Federal Governments. The organization has established working partnerships with a large number of organizations which are also concerned with environmental issues and sustainable development on a global scale. This includes linkages to a diverse range of important

international organizations such as the United Nations and the World Wildlife Fund.

If you would like to find out more about IISD or its products, you can visit their home page on the internet (<http://iisd1.iisd.ca/>), or you can contact them by phone at 958-7700. □

APEM Seeks Champion for Historic Engineering Landmarks Project

Parks Canada recently created the Historic Engineering Landmarks Project. The purpose of this project is to create an inventory of outstanding Canadian Engineering Landmarks. Well-known engineering historian Dr. Norman Ball has been retained to help begin the process.

APEM has been invited to submit nominations for outstanding engineering achievements in Manitoba.

If you are interested in working on this project, or if you would like to provide information on (a) specific project(s), please call Shirley Matile at the APEM office (474-APEM). □

EITs ENROLLED JANUARY & FEBRUARY, 1997

D.R. Baert	K. Le
B.G. Beyer	B.J. McFarlane
R.O. Boyko	J.D. McKay
R.N. Buschau	D.R. McKeown
L.E. Escobar	J.Q.A. Menec
B.A. Evans	M.L. Rahman
W.A. Flannery	E.J. Sharpe
B.I. Forsyth	O.S. Sigurdson
K.J. Friesen	R.E. Sigurdson
M.H. Fuller	P.S. Silva
N.S. Gonzalez	S.H.T. Yao
P.J. Hirvinen	J.A. Zagula
K.J. Kempthorne	

LICENCES ISSUED JANUARY & FEBRUARY, 1997

T.R. Atkins (SK)	M.E. Hudson (AB)
D.D. Benoy (MN)	G.E. Peeler (TX)
J.C. Hamilton (PA)	R.F. Williamson (IA)
T.W. Hedberg (MN)	

REINSTATEMENTS JANUARY & FEBRUARY, 1997

R.J. Dunlop	R.L. Tinkess
D.C. Saxerud	

NEW MEMBERS REGISTERED JANUARY & FEBRUARY, 1997

C.G. Asmundson	P.J. Kroeker
M.T. Bertram	S.B. Little
S.R. Bilevicius	A.P. Livingston (ON)
W.J. Carson	S.B. Meleschuk
S.B. Clarke (ON)	B.E. Mossop
P.J. Ferguson	G.M. Parker
J.U.F. Fuith	M.J. Regnier (SK)
M.K. Goel (AB)	D.W. Sault
H.D. Graves	K.H. Smith
B. Gryc	P.J.M. Sunderland
L.B. Halayko	R.A. Svazas
M.E. Haukeness	K.M. Sydor
S.A. Jawaid (ON)	T.T. To
J.H. Jurgenliemk (AB)	B. Weeks
D.D. Kent (SK)	M. Yu
T.L. Kirkham	H. Yu
P.M. Kreitz	

In Memoriam

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

Michael R. Provart

President's Message

J.M. Symonds,
P.Eng.



Continuing Professional Competence

I feel like I am preaching to the choir by dedicating this President's message to this subject. I feel that, as professionals, this subject should be second nature to us. Somehow, it should be obvious that we, as individuals, know the necessity for continuing competence and life-long learning and that we practise it unbidden. After all, we all have subjugated ourselves to the Code of Ethics.

Under the requirements of the Engineering Profession Act in Manitoba, however, this Association is charged with ensuring that the competence of our members is at a level that is equal to or greater than that which can reasonably be expected by the public. To remain self-regulating, we must ensure that every member of our Association remains competent within his or her chosen specialty area and continues to be aware of relevant technological and social issues. It is becoming abundantly clear that if we don't do it, the government will.

Prior to our last Annual General Meeting (AGM), we had attempted to approach this subject in a gradual and structured manner. As some of you may recall, there was considerable resistance to this approach, due mainly to disagreement as to the proposed process. At that time it was proposed that we begin the transition to a

complete professional competence program by instituting mandatory reporting. This was done in the context of a much larger program. Unfortunately, there was no set definition of the overall program in place at the time. It was envisioned that the mandatory reporting would be the first step and that the information gained from that exercise would set the framework for the follow-up program. Due to the lack of a formalized and comprehensive program proposal, however, and the perceived possible requirement for extensive disciplinary proceedings, the motion at the last AGM for the implementation of mandatory reporting was defeated. I should note, however, that nobody spoke out against professional competence – just about the process that we were following in pursuit of the goal.

As a result of a motion passed by your Council at their November meeting, the Professional Development Committee was directed to research the programs and guidelines that exist in the rest of Canada and put together a complete and comprehensive proposal for Continuing Professional Competence in time for our next AGM. It should be noted that your elected representatives are solidly behind this activity and are monitoring its progress closely. But some of you may still not be convinced that this program is necessary, or you may feel threatened by the prospect of having to record and report your continuing education activities. Some may feel that it is not required in their cases due to the specific work that they are doing. There may not even be direct contact with or effect on the public. So let us look at it from your point of view. The 40-year employee-turned-retiree with service in just one company is a thing of the past. Engineers are becoming increasingly mobile. In addition, the ever-increasing pace of technological development means that the knowledge gained at any particular time rapidly becomes obsolete. Earnest T. Smerdon, writing in the ASEE PRISM in December, 1996, states that:

"The half-life of an engineer's technical skills – how long it takes for half of everything an engineer knows about his or her field to become obsolete – is strikingly short. According to the National University Continuing

Education Association, for mechanical engineers it is 7.5 years; electrical engineers, five years; software engineers, a mere 2.5 years. And those estimates were devised almost a decade ago, ..."

Even if he is out by a few years, the requirement to change jobs in this environment should be enough to make it imperative that you do something to make you, at least, maintain your position and level of competence.

On the other hand, it is also in the best interest of employers to be aware of their vulnerability in this area. The knowledge that resides in the heads of the company workforce is the company's greatest single asset. It could be up to you to convince your employer that **your** professional development is in **his or her** best interest. The very fact that the company's competitive position and future growth is tied to your and your fellow employees' skills and knowledge should be enough to provide the necessary time and financial support for continuing education. If this is not forthcoming, think of the time, effort, and tuition fees as an investment in your and your family's future.

So now we come back to the program for continuing competence within the Association. It is believed that the vast majority of APEM members are already participating in some form of ongoing educational programs, so participation in a comprehensive competence-monitoring program will be relatively painless. For those who, for whatever reason, are not maintaining a reasonable level of continuing education, the need for some action in this area should be reasonably obvious. Maybe this program will be the impetus either you or your employer needs to start a program!

In any event, I encourage all members to support the work that is being done by the Professional Development Committee, participate in it if you feel you can help, understand the program proposal when it is presented at the next AGM, and support the implementation at all levels. In this way, can we continue to strengthen our profession, remain self-governing, maintain our professional credibility, and protect the public. □

New Staff Member – Laverne Johnson

By: W.G. McKay, P.Eng. (Ret.)

In early December, 1996, Laverne joined the staff as an Administrative Secretary, taking over the position formerly held by Margaret Little.

Laverne is a native Manitoban, born and educated in Killarney where she says "they have a green water tower and green fire trucks". She began her career in the professional service field working for an accounting firm in Killarney.

After coming to Winnipeg, she worked for insurance and accounting organizations and most recently for the Grace Hospital School of Nursing as an administrative secretary.

At St. Boniface Hospital, Laverne was employed in the Department of Laboratory

Medicine where she held a secretarial position as well as teaching computer applications.

She has been a student of Red River Community College in the field of computer software applications, and as she says, "I keep taking other courses for additional credits". She has also done some teaching in the software applications field. For relaxation, Laverne enjoys music and movies.

Now that Laverne is working for a professional association, which is a new field for her, she is impressed at the number of committees that carry out the many functions of APEM. Also, that the operation of these committees is dependent upon the committed effort of so many volunteers.

May Laverne enjoy her new career with APEM. □



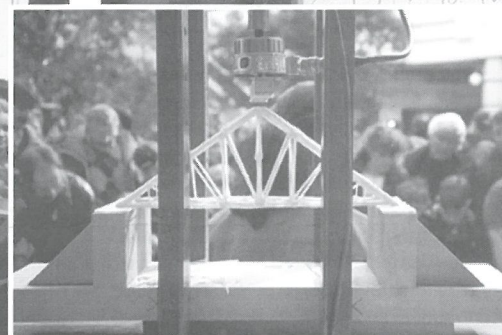
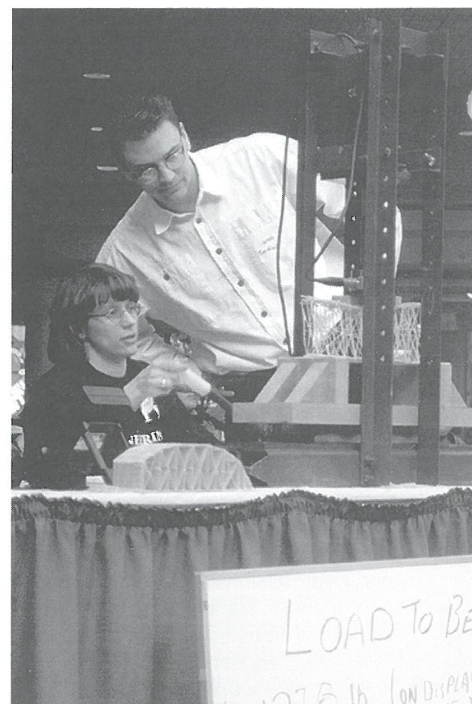
Spaghetti Bridge Competition

By: S.A. Mailey, P.Eng.

On March 8, 1997 the Spaghetti Bridge Competition was held at Polo Park. This year's contest was an overwhelming success as part of the National Engineering Week activities. We had a record number of entries with 227 bridges, with grades 1 to 12 well represented. The students were enthusiastic and there were many well-designed and -constructed spaghetti bridges. Our grand prize winners (they won a portable CD player) were Kent Devlin, Matt Fleming, Bryan Salvador and Chris Latcham of Crocus Plains Regional Secondary School (grade 9). Their bridge held a new record load of 318.8 lbs! There were hundreds of people watching as the bridges were loaded to failure. The competition also gen-

erated a great spin-off effect, as many schools in the province held their own in-class spaghetti bridge workshops and competitions.

The event was run by Glenn Penner, P.Eng., Don Spangelo, P.Eng. and Shane Mailey, P.Eng. Many thanks to our tireless volunteers: Tim Kirkham, P.Eng., Paul Kochan, EIT, Barbara McKay, P.Eng. Carolyn Geddart, P.Eng., Wes Penner, EIT, Sri Rangarajan, EIT, Hubert Boulet, EIT, and Shawn Spicer, EIT. Special thanks to Richard Bernhardt, P.Eng. of the Public Awareness Committee for his incredible effort in coordinating all of the National Engineering Week activities. □



Research & Development

Commercializing New Technology

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

Over 30 Association members braved the extreme weather on January 22 to attend a luncheon meeting organized by the Research and Development Committee. The group was treated to a presentation by Mr. Joe Lukacs, the President and CEO of the Canadian Environmental Technology Advancement Corporation – West (CETAC-West). Mr. Lukacs spoke about overcoming the barriers to commercializing new technology, and although his background is in the environmental field, his observations and advice would be useful to any innovator.

Mr. Lukacs has worked in the environment field for over 30 years. Prior to joining CETAC-West, he had worked for a variety of environmental companies and had served as President for both Chem-Security Ltd and Bovar Inc.

Mr. Lukacs pointed out that although it is common for many of us to think that a lack of capital is the primary barrier to commercializa-

tion, it is often not the real problem. Other important barriers which impact many companies include a lack of understanding of the marketplace, incomplete development of the technology and weaknesses in the management team.

CETAC-West helps companies overcome these barriers by helping bring in appropriate expertise and by providing advice and information about sources of capital. Mr. Lukacs stressed that they do not attempt to take over the commercialization process or to make management decisions for their clients. Their role is that of a facilitator.

In addition to the more formal portion of his presentation, Mr. Lukacs shared a number of personal observations based on his experience in this area. These included:

- Just as a corporation exists to make a profit, technologies must be developed to serve a user. The eventual customer for the technol-

ogy must be kept in mind during development and commercialization – it's usually a good idea to seek their input.

- Inventors generally overestimate the market potential for their product and generally undervalue the contribution that others could make in helping them bring their product to market.
- Market-driven projects (technology developed in response to a specific market demand) tend to move along quickly, while technology-driven projects tend to move along very slowly.

In closing, Mr. Lukacs pointed out that there were no easy answers to overcoming the many barriers to commercializing new technologies. His experience however indicates that a team approach works best. The inventor must work hand-in-hand with financiers, entrepreneurs, end-users, government and other experts to ensure problems can be overcome and that the result is a product which the market will demand.

Mr. Lukacs' presentation was an enjoyable experience and drove home the point that technology development cannot just focus on technology; the market must be kept in mind. I'm sure those in attendance appreciated the efforts of the R&D Committee, who put this event together. □

An Evening of Recognition

By: W.G. McKay, P.Eng.(Ret.)

As the first organized function celebrating National Engineering Week, President Mal Symonds opened the ceremonies for this special recognition of new members and award winners.

With close to 80 people in attendance it was an enjoyable evening, especially with the large number of younger members present.

After the welcome, President Symonds (assisted by Shirley Matile) handed certificates to 13 new members registered during December, 1996 and January, 1997. From October, 1996 to January, 1997 56 new members were registered – including several who received their engineering training in off-shore countries such as China.

The awards presentations were made by Don Osman, on behalf of Awards Committee Chair Cathy Stewart. President Symonds co-hosted the presentation.

The first award presented was the 1996 **Merit Award** to Dr. Digvir Jayas, P.Eng. Born in India, Dr. Jayas received a degree in Agricultural Engineering from Pant University in 1980, a Masters Degree in Agricultural Engineering from the University of Manitoba, a Doctorate Degree from the University of Saskatchewan, and is now a Professor in the Bio-Systems Engineering Department at the University of Manitoba.



Dr. Digvir Jayas, P.Eng.,
1996 Merit Award Winner.

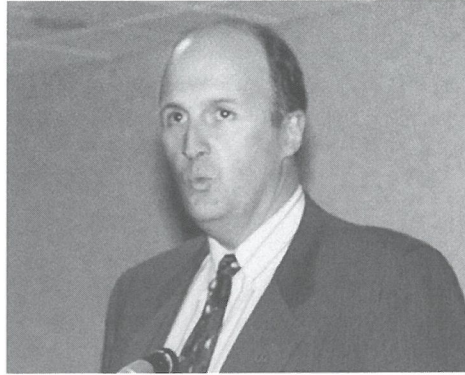
Digvir has authored over 200 papers, articles, conference papers and engineering reports, making his contribution to engineering literature outstanding.

His area of expertise is grain storage, with his early research related to the control of insects in stored grain without the use of chemicals. In association with Manitoba Pool Elevators, the control of insects using carbon dioxide is now close to becoming a commercial reality.

Digvir and his students have developed a system of grain identification for use in commercial handling which is now being commercialized for world-wide sale.

His contribution to his community and to the Association is outstanding, with more than 116 "committee service years" to his professional and technical credit. His teaching ability has been rec-

ognized through his three-time selection for the Merit Award in teaching, research and service at the University of Manitoba.



David Graves, P.Eng., President of Broadband Networks Inc., accepts Certificate of Engineering Achievement Award.

The 1996 **Certificate of Engineering Achievement Award** was presented to Broadband Networks Inc. (BNI), Winnipeg. BNI was established in 1994 and now has over 100 employees providing high-band-width communication service by digital wireless technology. It provides a comparative wired cable service such as multi-channel TV to communities who have not previously had a cable service.

The technology was developed in Manitoba and is unique in that it is the first to utilize digital wireless communication for channels suitable for cable TV. Access is also possible to the Internet.

The first system, which was the first in North America, was installed in 1995 in Brandon. It delivers more than 150 channels from 13 towers throughout Manitoba, and covers 300,000 line-of-sight homes.

In 1996, a similar installation was made at Yorkton, Saskatchewan for a similar service. After receiving its license, the station was on the air in 20 days.

After the Kobe earthquake, when there was a massive communications disruption, the digital wireless cable services were installed to reach 250,000 Japanese apartments. There is no question that BNI has pioneered a new and exciting technology with great potential.

The last award was the 1996 **Early Achievement Award**. This new award was presented for the first time to Dr. Rodney Read. Dr. Read received his B.A.Sc. in Geological Engineering in 1984 from the University of British Columbia, and his Ph.D. from the University of Manitoba in 1994. His early career was in geological engineering work in B.C., followed by two years with Golder Associates Consultants on the Oldman River Dam, fracture-testing at Cigar Lake, Saskatchewan, and tunnel investigations east of Roger's Pass in B.C.



Dr. Rodney Read, P.Eng.,
1996 Early Achievement Award Winner.

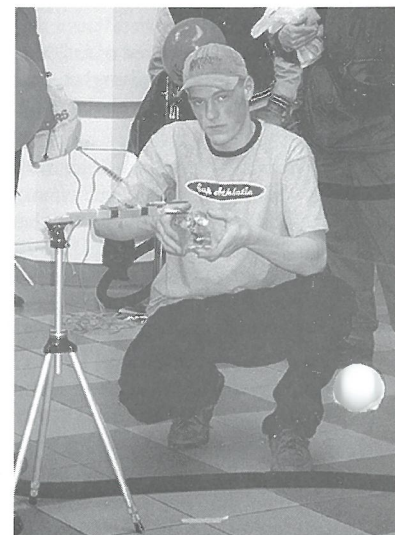
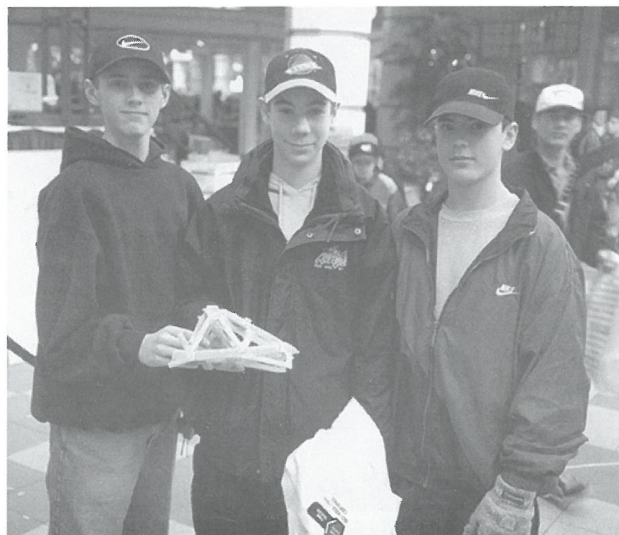
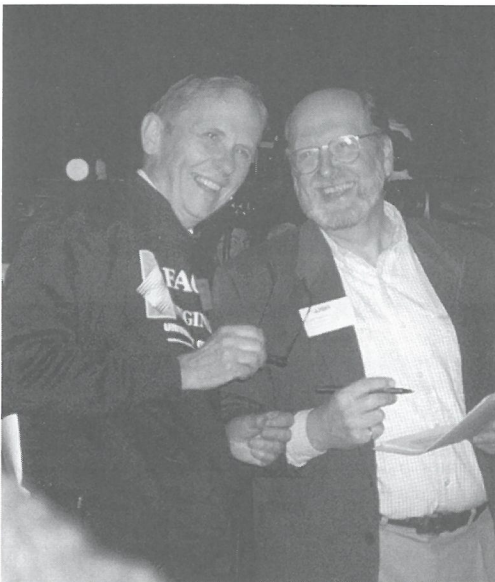
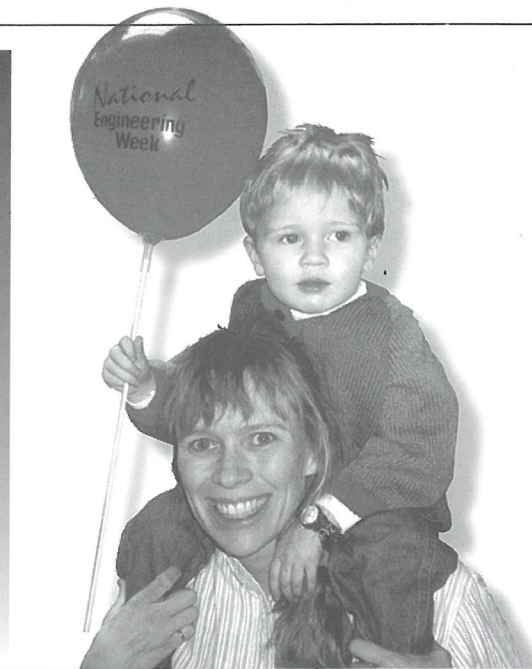
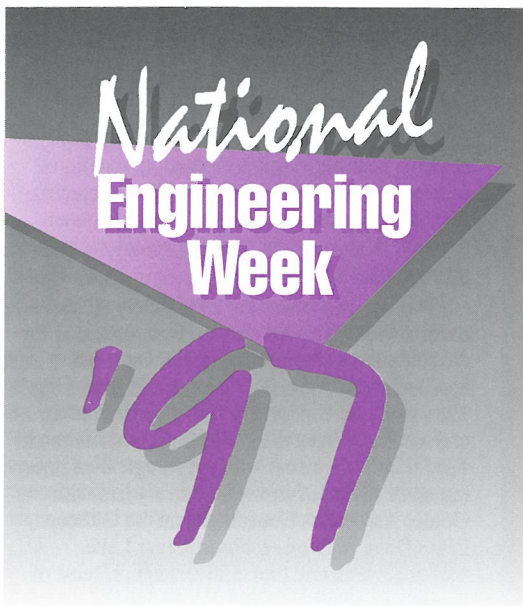
In 1987, Rodney joined AECL's Underground Research Laboratory, which conducts in-situ experiments related to the disposal of used nuclear fuel waste. He was the Principal Investigator and later Experiment Manager on one of the world's foremost rock mechanics experiments.

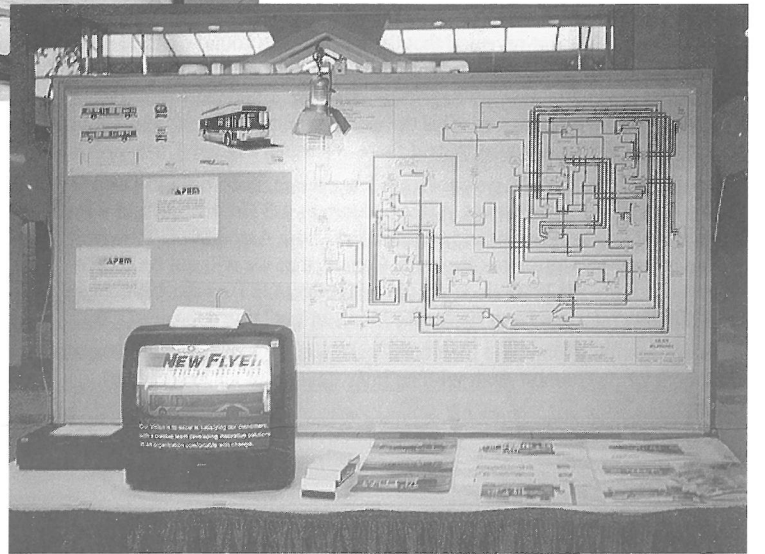
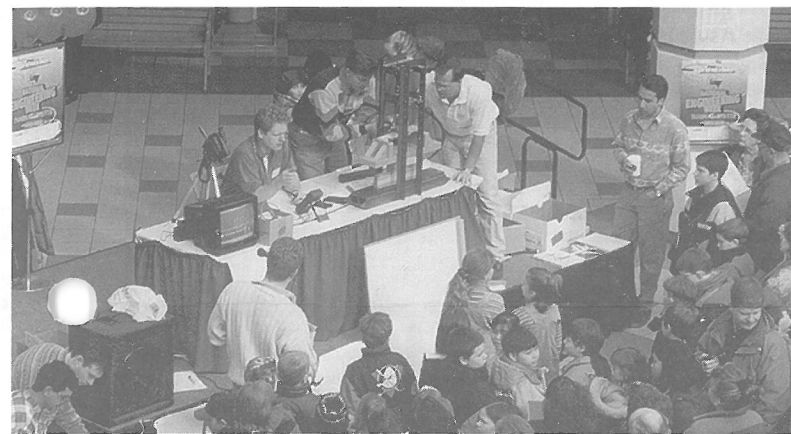
Rodney's doctoral thesis on "Interpreting Excavation-Induced Displacements around a

Cont'd on page 11



New APEM Members.





Council Reports

Tuesday, January 14, 1997

By: A.N. Kempan, P.Eng.

AT WHICH COUNCIL LEARNS A HARD LESSON ABOUT GST REGISTRATION, PLANS A DINNER MEETING WITH THE UNIVERSITY OF MANITOBA ENGINEERING FACULTY, AND CONTINUES WITH ITS LONG-RANGE PLAN

At the outset, Chair Mal Symonds advised councillors not to restrict issues raised, but to restrict their verbiage. The councillors took this to heart and the meeting proceeded in an efficient and businesslike manner.

The meeting commenced with routine items: adoption of the day's agenda, minutes of the last meeting, and minutes of the Executive meeting.

The financial report revealed that the APEM is in sound financial condition. An interesting phenomenon was the number of resignations which occurred at the end of 1996, when 75 members returned their seals. Executive Director Dave Ennis said 50 is the average number. It will remain to be seen if this was an unusual year or if there is a trend.

In the past, the APEM was not a GST registrant, according to Dave Ennis. In April 1996, however, APEM became a GST registrant and was advised that any tax paid would be refunded to the Association. However, we have received word from Revenue Canada that we will not be able to claim tax credits for 1996 since we did not collect GST on the 1996 annual dues. Our accountants have been asked to "sort out" this debacle.

Investigation Committee members, staff, and your reporter left Council chambers while Council dealt with an investigation of an Association member.

Councillor Peter Washchysyn reported to the meeting that our agreement with the Manitoba Association of Architects is very close to being

signed. Recent meetings have brought consensus on nine out of ten contentious points. Meetings in the next few weeks are expected to iron out the final details and close the door on a very long and arduous negotiation. Mr. Washchysyn is to be commended on his statesmanship in bringing this about.

Councillor Ertrice Eddy requested that Council provide direction to the Professional Development Committee regarding honoraria. They wished to have guidelines because the length and quality of presentations varied, and they wanted to treat presenters fairly. Council very deftly turned it over to Shirley Matile, requesting a proposal which could be discussed by Council.

Next, Council had a lively discussion regarding the University Liaison Committee dinner meeting to take place in January. The Chair felt that building renovations and CCPE accreditation were critical to the quality of engineering education and should be high on the discussion list at the meeting. Some Councillors felt that building renovation was a sensitive topic and should be left to the university to pursue since they had professional fundraisers working on this. Apparently, the new president of the University of Manitoba is working actively to reshape the University.

The Association and Council received letters from several parties asking for support for their candidates for the newly minted NSERC Chair on Women in Science and Engineering. Council agreed to let Councillor Roberts draft a letter of support for the Chair but not to back any particular candidate as they felt all were highly qualified and it was up to NSERC to award the position.

Council received a recommendation from the Awards Committee to present a Certificate of Engineering Achievement to Broadband Networks Inc. Council accepted the recommendation.

At this point the official Council meeting was over, but councillors remained to conclude a "Visioning" exercise that was carried over from a Saturday session. □

Tuesday, February 11, 1997

By: A.N. Kempan, P.Eng.

AT WHICH COUNCIL DISCUSSES A LEGAL SETTLEMENT WITH NOVELL

Vice-President Peter Washchysyn chaired the meeting in place of Mal Symonds who was away on business. The meeting opened with the usual routine items, approval of the agenda, minutes, business arising from the minutes, and minutes from the Executive Committee meeting.

Next, Executive Director Dave Ennis guided the meeting through the intricacies of the financial statements. Dave commented on the increase in EIT registrations. These tend to vary from year-to-year with no apparent pattern, nevertheless, the Association is pleased with the present trend. Mr. Ennis also commented on our high legal fees, some of which is the result of our involvement in a prosecution of a professional engineer by the Manitoba Association of Architects. The remaining budget should be sufficient to carry us through the year without an over-run.

Council dealt with an appeal from an EIT regarding the APEM admissions policy. This individual had left the province when the admission requirement was two years. During his absence the requirement was increased to four years. When he returned to Manitoba, he felt he should be considered under the admissions grandfathering provision. Council affirmed that four years of acceptable experience was required and rejected the appeal.

An appeal regarding a decision of the Investigation Committee was tabled. At this stage in the process the names of the parties have not been made public.

Vice-President Washchysyn informed Council the text of an agreement

with the Manitoba Association of Architects has been put to paper and that with another scheduled meeting to iron out final details, it should be finalized.

A memo to Council from Dave Ennis introduced, at the recommendation of the Committee Chair, Mr. W.C. (Chuck) Lee as the newest member of the Discipline Committee. Mr. Lee comes with excellent credentials and will be an asset to the Association.

The Canadian Council of Professional Engineers (CCPE), Professional Engineers Ontario (PEO) and the Provincial associations are attempting to reach a settlement with Novell regarding the use of the designation "engineer". Novell offers a course bestowing the title "CNE" or "Certified Network Engineer" to successful candidates. CCPE and PEO informed Novell that they were using a protected designation. In the most recent settlement proposal, Novell would agree to discontinue using "engineer" but will be allowed to retain "CNE". The problem with this is the meaning of "CNE" is undefined, leaving it to the imagination of the beholder. One member of Council felt that this solution wasn't satisfactory.

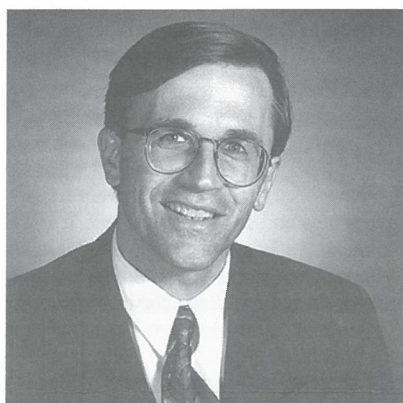
The meeting concluded with verbal reports from Liaison councillors. Every APEM committee has a Council member who attends meetings and facilitates communication with Council. Councillor Stimpson made some flattering comments about the efficiency and hard work of the Publication Committee. (Thank you Councillor! It's nice to know we're appreciated.)

During this portion there were a few general comments from councillors on the workings of APEM committees in general. Some expressed the view that certain committees needed a transfusion of new blood and that perhaps we should have fixed terms on committee membership, just as we have for Council membership. Another problem is members who sit on committees, but seldom attend meetings, leaving the work for a small number of regular attendees. Council left the matter for future deliberation. □

Meet Your New Councillor – Doug Kramble

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

Doug Kramble is one of the newly elected councillors starting his two-year term. Doug also serves as the Liaison Councillor on the Investigation Committee which he finds both intriguing and thought provoking. Prior to being elected to Council, Doug was a member of the Professional Development Committee for four years, including two years as Chair. Doug is active with the Canadian Society of Civil Engineers and is the current Chair for the Manitoba Chapter.



As an APEM Councillor, Doug would like to introduce a continuing education program, as have other Manitoba professions. Doug believes that professional development is a necessary goal of any profession and that if APEM is not regulating a minimum professional standard, the engineering profession runs the risk of losing the authority to be self-regulated. Doug hopes to convey to the membership that Council consists of members who want the best for the public and the engineering profession. Doug also hopes to get more members to participate within APEM. Finally, Doug supports the recognition of the technologists' vital role within the engineering community.

Doug has worked in consulting engineering for 13 years, primarily with Wardrop Engineering. His area of expertise is in structural engineering, particularly the relatively new science of building-envelope retrofits. He has served on a Building Code Task Force investigating air-barrier problems among other problems in building deterioration.

After hours, Doug and his wife and their two children enjoy spending time at their cabin. Doug also enjoys snowmobiling, swimming, water-skiing, and golf.

In addition to being an excellent speaker, as anyone who has attended a professional development meeting can testify, Doug is, simply stated, a first-rate person. APEM members are fortunate to have such a fine engineer volunteer his time and energy for the improvement of our association. □

Concrete Kits for Kids

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

"Tweak their interest while they're young!"

That's the philosophy behind a novel program sponsored by the Manitoba Chapter of the American Concrete Institute (ACI) that's soon to be in some Manitoba Grades 3 to 6 classrooms.

Called "Concrete Kits for Kids", the program – where each child actually batches a couple of Dixie-cups full of concrete – has caught the attention of the Manitoba Museum's Innovators in the Schools program. It will undergo initial trials this spring in a few Winnipeg schools.

Originating in Southern Illinois University, the program offers young students hands-on experiments in handling and proportioning cement, sand and water. It is intended to catch the interest of young students well before they have made study stream decisions. By exposing them to the science of concrete technology at this early age, the idea is to sprout a continuing interest in engineering, cement chemistry, craftsmanship and concrete production which might not otherwise be generated.

Under the guidance of an industry volunteer "coach" recruited to help the teacher and the class, each student is given an experiment kit

containing a pre-measured quantity of Portland cement and two fine-aggregates – one being vermiculite, the other a normal concrete sand. Each student must wear safety goggles and plastic gloves so as to become familiar with the potential hazards of corrosive chemicals.

The student will batch two small quantities of concrete inside plastic baggies – with the expectation that the students who add the most water will become contractors in future years! Once hardened, one sample will float, the other sink. If the teacher wants to explore Archimedes principle, relative densities can be calculated. Or math and graphing skills can be used in class to plot the change in mass of each sample as it hardens and dries. If nothing more, it will instruct teachers and students alike in the difference between 'cement' and 'concrete'.

The ACI Manitoba Chapter is assembling the concrete kits and assisting in locating volunteer 'coaches' who may be able to adopt a local class and spend a few hours helping them learn a little of the science of concrete materials. If you can help, contact Betty Ann Kilbrei at Innovators in the Schools, ph.: 988-0669 or the ACI Manitoba Chapter's Ruth Eden, P.Eng., ph.: 945-5214. □

Letter to The Editor

Sir:

Deep Geological Disposal of Radioactive Waste

Thanks to Allan Ball's article in the December issue of our publication, I attended the hearings of the "federally-commissioned Concept Review Board" when it visited Winnipeg, January 27-28.

It is Allan's statement, "With Canada's Nuclear Fuel Waste Management Program now entering its final stages of review prior to advancing to the siting phase,...", that should give all engineers concern. Does it not imply that the hearings are so much window-dressing for a decision that the Liberals have already taken to give Canada's nuclear industry carte-blanc to bury nuclear waste in Canada's pre-Cambrian Shield? The Liberal's "sale" of Candu reactors to the Chinese, and Mr. Chretien's invitation to the Russians and Americans to send us the plutonium from their nuclear weapons the disposal of the waste from which would become Canada's problem would seem to confirm this.

More disturbing is Allan's statement that we should "come out to support the responsible application of science and technology for the betterment of Mankind – come and support ENGINEERING."

Many people would dispute Allan's claim that the nuclear industry is a "responsible application of science". The reality of nuclear technology is that it was started half-a-century ago with no one, apparently, thinking the scheme through in its entirety. Is it really good engineering to generate electricity without factoring in the true cost of getting rid of the waste from the process?

What the proponents of deep burial attempt to avoid mentioning is that the nuclear garbage, that has been produced in the past 50 years, will be dangerous to all living things for the next 100 millennia.

With the emphasis that our Code of Ethics puts on the welfare of the environment, is it really ethical for our profession to support a process of waste-disposal that will be lethal to living matter for as far into the future as mankind has taken to reach the stage in which we find ourselves today?

Yours with concern,
V.L. Dutton, P.Eng. (Ret.)

New Act Finally Presented to Government

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

APEM is proposing significant changes to the Engineering Profession Act – the legislation that governs the regulation of the practice of engineering in this province. On December 17, 1996, following extensive consultation with the membership as well as other interested parties, the proposed Engineering and Geoscientific Professions Act was finalized and submitted to the Minister of Labour, now the Hon. Harold Gilleshammer.

The proposed act was the culmination of several years of consultation. It commenced with the decision in 1988 to include a licensure requirement for all corporate entities practising engineering, and evolved through Council's 1992 decision to include the registration and discipline of geoscientists to Council's 1996 decision to adopt CCPE's definition of the practice of engineering, complete with exclusion clauses for the practices of natural science and technology. Other proposed changes include the registration and discipline of specified-scope-of-practice practitioners, procedures to enable the discipline of former members, cash deposits for all appeals (to discourage frivolous claims), a limitation on the period of professional liability, gender-neutraliz-

ing the document, changing the system for appointing lay councillors, adding the provision for lay committee members, enabling the association to deal with competence and professional standards, enabling the Association to regulate the disclosure of insurance coverage, deleting the six-year-work-experience requirement for those who become academically qualified through the completion of examinations, deleting the residency requirement for all categories of membership, providing for the issuance of electronic seals, and reducing the grace period for paying annual dues.

The revisions took into consideration comments received from such "stakeholders" as geoscientists, technologists, land surveyors, landscape architects, and architects, as well as the conclusions reached by the Manitoba Law Reform Commission following its study of the regulation of professions and occupations in Manitoba.

If you would like a copy of the new Act as proposed to the Minister (and please remember that the Legislative Counsel and Legislature may revise it further), please call Laverne at the APEM office (474-APEM). □

Marathon Relay '97

By: M.D. Vanderpont, P.Eng.

The Manitoba Marathon will be held on Father's Day, Sunday June 15, 1997. Once again, your Sports Committee will be assembling teams of APEM members to participate in the Corporate Relay. It's a great motivator to get in shape after our long winter hibernation. This is the story:

- teams consist of five runners. You can enter as teams, groups or individuals. The Sports Committee will put together the teams.
- the length of each leg varies between 4.5 to 5.7 miles.
- cost is approximately \$28 per runner. Proceeds go to the Manitoba Association for Community Living, which assists Manitobans with disabilities.
- exclusive APEM track tops are also available.
- spaghetti-fest included.

We have been running in this event for several years now and everyone who tries it is eager to run again. If you are at all interested, please call Murray Vanderpont at 934-5960 (office) for more information. I look forward to hearing from you. □

Practice Note – Access Scaffolding

By: Safety in Engineering Practice Committee

This Practice Note is published as a result of recent concerns that have come to the attention of the Safety in Engineering Practice Committee regarding the design and installation of access scaffolding. The following section in italics is an excerpt from the Manitoba Regulation 189/85, a regulation under the Workplace Safety and Health Act respecting the construction industry.

Work platform design strength

170(1) *Except as otherwise specified in the standards referenced in these regulations or as specified by a professional engineer and subject to subsection (2), every employer shall cause a scaffold or other work platform to be designed and constructed of materials sufficient in strength to support four times the maximum safe working load.*

Professional engineer to design

170(2) *Notwithstanding subsection (1), every employer shall cause a scaffold or other work platform to be designed, constructed, used and maintained in accordance with the requirements established by a professional engineer where*

- (a) *an access scaffold is constructed from a solid foundation to a height in excess of 15 metres;*
- (b) *a suspended or elevated work platform is constructed by the employer for the use of a worker; or*

(c) in the opinion of a safety and health officer, the circumstances or conditions are such that an engineer's approval is necessary to ensure the safety of the structure.

The Workplace Health and Safety Division of Manitoba Labour is currently considering a recommendation that the requirements of section 170(2)(a) be amended to apply to enclosed access scaffolding installations of a height greater than 7.5 metres. APEM has recommended that the amendment apply to all access scaffolding constructed to a height greater than 7.5 metres, whether they are enclosed or not.

Regardless of the limiting height requirement that is adopted, the recommendations for professional engineers are as follows:

Design Drawings

Design drawings should clearly show:

- the design criteria, codes and standards which apply to the installation;
- a statement specifying that the designer must be notified to perform inspections before use and following any subsequent reinstallation or modification;
- the location of the scaffolding in plan view;
- an elevation of the scaffold superimposed on the building elevations;

- the size arrangement and connection details of all structural members;
- the location and connection details of all struts, ties and anchorages;
- the conditions for which the installation has been designed and, in the case of scaffolding, whether the system is designed to accommodate wind loads associated with enclosure of the scaffold frames;
- restrictions applicable to use of the works; and
- specific precautions that should be observed while erecting, using or dismantling the works.

Inspection

The inspection service provided by the professional engineer should include forwarding the following statement of certification to both the employer and the Workplace Health and Safety Division:

"The construction has been reviewed by me (or under my supervision) in accordance with recognized professional inspection standards and, that to the best of my knowledge, the installation was constructed in accordance with the design drawings and other information provided."

Other

If, for any reason, the professional engineer responsible for either the design or the review of the installation withdraws from a project, he or she shall immediately advise the Workplace Safety and Health Branch of the withdrawal. □

The R&D Committee

LIFE-CYCLE OF AN IDEA Series

By: D. Strang, P.Eng. & E.E. Lach, P.Eng.

In 1899, Charles H. Duell, Commissioner, U.S. Office of Patents, proclaimed, "everything that can be invented has been invented." So why, a century later, do we face an urgent need for invention and innovation. John de la Mothe, of the University of Ottawa, suggests that "innovation is putting science and technology to productive use" (new products, processes, markets, sources of supply and organization of industrial units). R&D is vital to technological innovation but, by nature involves risk and costs money. Thankfully, a patchwork of government programs are available to help offset risk. While they differ in the type of assistance, target industry, and reciprocal obligations, they generally match private-sector investment in financially-risky projects where sound business plans exist. So you have an idea. Who ya gonna call?

Summary of Programs

The National Research Council **Industrial Research Assistance Program** provides professional advice and technical and financial assistance to small and medium-sized enterprises (SMEs) interested in enhancing their technological capability. SMEs can access the program by contacting an Industrial Technology Advisor from a national technology network of approximately 275 skilled professionals. They are drawn from industry, and having direct links to national and international technology sources (204-984-6478).

For larger scale projects, loans are available from **Technology Partnerships Canada** (1-800-266-7531) as well as a sector-specific programs operated jointly by **Western Economic Diversification** (WD) and commercial lenders. For example, the WD/Royal Bank **Information Technology Loan Fund** provides up to \$500,000 while similar funds (204-983-0697) target biotechnology, health, and food processing.

For longer-term, early-stage research projects, **Natural Sciences and Engineering Research Council (NSERC)** Research Partnership Programs target transfer of university technology to industry. For some projects, agencies such as NRC or Agriculture and Agri-Food Canada (AAFC) also contribute funds. Similar programs, operated by other government departments, match industry funds for projects conducted in government labs. The first step involves finding a researcher with expertise, interest and facilities to support your project. The **Canadian Technology Network (CTN)** provides leads through a network of advisors employed by organizations known for technical and business competence. To access NSERC programs and CTN, call the University of Manitoba Industry Liaison Office (204-474-6200).

The Manitoba government provides loan and grant funds for technology commercialization, especially in environmental, health, information technology, telecommunications, and aerospace industries (204-945-4013).

Timely business advice can be as valuable as

technical or financial assistance because a single weak marketing, legal, or financial factor can render a technologically-sound concept unprofitable. An early indication of feasibility can be obtained from a confidential assessment report by the Canadian Industrial Innovation Centre (1-800-265-4559). For under \$300, the report helps in making decisions that can save much larger sums of money at later stages of product development. In a more face-to-face approach, Viatch Technology Forum's multi-disciplinary team of experienced business professionals (204-988-6180) meet with entrepreneurs at no cost to discuss the potential of a venture and make recommendations on what issues to address and where to focus. Also, R&D performed by the company or a hired consultant may allow for **Scientific Research and Experimental Development Tax Credits** (204-983-3980).

A Real Case

A company with a complex technical problem leveraged its money by working with a researcher in the University of Manitoba's Department of

Cont'd on page 12

First Spaghetti Bridge Contest in Thompson a Success

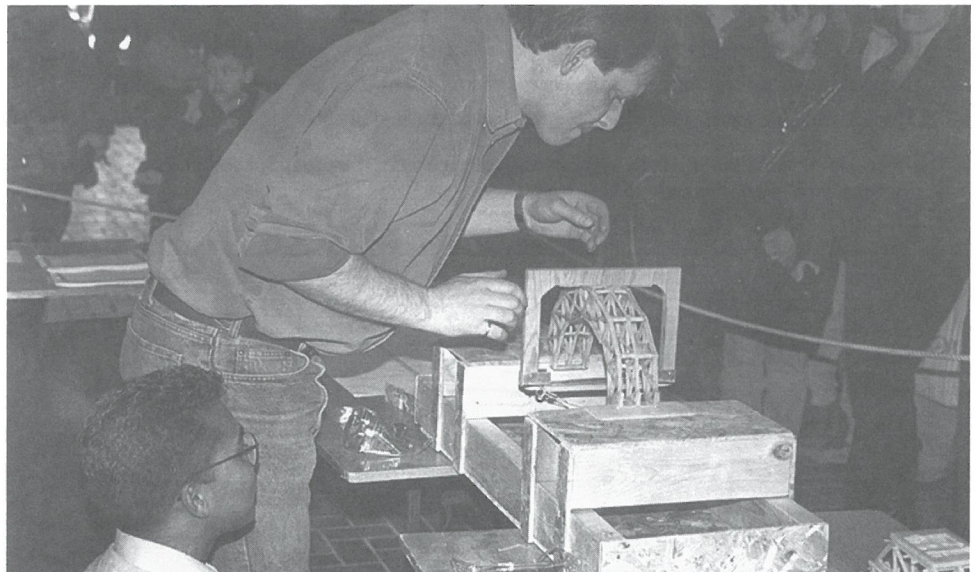
By: A.P. Laing, P.Eng.

The Thompson Chapter of APEM held its first spaghetti bridge contest to celebrate National Engineering Week. The response was excellent with entries from grades 6 to 12, adults and families entering.

The strongest bridge (adult, Darcy Hill) supported more than 80 pounds. A team from R.D.

Parker Collegiate (Lyle Stevens, Jodi Sapinsky and Danielle DeRuyck) won their category with a bridge that held 80 pounds, on the nose.

Quite a crowd gathered to watch the bridges break. The support by local sponsors, volunteers and participants made the contest a complete success. □



Kelly Bindle and Prasantha Silva prepare to load a spaghetti bridge at the first annual competition celebrating Engineering Week in Thompson.

An Evening of Recognition

Cont'd from page 5

Tunnel in Highly Stressed Granite" won recognition from the Tunnelling Association of Canada, the Natural Sciences and Engineering Research Council, and the International Society for Rock Mechanics. In addition to his research work, he has lectured to third- and fourth-year students.

He acknowledged that as an early achiever there have been a number of interesting experiences and challenges in his career, so far.

Rodney is active in his community in Beauséjour as a Beaver leader and is on the boards of his local church and nursery school.

President Symonds thanked those who had made the evening a very successful one and noted the increasing awareness of Manitoba engineers and the many achievements of the Engineering Faculty at the University of Manitoba. □

We Want Your Opinion

In order to serve you better, the Publication Committee wants to know how we could improve your newsletter, the *Manitoba Professional Engineer* (MPE). The following reader survey is your chance to let us know what you want to see in the MPE. Simply fill out the questionnaire and fax it to us at 474-5960 or mail it to the APEM office (850A Pembina Highway, Winnipeg, MB, R3M 2M7).

The mission of the MPE is to keep the membership apprised of Association affairs and activities. While we do plan to continue to fulfill that role, we want to make sure we are producing a publication that is useful and interesting to our readers. So please take a moment to give us your opinion.

1 Based on the following scale, please indicate the level of coverage you would like to see included in the MPE for each of the listed subject areas.

1 – Very Extensive (large portion of MPE should be dedicated to subject area, with detailed articles)

2 – Extensive (significant portion of MPE dedicated to subject area, with somewhat less detailed articles)

3 – Moderate (some coverage of subject area, detail only provided on most relevant points)

4 – Little (little coverage of subject area, information provided in summary format)

5 – None (subject area should not be covered in MPE)

___ Association Events – Breakfast/Luncheon Meetings (speaker presentations), Social Events, etc.

___ Association Business – Council reports, committee reports (ie. R&D Committee), Annual General Meeting, etc.

___ Technical Articles – technical developments, research results, etc.

___ Engineering Related News – plant openings/expansions, regulatory changes, Engineers in the News, etc.

___ Professional Development – dealing with clients, managing employees, workplace harassment, etc.

___ the Engineering Profession – news from other associations, CCPE news, the future of the profession, etc.

___ General Interest Related to Engineering – ‘Did You Know?’, humor, engineering history, etc.

2 Are there any specific topics which you feel should receive more attention in the MPE? (List below)

3 Overall, do you feel the quality of the MPE is (circle one):

very good / good / satisfactory / poor (needs improvement)

4 With respect to future changes to the by-laws, the code of ethics, or the Engineering Act, do you feel it is important for the MPE to (check one choice below):

☐ concentrate on presenting the reasons why council is proposing the change?

☐ present both the arguments for and against the proposed change?

☐ not discuss the matter until after the issue has been decided upon?

5 Further comments (likes/dislikes, suggestions) are welcome. If there isn't enough space provided below, feel free to attach another sheet.

Your Name and Phone No. (optional)

Thanks for your help.

Life Cycle of an Idea

Cont'd from page 11

Biosystems Engineering and accessing the AAFC/NSERC Research Partnership Support Program (613-996-1597). Over five years, the company's \$87,000 was matched by each of NSERC and AAFC. The University contributed \$70,000 in graduate student funding, bringing the total to \$331,000. The company paid only about 1/4 of the direct costs of the research project. In fact, the company's investment was leveraged even further because the University did not charge for professors' salaries or use of existing university equipment and facilities. If the company were to conduct the same research project using its own staff, equipment and facilities, the cost of the project could have easily been \$500,000 or more. In this win-win situation, the company saved money while solving a technical problem and the University trained five graduate students, published several articles, and ensured that its research was industrially relevant.

The Canada Business Service Centre, (fax-back: 204-984-5527, web: <http://reliant.ic.gc.ca/english/fedbis/index.html>) offers detail on these and other programs. Popular programs are profiled at <http://home.cc.umanitoba.ca/~strangd/lc.html>. □

Doug Strang is a Technology Development Manager at the University of Manitoba. Ed Lach is an Industrial Technology Advisor with NRC-IRAP. The authors wish to thank Daryl McCartney of the University of Manitoba for his assistance in reviewing the article.

Coming Events

Canadian Geotechnical Society (CGS)

Contaminated Site Remediation – Regulations and Technologies

8:00 a.m. to 4:30 p.m., May 8, 1997,

University of Manitoba, Wpg., MB

For more information contact: Rob McLean or

Michel Grégoire

Phone: (204) 489-2964, or

Fax: (204) 489-3014

SMU Mid-Management Program

Manitoba Hydro Community Learning – Management Development Course

Managers attain knowledge helpful to working in groups spanning several functions.

10 sessions – all from 4-7 p.m. April 10,17,24,

May 1,8,15,22,29, June 5,12, 1997

For more information contact: Donna Paryniuk

Phone: (204) 474-3008

Educational Program Innovations Center

Tendering – Practical and Legal Do's and Don'ts

April 25, 1997, Best Western International Inn, 1808 Wellington Avenue at Berry.

For additional information please call:

Hira Ahuja or Vicki Ranger

Phone: (905) 677-5869