

Professional Engineer



Meet Your New President – Ron Britton, P.Eng.

By: J. Blatz, EIT

At the recent Annual General Meeting, Ron Britton, P.Eng., was installed as President of the Association of Professional Engineers and Geoscientists of the Province of Manitoba. Ron is a professor at the University of Manitoba in the Department of Biosystems Engineering.

Ron was born in Regina and raised in Lang, Saskatchewan, a small town south-east of Regina. Ron describes the town as having a good baseball team, a mediocre hockey team, and so-so curling. Raised in a farming community, Ron was involved with the family butcher shop and farm. He has a strong agricultural background, with roots in the wheat and politics of southern Saskatchewan.

True to his rural roots, Ron and his wife, Dorothy, live "outside the Perimeter", in Sanford. Over the years he has coached baseball and served on various local recreational organizations. Today, his focus has shifted to his four grandchildren and their activities. The back yard in Sanford shows signs of many an impromptu game for folks from three to "much older".

Ron obtained his undergraduate degree in Civil Engineering from the University of Saskatchewan. After graduation, he took a position with Shell Oil, building service stations in Manitoba and Northwest Ontario. A year later he moved to the plywood industry, which took him to the UK for two years. He then accepted a position with Beaver Lumber as a farm-buildings engineer, in southern Ontario. Ron then came to Manitoba to take on a teaching position while

working on his Master's degree in Agricultural Engineering at the University of Manitoba. After completion of his Master's degree he attended Texas A&M where he obtained his Ph.D., studying grain-storage structures. He taught at Texas A&M for two years post-graduation before returning to the University of Manitoba in 1973, where he has been ever since. He teaches in Biosystems Engineering and in the Agriculture Diploma program. His research continues to focus on grain-storage structures as well as the design of light-frame buildings, particularly those utilizing wood.

Ron has an extremely impressive list of academic and teaching achievements, which include some of the most notable and prestigious teaching awards bestowed at the University of Manitoba and externally. His involvement in academic activities, technical learned societies, professional associations, and national councils demonstrates his commitment to his profession.

I had the pleasure of interviewing Ron, recently, to find out why he chose to become



President of APEGM, and what he hopes to accomplish during his term in office.

Blatz: Why did you choose to become President of the Association of Professional Engineers and Geoscientists of the Province of Manitoba?

Britton: The engineering profession is very important to me. I've been involved with technical societies and with the Association for a lot of years. I value the relationships I've been able to develop through these organizations. It's time to give something back. The profession is going through some real changes. I've been through a lot of changes. I thought, well if they're prepared to trust me, it's a world that I have lived in and maybe I can contribute. And as my wife put it, "well, it's your turn."

Blatz: What are your main goals as President and how do you plan to implement them?

Britton: I guess my prime goal is to leave APEGM at the end of the year in a functional situation. We have all sorts of by-laws to alter, fix, and create. If the PD program is approved, it will free up the Council to sit back and create a strategic plan and to undertake some real effort towards the business of act-enforcement. I would like to be a part of putting together an enforcement approach that means we don't have to simply run around rapping knuckles. I think we could do more for the profession by taking a proactive,





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850A Pembina Highway

Winnipeg, Manitoba

R3M 2M7

Ph. (204) 474-2736 Fax (204) 474-5960

E-Mail: apegm@apegm.mb.ca

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The Communications Committee would like to hear from you. Comments on your newsletter can be forwarded to us through the Association office. Members are also encouraged to submit articles and photos on engineering or business topics that would be of interest to the membership.

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Book Review –

Technological Entrepreneurship and Engineering in Canada

A Canadian Academy of Engineering Background Report, edited by Roger A. Blais, Chairman, Professor Emeritus, Ecole Polytechnique de Montreal, and University Associate, Innovitech., Montreal. Published Ottawa, September 1997. 234p.

By E.A. Speers, P. Eng.

I found this book a delight to read. It is a paean to the Sons of Martha and encouragement to knowledgeable engineers with an entrepreneurial bent who are needed in the new economy to meet the global economic challenges.

Canada has, according to the OECD, a serious innovation gap. Small- and medium-sized companies (SMEs) are understaffed in terms of professional engineers and technologists relative to our counterparts in advanced economies. R&D financing by industry is lower; there is a smaller number of researchers per capita. Canada has fewer entrepreneurial education programs, less investment in technological innovation, fewer venture-capital industries, and a lack of knowledge of the global environment and of global alliances by Canadian industry.

We need to establish a more innovative and entrepreneurial culture in Canada. Canadians can design and establish the processes that work best for Canadians and professional engineers are well-placed to overcome the “innovative gap”,

raise productivity, and improve competitiveness on world markets. Faculties of engineering and of management need to collaborate in the initiative to establish joint education programs for those interested in entrepreneurial careers.

Canada is a country of small businesses where SMEs account for 99% of all business, contributing 50% to private sector employment and 42% of total private sector GDP. Successful SMEs provide 85% of new jobs, invest more in R&D, diffuse technology more rapidly, and develop more products and services. However, they currently account for only 10% of Canada's total exports.

Naturally, professional engineers will identify with the traits of technical entrepreneurs as listed in this book: superior conceptual abilities, broad-thinking generalists in technical matters, high degree of self-confidence, strong drive, basic need to control and direct, moderate risk-taker, very realistic, moderate interpersonal skills, and sufficient emotional stability. “When blended with other entrepreneurial characteristics (prob-

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NEW MEMBERS REGISTERED SEPTEMBER & OCTOBER 1998

J.G. Anderson	R.D. Lalonde (AB,ON)
R.A.P. Armstrong (ON)	G. Mallette (AB)
R.P. Badowich (ON)	B.L. Moore
I.M.Berzins	B.D.Nielsen (SK)
S.B. Brown	B.D.Pommer
R.R.J. Brunke	D.K. Reichert
J.K.Cuddy	B.K.Sareen (SK)
G.A. Egberts (ON)	Y.P. Sinha(ON)
P.T.Elefsiniotis	W.P.Sullivan (AB)
J.H. Fairfax (BC)	A.P.Teasell (AB)
I.G. Fraser	D. Viola
R.R.Gagnon	M.J.Voloshin (AB)
C.I.Gould	J.R. Westmacott
J.M.Hardy	J.S.Yulianti
J.G.Hayles	Z. Zhiying
X. Huang	Z. Zhang
W.W. Jacobs (ON)	D.W.Zilinski (SK)

LICENCES ISSUED SEPTEMBER & OCTOBER 1998

T.C. Greenlaw	T.E. Walstrom
D.R. Hampshire	R.J. Heiller
F.M. Jordan	L.O. LaBere
R. J. Lorenz	R.L. San Giacomo

REINSTATEMENTS SEPTEMBER & OCTOBER 1998

K.W. Charleson

EITs ENROLLED SEPTEMBER & OCTOBER 1998

P.H. Boge	T.J. Sontag
J.D. Bowen	R.P. Spewak
S. D'Amours	I.J. Stewart
C.A. Harmsworth	G.J. Westlund
J.C. Janssens	D.E. Zubert
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J.A. Kell	R.M. Dansereau
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A.M. Lou	J.K. Highmoor
D. S. Ostrowsky	E.C. Himelstein
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A.R. Phillips	L.L. Pasta
A.A. Poulin	P.A. Rohne
A. Roncin	T. Sarauskas

WE HAVE LOST CONTACT. MAY WE HAVE AN ADDRESS?



S.D.
A.B.
J.C. Priest

H.G. Wiber



President's Message

Ron Britton,
P.Eng.



Are We Talking Linear or Circular Motion?

Past-President Peter Washchysyn has set a pace that will be difficult to emulate. He saw us through significant change with patience, humour, and never-ending optimism. It is reassuring to know that he will be there to provide his wise counsel in the year to come.

But what about the year to come? What issues seem to be crying out for attention? What will have to stay on the back burner?

Our Association is, of course, a work in progress. Each new President and Council assumes the task of completing that which is ongoing, and establishing new goals to strive for. Thanks to the passage of our new Act, this Council finds itself with a list of tasks which require immediate attention. These include, but are not limited to:

- integration of the Geoscientific community into our organization,
- initiation of the Professional Development

Program, assuming Bylaw 98-1 is approved in the coming letter ballot,

- making the Joint Boards and MOUs with the Architects and Technicians & Technologists functional,
- making the MOUs with the Landscape Architects and Land Surveyors functional,
- putting operational guidelines in place to issue Certificates of Authorization for corporate practice, and
- modifying and developing numerous bylaws.

While Council will be dealing with the policy questions associated with these tasks, many committees and task forces will be asked to provide the attention to detail that will allow Council to make informed decisions. This is, after all, an Association of Professionals, each of whom has a stake in the proper conduct of our affairs.

"...a workable, affordable, minimally intrusive proposal that is consistent with programs in existence, or under development, in other provinces and territories."

Much of Council's recent effort has been focussed on the Professional Development Program and the consequences of non-compliance (otherwise known as the Continuing Competence Program) that forms the text of By-Law 98-1. This has been a somewhat divisive undertaking. Some members have told us that, despite the effort, we have it "all wrong". Others have suggested that we are focussing on the wrong issue, citing public awareness, self awareness, erosion of our profession's influence, or Act enforcement as issues that have more urgency. For better or for worse, the PDP issue was drawn

to the forefront some five or six years ago. The reasons why it took on such prominence are now history. Subsequently, in response to members concerns, the Continuing Competence component was added. We now have what Council believes to be a workable, affordable, minimally intrusive proposal that is consistent with programs in existence, or under development, in other provinces and territories. It is not a perfect proposal, but it does provide a base upon which to build. If it is approved in the pending mail-in ballot, we will be able to shift our creative efforts to some of the other important issues.

As I have listened to discussions at various meetings over recent months, I have become more aware of the continuum in which we practise our profession, and in which Council is expected to act. But the continuum, in its entirety, is too large and complex to deal with all at once. We must allocate our resources, both time and money, to deal with manageable elements, in the hope that each improved piece will ultimately contribute to an improved whole. And when choices must be made, disagreement is bound to follow.

Hopefully, Council will have the opportunity to go beyond the implementation of the reactive tasks outlined above. Hopefully we will not be required to re-visit tasks we think are well on the road to completion. I would like to shift our focus to the question of finding ways of improving the public image of our professions. An improved public image would facilitate more effective, less reactive enforcement of our new Act: a different part of that continuum I spoke of earlier.

1998-99 will be a challenging year. Thank you for giving me this opportunity to serve our professions. I hope your confidence has not been misplaced. □

Rural Innovators Wanted

By: Charlene Lipka

Are you willing to share your enthusiasm and knowledge of science with young students?

Innovators in the Schools is an outreach program of the Manitoba Museum of Man and Nature. The program sends science-based professionals into Manitoba classrooms to encourage, promote and enhance Science studies for all students.

During the 1997-98 school year, over 65 Manitoba engineers were active in the Innovators program. These engineers participated in career days and job shadows, made classroom presentations, and served as science-fair judges. As well, engineers facilitated two different workshops using the education kits "A World In Motion" and "Concrete Kits for Kids".

Concrete Kits for Kids is a grades 3-6 education kit, sponsored by the Manitoba Chapter of the American Concrete Institute. The kit exposes students to the science of concrete technology and fosters an interest in engineering. A World in Motion is a grades 5-6 education kit, sponsored

by the Manitoba Section of the Society of Automotive Engineers. The kit explores the topic of forces and motion and fosters an interest in engineering. Support is available for engineers interested in facilitating either of these workshops.

Innovators in the Schools is especially looking to increase the number of rural volunteer innovators. Volunteers can specify the types of presentations they would like to make and to what grade level. Training sessions and written materials assist innovators in preparing for their classroom visit.

Volunteer time with the Innovators in the School program is eligible for professional service points with APEGM.

Innovators in the Schools is very grateful to the Association of Professional Engineers and Geoscientists for their generous financial assistance. As well, APEGM refers requests for speakers to the Innovators Program.

Innovators in the Schools is sponsored by the ECONOMIC INNOVATION AND TECHNOL-

OGY COUNCIL and receives assistance from the Association of Professional Engineers and Geoscientists of Manitoba, Manitoba Chapter of the American Concrete Institute, Cangene, and Manitoba Hydro.

If you are interested in volunteering with the Innovators in the Schools program, please contact Charlene Lipka, toll-free, at 1-800-770-7836, or within Winnipeg at 988-0669 or by e-mail: innovators@manitobamuseum.mb.ca. □

Engineers in the News

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

Hot off the Press! **Larry Whitney, P. Eng.**, very recently received the 1998 Lieutenant-Governor's Medal for Excellence in Public Administration in Manitoba.

Congratulations, Larry! (Details to follow in the February issue of this publication.)

Annual General Meeting

A First for APEGM's AGM – Seen and Heard in Brandon, Flin Flon and Thompson

By: B. Stimpson, P.Eng.

The annual business meeting took place on Saturday, October 17 at the Niakwa Club, Winnipeg. In a first for the Association, the meeting was extended by video-conferencing technology to Brandon, Flin Flon, and Thompson. The system worked without a serious hitch.

The regular business of any annual business meeting was expedited very efficiently, giving adequate time for what we all knew would be a pivotal dialogue on the proposed By-Law to implement a mandatory professional development program.

Many guests from other provincial associations and CCPE were present. On a local note, it was particularly pleasing to hear words of welcome from representatives of related professions in Manitoba – J. Pestrak, President, Manitoba Association of Architects, P. Isaac, President, Association of Manitoba Land Surveyors, and T. Wingrove, Board Member, Consulting Engineers of Manitoba.

President Washchyshyn gave a brief summary of the main achievements during his year of tenure (see October issue of "The Manitoba Professional Engineer") and thanked Dave Ennis and the APEGM staff for their untiring work on his behalf.

The results of the ballot for five new councillors (two-year terms) were announced: 3605 ballots were mailed and 680 returned (12 spoiled), for a return rate of 18.86 %. The new councillors were introduced and are: R. Eschenwecker, L. Ferchoff, J. McLeod, A. Poetker, and S. Rizkalla. Under a transition process written into the new Act, two geoscientists have been appointed as Councillors for a period of two years (this period will allow sufficient numbers of geoscientists to register for the normal voting procedure to apply in two years' time). They are L. Quinn and R. Matthews.

The report of the auditors showed the Association's finances to be healthy. The meeting was apprised by the Executive Director that, owing to the ongoing legal action to ensure protection of the public interest that has been going on for four years, it is possible that next year could see a deficiency of revenues over expenditures.

The 1998-99 budget, which showed a modest increase in annual dues, was received by the meeting for information.

A. Silk and M. DeWiele were elected to the



Nominating Committee, which has a new and major role in recommending individuals to sit on all the Association's committees.

B. Stimpson, Chair of the Communications Committee, wished to convey to members, and particularly the geoscientists present, that a name change for the Association's publication, "The Manitoba Professional Engineer," was under consideration by the Committee and a recommendation would subsequently be forwarded to Council.

R. Morrison wanted to know how much the registration of geoscientists would increase membership in the Association. The Executive Director said 500 geoscientists have been identified in Manitoba from a Geological Association of Canada mailing list. He estimated that about 100 of those would register under a grandparenting clause. Based on the experience of Associations who have been registering geoscientists, he thinks that 300 new members is the maximum APEGM should expect.

The meeting moved on to consider two By Law changes, specifically By-Law 98-1 on a requirement for mandatory professional development planning and reporting, and By-Law 46 on revisions to the Code of Ethics.

In introducing By Law 98-1, President Washchyshyn informed the meeting that what we

were about to embark on was constructive dialogue and not a debate. The meeting was also reminded that a positive vote would only mean that the By-Law would proceed to a mail ballot.

To facilitate a constructive dialogue, Council had organized a panel of four members to open proceedings. M.

DeWiele briefly described the history of the development of the program, including the valuable step of a pilot project which resulted in some changes. He was favourable to the program, seeing it as a first and necessary step for a self-governing body that can be improved on over time.

While it would not protect the public, he believed its implementation necessary to APEGM's being taken seriously as a self-governing body. C. Stewart outlined the principles of continuing competence (using the CCPE definition), of which professional development is a part. She also supported the program, seeing it as an initial standard and a start on the journey to demonstrate to the public our responsibility for what we do.

I. McKay, a member of the Investigation Committee and the third panelist to speak, was concerned that the program will not protect the public, which he believes is what we should be trying to do. If it does, how will we know? He suggested that our real problem arises from those who practise unethically. He showed data from 1990 that indicated that the problems arise more from member dishonesty, taking short-cuts, etc. than from incompetence, and largely from multiple offenders. Would the professional development program reduce the number of violations? He doubted it. As an alternative, he suggested that each member be required to attend a Professional Practice Seminar every four or five years. The final speaker, R. Partridge, addressed the topic from the viewpoint of quality assurance. One element of quality assurance is to meet or exceed public expectations. Surely, he suggested, the public expects us to be doing professional development. The proposed program would help in that respect and is certainly not onerous. Furthermore, it would increase public awareness of the professions. He also noted that the elements of a professional development program are contained in the training segment of ISO 9000.

Following some further discussion between panelists, comments were invited from the floor.

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1998 APEM Wine and Cheese Reception

By: J. Bogan, P.Eng.

A reception was held at the Niakwa Country Club on October 16, 1998 to welcome new members, award scholarships to students, and recognize past presidents and volunteer committee members.

One hundred and nine new members were recognized and most were present to receive their certificates, presented by President Peter Washchyshyn.

Scholarships were presented to: Michael Buick, Marc Desjardins, Delbert Dueck, Michael Morris, Richard Shead, Chad Silverman, and Robin Smyrski for their academic achievements.

The Canada Northlands Development Award was presented to Lindsay Reagan. Lindsay is a resident of Cranberry Portage and has worked in northern Manitoba.

Honourary Life Membership – Russell Hood

An Honourary Life Membership is granted in recognition of commendable service to the Association and to the profession. This year, Russell Hood was recognized. Mr Hood was born in Sydney, Australia. He graduated with a B. Eng. Degree in Civil Engineering from the New South Wales University of Technology in 1953. He became a member of APEM on June 8, 1959.



Russ Hood (l) receives Honourary Life Membership.

Russ was a member of Council for six years and served as President in 1971. He served on the Executive and Finance Committee, the Membership Committee, the Certification Board, the Engineering Technicians Committee, the Bulletin Committee, the Nominating Committee, the Anniversary Year Liaison Committee, and the Ad Hoc Committee to meet with the City of Winnipeg Task Force. He also served as APEM's Director to the Board of CCPE. This represents 44 committee-years of service. Russ was presented with APEM's Outstanding Service Award in 1978.

The award was presented to Russ Hood for his unselfish efforts in all his endeavours which



"Two Bald Guys from Saskatchewan" – outgoing President Peter Washchyshyn (l) and incoming President Ron Britton.

have won him respect and admiration as an honoured member of the Association.

Honourary Life Membership – Richard Johnson

Honourary Life Membership was also awarded to Richard (Dick) Johnson. Professor Johnson registered with APEM on December 12, 1955. He graduated from the University of Manitoba with a B. Sc. (1954) and an M. Sc. (1956) in Electrical Engineering.



Dick Johnson (r) receives Honourary Life Membership.

Dick served as a member of Council in 1979. He served on the Executive and Finance Committees, the Board of Examiners, the Committee to Study the Act, the Advisory Committee on the Code of Ethics, the Legislation Committee (he is a current member), the Awards Committee, the Nominating Committee, the Registration Procedures Review Committee, the Ad Hoc Committee on the Log of Experience, the Select Committee of Past-Presidents, and the Investigation Committee (of which he is also currently a member).

In addition to his APEM activities, Dick has been actively involved with CCPE. He has also served as chair of the Committee on Acceptable Canadian Engineering Curriculum. After a long and distinguished career in the Faculty of Engineering at the University of Manitoba, he retired September 1, 1997. Dick is a respected

member – one who is most articulate and always ready to share his wit and insight with great aplomb.

An Honourary Life Membership was awarded to Dick Johnson for the wide variety of his service in Association activities.

Outstanding Service Award – John Malcolm Symonds

The Outstanding Service Award was presented to John Malcolm Symonds for his service over the years. Mal registered with APEM in 1979, having graduated from the University of Manitoba with a B. Sc. Degree in Mechanical Engineering in 1977.



Mal Symonds (r) receives Outstanding Service Award.

Mal was a member of Council from 1993 – 1998, and President in 1997. Mal has worked on the Executive and Finance Committee, the Discipline Committee, the Salary Research Committee, the Consulting Engineers Committee, the Awards Committee, the ORAP Committee, the Ad Hoc Committee on Technologists, and the Ad Hoc Committee on the Electronic Seal. In total, this represents 35 years of committee service.

Mal was instrumental in defining the APEM vision, which served as the first of many steps

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The Failure and Righting of the Transcona Grain Elevator

Ken Skafffeld, P.Eng.

On Saturday, October 18, 1913, grain transfer into the newly constructed 1,000,000 bushel Transcona Grain Elevator was well underway when the binhouse began to settle and tilt to the west. Within 24 hours, the structure came to rest at an angle of 27 degrees from vertical (minus the concrete cupola). In its final position, the west edge of the mat foundation was 24 feet below its original elevation and the east edge had risen about 5 feet. Earth mounds as high as 15 feet surrounded the structure, having been thrust up as the settlement occurred. Almost unbelievably, the monolithic concrete structure was intact and the first order of business was to tap each of the 65 bins to salvage their valuable contents. Fortunately, the workhouse on the south side of the bins was only slightly cracked as the bins settled and did not itself experience any subsidence. The replacement cost of the binhouse was estimated between \$140,000 and \$150,000 and, according to Mr. J. G. Sullivan, then Chief District Engineer for CP Rail, "it was doubtful if any effort would be made to restore the elevator."

In December 1913, the Foundation Company Limited of Montreal and Vancouver submitted a plan to CP Rail to underpin the workhouse as it was feared its foundation may also fail. The plan was accepted and work began almost immediately to underpin the structure by sinking a pier under each building column. Because of the heavy loads and height of the structure, it was first necessary to install an elaborate system of internal and external timber shoring. Despite significant groundwater intrusion into the 5 ft. diameter piers (Chicago Wells), which were all excavated by hand, the workhouse operations were completed by the beginning of June 1914.



Excavation on East side of bins.

At some point during the workhouse underpinning, the Foundation Company Limited convinced CP Rail that it was possible to salvage the binhouse by straightening it and when the vertical position had been reached, to underpin the structure. The structure was to be righted by excavating under the high (east) side and gradually lowering it to the elevation of the low (west) side. Initially, a trench was excavated along the entire side of the binhouse to the underside of the mat foundation. Drifts were then excavated beneath the mat foundation and a row of 14 piers was sunk to bedrock along the west edge of the mat.



Transcona Grain Elevator after failure.

The intent was to support the structure with these piers acting as a fulcrum, about which the structure would be rotated as the soil was removed from under the high side. As construction proceeded, the original plan was modified and the structure was actually raised on the west side using shoring screws and timber rockers installed on the tops of successive rows of piers. To assist in the righting, twelve timber pushers were placed against the west side of the bins. On October 17, 1914, two days behind schedule, the binhouse was back in its vertical position having been raised about 12 feet in the process. The structure has been successfully used since this time and is now owned and operated by Parish and Heimbecker limited.

The significance of the failure did not escape early soils engineers who recognized this unique opportunity to compare the loading and failure with that predicted by classical bearing capacity formulae. Dr. A.W. Skempton used it as one of his examples in a notable paper on 'The Bearing Capacity of Clay' in 1951. The first geotechnical evaluation of the failure was carried out by Dr. R.B. Peck, of the University of Illinois, with limited site-specific soils information. R.F. Leggett, then director of building research of the National Research Council, used the Transcona Grain Elevator during a presentation on "Special Foundation Problems in Canada" and, during subsequent discussions, promised to study foundation failure in more detail. In fulfillment of that



Shoring screws used to lift 20,000 ton binhouse.

promise, a joint study, including detailed test holes and laboratory testing, was undertaken by A. Baracos, from the Department of Civil Engineering at the University of Manitoba, and the National Research Council. The conclusions from this study compared well with Dr. Peck's results, with the ultimate theoretical bearing capacity of 6,420 psf being remarkably close to the actual bearing capacity at failure of 6,200 psf. □



Transcona Grain Elevator after straightening.

The Challenge of Organizational Change

By: B. Stimpson, P.Eng.

Dr. Jerry L. Gray, Dean of the Faculty of Management, University of Manitoba, and luncheon speaker at the Annual General Meeting on Saturday, October 17th, had once taken some embryonic steps towards becoming an engineer; but within five days, he was fired from his job of tracing blue-prints, with the suggestion that he consider becoming an architect. Neither profession, as his academic credentials and career bear witness, were on his life's journey. Management became his field of interest and expertise, and on this occasion he had been invited to talk about the process of organizational change.

Dr. Gray, an engaging speaker, tailored his talk to us on the basis of listening to a portion of the morning's discussion on the proposed professional development program. Courageously, he discarded his prepared materials and quickly prepared some new overheads. His goal was to assist us in understanding the process of organizational change represented by the morning's debate and to provide some guidelines for our consideration.

Success in today's world means becoming a fast-response organization; strategic plans for more than three years out are dead in the water. Change is mandatory and he suggested APEGM

look at its governance structure to see how processes could be speeded up (I listened somewhat smugly to this, knowing that APEGM has been doing this and has recently implemented changes). Quality, service, and continuous improvement, together with empowerment of members, is vital. He suggested that the proposed professional development program is an example of empowerment. It represents empowerment because, if implemented, it will require members to plan and document their responsibility for continuous professional development. Accountability is another element in today's world; organizations and individuals are being asked to demonstrate it more and more to their "clients".

Organizational change should never be a response to what Dr. Gray calls the "jerk factor". His research and that of others has shown that in all groups about 5% are "jerks". So, he suggested, 5% of engineers and geoscientists are "jerks" who will try to find loopholes, take short cuts, or practise unethically. Trying to develop procedures to catch them only results in time-delaying and costly bureaucracy and makes life difficult for the other 95%.

As APEGM evolves and continues to implement change, it should consider its strategies

carefully. First, trying to change attitudes is next to impossible. Instead, discuss and debate an issue and then implement policies that change behaviour. When behaviour changes, attitudes typically change after some time-lag. Dr. Gray gave the example of the seat-belt law. Had the government tried to persuade a change to more positive attitudes towards seat-belt use, the wearing of seat-belts would still not have happened, but the law changed our behaviour (in most cases).

Second, should a process like the consideration of a professional development program be pursued and implemented quickly or slowly and with careful deliberation? Generally, he felt, slow was better for such situations.

Thirdly, which is more important, process (how do we get there?) or substance (what is the answer, what do you end up with?)? Dr. Gray emphasized the importance of process and complemented APEGM on the process by which the professional development issue has been addressed.

Fourthly, the pursuit of change must be focussed. Each proposed change should have a single purpose. Don't try to achieve a number of objectives, for this typically leads to unsatisfactory outcomes.

In closing his address, Dr. Gray described his philosophy of "democracy" in voting for organizational change. He suggested that a split vote is a disaster because nearly half the members are going to feel that they lost, and shared his pride that during his current tenure as Dean he has not had a split vote at Faculty Council. He advocated to members that they ask themselves the following questions: "Is this an improvement?" and "Even if I have concerns or alternatives, can I live with it?"

Dr. Gray received a well-deserved round of applause as members prepared themselves for the vote on By-Law 98-1 on the proposed professional development program. □

A First for APEGM's AGM...

Continued from Page 6

The ensuing questions and views continued for at least 45 minutes and represented a complete spectrum of views from highly favourable to opposed. No one questioned the "nobility", as one speaker put it, of seeking to ensure public safety and professional competence by improved and measurable standards. Rather, those opposed to this particular program did so on the basis that it is flawed in principle, methodologically, and philosophically. R. Parsons' views perhaps best represented this position. He expressed his opinion, supported in detail by a written document he had prepared and circulated, that the APEGGA methodology, which APEGM is proposing, has good intentions, but will not ensure competency. It is possible to have a standard and still produce junk, e.g. ISO 9000 does not ensure quality; all that is required is documentation, consistently done. This is all the proposed program does. He also questioned the merit of particular means of collecting professional development points and of a common metric (240 hours every three years), regardless of the engineering discipline. He suggested that alternatives be sought and explored.

Those in favour saw the program as a minimal but necessary step in demonstrating accountability to the public. B. King described it as "a life plan for professionals" as we move through our careers. With the best intentions in the world, we do not always achieve our goals; but when we are required to plan and report, we are more likely to

reach them. He also thought the program would raise awareness of the profession in the public arena. K. Olischefski noted that the QS 9000, which builds on ISO 9000, requires the development of a professional development program through planning, implementation, measurement of effectiveness, and continuous improvement. C. Bouskill emphasized the much greater demand for accountability than 80 years ago when engineers were given self-governance. M. DeWiele noted a more serious and professional attitude among EITs than when he was a young graduate who merely had to work for two years and have his supervisor sign a sheet of paper in order to become a registered professional engineer. EITs are required to report on their engineering experience and to engage in professional activities. He believed from this observation that a professional development program would also have a positive effect on the quality of registered engineers.

Constructive dialogue did, indeed, take place, and all members who spoke did so with respect to others' opinions. When the vote was taken, the By-Law was approved by a count of 55-45.

The second By-Law change (By Law 43 – Code of Ethics) involved some "streamlining" of the current document without any substantive change to the substance, and the inclusion of geoscientists. The motion to approve was carried.

The final stages of the meeting saw the recognition of councillors completing their terms (K. Olischefski, K. Pratt, M. Symonds, and D. Kramble) and the induction of the new President, R. Britton, in "The Ceremony of the Gavel". □

VISION

APEGM VISION

VISION



APEGM is the leader and a facilitator of the process that ensures excellence in engineering, geoscience, and applied technology for the public of Manitoba.

Council Reports

Tuesday, September 8, 1998

by Arthur Kempan P. Eng. (Ret.)

AT WHICH COUNCIL GRAPPLES WITH THE FALLOUT OF THE NEW ACT

As has happened on several occasions when I've covered these meetings, this gathering developed into another perfect-attendance event. This certainly displays the level of commitment that this Council brings to the Association.

The meeting opened with routine items. The first meaty issue, arising out of the Report of the Executive Director, was the question of a new logo for our soon-to-be expanded membership. Since our new act includes geoscientists, our logo should reflect that, so now we are the APEGM. Our trusty "flying A" logo saw the light of day back in 1992. At that time our legal advisors informed us it would cost \$1,200 to register our logo. That Council decided to use the logo without registering it, and this Council followed suit, due to the low probability of someone stealing it. Other issues arising from our union with the geoscientists included the criteria for grandparenting, academic requirements, and experience of members from the geoscience camp. Our Director of Admissions, Shirley Matile, was forming a task group to deal with these issues. Council appointed two geoscientists to Council, as required by the act: Dr. Louise Quinn and Mr. Robert Matthews.

Council discussed, at length, the implementation of our new Act, and one of the changes arising from that will be the timing and method of paying fees. Our Executive Director, Dave Ennis, presented a detailed plan to Council wherein membership dues would be staggered on a three-month cycle. This would mean that some lucky members will have a 15-month dues bill the first time through. The merits of initiating a credit-card-payment system were debated. The estimated cost to the association would be \$6,300 a year, based on a 3% fee. Although extra cost would be incurred, additional benefits to members would follow, such as convenience and the

ability to pay for luncheon and breakfast meetings by credit card.

Next on the agenda was the Canadian Council of Professional Engineers' Budget and Assessment. This is of interest to APEGM members because part of our membership fee goes to the CCPE. Full members pay \$8.65, partial dues members \$7.55, and EITs \$6.70. The proposed budget of the CCPE is to be almost \$4 million, with \$1.2 million coming from the constituent associations. In addition to its advocacy role for the profession, the CCPE arranges financial services and provides an informal assessment program to immigrants where they can determine if their professional credentials are adequate for registration in Canada. This service saves time and money for the associations and provides \$2.1 million in revenue for CCPE. Council passed a motion to support the draft budget of CCPE.

ORAP is the acronym for the internal re-organization of the APEGM. Council dealt with one facet of ORAP – the re-organization of committees. When APEGM undertook these changes they did so in consultation with existing committees. In some instances committees have new names, and in others their function has changed, and the staffing of all committees has been assigned to the Nominating Committee. Most affected groups bent to the new order of things, but to make life interesting, the Research and Development Committee, which was to become the Emerging Technologies Committee, has resisted. Messrs J. Bégin, P. Eng., J. Thorsteinsson, P. Eng., and E. Speers, P. Eng., provided impassioned written arguments for the continued use of the term R&D Committee. Their main argument was that it was recognized terminology whereas Emerging Technologies was not. Council's response to this was that APEGM did not perform R&D and so it was a misnomer. Always the conciliators, Council decided to meet with the Emerging Technologies (or R&D) Committee to discuss the matter further.

Under our old Act, The Engineering Profession Act, Council was obliged to refuse appeals from members who had been involuntarily deregistered. However, The Engineering and Geoscientific Professions Act allows Council to re-instate deregistered members "...upon such terms as in the opinion of Council are appropriate." Council had its first opportunity to exercise this discretion when it considered the cases of Mr. Ian McGowan and Mr. Graham Clow. In both instances, Council approved requests from the petitioners: in the case of Mr. McGowan, the opportunity to resign in the accepted manner; and in the case of Mr. Clow, to consider him eligible for re-instatement should he desire it. □

Tuesday, October 13, 1998

by Arthur Kempan P. Eng. (Ret.)

AT WHICH COUNCIL SAYS GOODBYE TO SOME MEMBERS

This meeting had a rather subdued undertone to it, perhaps because October meetings are a time for partings and for new beginnings. With the elections over, a new crop of Councillors soon appears and some familiar faces fade away, as do old generals. One new face was that of Mr. Rob Matthews who attended his first meeting as an appointed Councillor from our Geoscientific cousins.

Council got down to business with a report from Executive Director Dave Ennis, P. Eng. Councillors learned of a new initiative called the Western Associations Group which was the subject of a meeting in Edmonton attended by Mr. Ennis. The Western Associations would include all provincial engineering associations west of Ontario. With provincial groups and CCPE on the scene, what would be the purpose of a new body? This is what Councillor Roberts wanted to know. Councillor Mal Symonds felt it was needed to counteract the influence of the large provincial associations in Ontario and Quebec. President Washchyshyn thought it might be useful in sharing experiences, as was the case with professional development programs.

An interesting written proposal was presented to Council from The Pumphouse Restaurant and Brewing Company. This was a proposed business venture which would occupy the James Avenue Pumphouse, a well-known engineering historical site. The Pumphouse Restaurant and Brewing Company would have APEGM as a tenant in the building as well as a proposed technology museum. The idea of the Association moving into the James Avenue Pumphouse was tossed around back in 1988 but never came to pass. Council felt it could not become involved in what was essentially a

business venture unless, at a future time, the Museum of Man and Nature assumed a role.

Council reviewed correspondence between the Manitoba Association of Architects and APEGM regarding the MAA's appeal of the case of the MAA vs., a registered P. Eng. The courts ruled in favour of the engineer, and the MAA has appealed the decision. Apparently, the MAA feels that the roles of engineers and architects have not been defined sufficiently, and a continuation of legal action is the way to achieve this. It is APEGM's position that the Joint Board of engineers and architects was set up to address this, and that should be the way forward.

Next, Shirley Matile, Director of Admissions, spoke to Council about our Professional Practice Examination. Apparently, a national PPE has been developed and Ms. Matile proposed that APEGM adopt it for our Association. The current PPE includes six three-hour seminar modules delivered by three lawyers, a patent agent, and an engineer, and is concluded with the examination. The national examination will involve self-study of national text books, for which a seminar will eventually be developed. Council approved and the APEGM will adopt the national PPE.

At this point the meeting was interrupted by the appearance of smiling APEGM staff bearing a large pyramidal cake in honour of Executive Director Ennis's birthday. On the cake was a figure clad in a yellow track suit clinging to the side of the pyramid, either descending or ascending the peak, the interpretation being left to the viewer!

This pleasant diversion gave way to consideration of a co-operation agreement with the Canadian Council for Human Resources in the Environment Industry (CCHREI). CCPE has a draft agreement with CCHREI and has asked provincial associations for comment. Apparently there is a long and tortuous relationship with CCHREI which it would take some time and study to comprehend fully. Council voted against the co-operation agreement with CCHREI.

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1998 APEM Wine and Cheese Reception

Continued from Page 1

taken by the Association in reorganizing its activities. This vision is the fundamental principle underlying everything the Association does for Manitoba's public.

Gift Presentation – Joan Washchyshyn

As part of the reception, a gift was presented to Joan Washchyshyn for her understanding of the commitment required by the Association President.

Interestingly, the gift consisted of a set of wood-carving tools. When this reporter asked Joan if she liked to carve duck decoys, she replied that presently, she's working on nut-crackers. As one who has worked with Peter for the last eight years, one could only think, "how appropriate". □



New members April '98 - September '98



President Washchyshyn with Scholarship Winners.

New President

Continued from Page 5

positive approach with employers and people purporting to be engineers than by becoming a police force.

Blatz: At the past general meeting, professional development was approved by the members in attendance to be sent out for a formal vote to the entire membership. What are your comments on Professional Development, and is there a message that you would like to convey to the membership now that it has reached this stage?

Britton: I hope that the membership will allow the program to proceed. It's a responsibility under our Code of Ethics. I firmly believe that the vast majority of members comply with the Code of Ethics and, therefore, are doing this anyway. One of the things you discover on Council is that there are a lot of outside pressures that are brought to bear. One of those pressures sees the Association being charged with more accountability. The Professional Development Program that we have proposed has been criticized as being intrusive. It has also been criticized for being too easy. The Association needs to be able to go to those who would detract from our right to professional self-

government and show them that our members are in fact taking their responsibilities seriously. The Professional Development Program, as it is proposed, would provide us with that database without requiring huge volumes of paperwork at the office, and without requiring that huge volumes of records be maintained by our members. I think that we have a proposal that's workable, that's affordable, and that provides a defensibility from the Association's perspective. Is it perfect? No. Will it ever be perfect? No. Is it workable? Yes, I believe so. I hope that members will trust the people they elected and let us proceed. Let's get on with it and allow Council, the Committees of the Association, and the membership in general to start focusing on other things like enforcement, like knitting the Student/EIT/P.Eng. process more carefully together, like supporting the University.

Blatz: This coming year will see new Geoscientist members joining the Association. How do you plan to welcome these new members and how will you be examining their needs in your capacity as President?

Britton: The Geoscientists have recently been incorporated in Saskatchewan so we've got a recent history of the process to look at. They have

University News

By: N. Bassim, P. Eng.

The Canadian Foundation for Innovation has accepted a proposal from the Department of Biosystems Engineering for \$ 3,850,000 for a facility for research in grain storage.

Professor M. Chaturvedi of the Faculty of Engineering has received \$346,000 for upgrading an electron microscope.



been a historic part in Alberta so we've got a historic base to work from there. We certainly don't intend to re-invent the wheel. We have put in place a number of committees of Geoscientists to address admissions, and the questions of grandparenting and dealing with a non-accredited educational system. We want the Geoscientists and other Associations to give us their input to help us make this as painless and seamless as we can. There is a lot of enthusiasm amongst the Geoscientists out there. There is also some resistance. We are going to have to count on the Geoscientists to help integrate themselves into the profession. What I want to do is facilitate the process. We have one elected Councillor with a Geosciences background, John MacLeod, and we have appointed two Geoscientists who are not registered in Manitoba and they will serve on Council for the next two years. Hopefully they will provide us with the perspective of the Geoscientists during the transition.

Blatz: How do you plan to make the current members aware of the boundaries between Geoscience and Engineering so that the roles will be well defined on projects where the two groups will be interacting?

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Professional Development

Strategic Advantages of Doing Business on the Internet

By: J. Blatz, EIT

With the revolution in the personal computer industry over the past decade, it is unusual to hear of someone who doesn't know about the Internet. The Internet, which has been described in many different ways, appears as a conglomeration of networks into one huge network that allows home users to communicate with people anywhere in the world in a number of different forms, with little effort. Businesses have been driving, and are continuing to drive, the content of the Internet by trying to increase their exposure and productivity through Internet commerce. The August 19 Professional Development Breakfast meeting showcased Kerry Augustine, I.S.P., of PricewaterhouseCoopers, who gave an extremely informative presentation which addressed the current trend of Internet and e-business. The talk was titled "Strategic Advantages of Doing Business on the Internet", and covered everything from network strategies to business objectives and planning for launching an Internet presence.

The presentation began with a brief overview of the layout of intranets and the Internet, focussing on the definitions and showing pictorial examples of what each physical network architecture represented. The presenter then discussed how businesses could benefit from using the Internet as a communication medium for both its

suppliers and customers. The pitfalls of traditional business avenues that can be overcome using the Web were also explained. Some staggering predictions and statistics were presented, one of which stated that the expected value of Internet transactions for 2005 will exceed \$1.25 trillion. Sample WebPages were shown, illustrating successful marketing and use of the Internet to target specific consumer groups. The last few minutes of the presentation detailed some of the security issues and technical limitations that are still being examined, as well as a summary of observations made regarding the growth and development of the Internet. One of the slides shown included a statement that drives home the message of the presentation: "The Internet will have a greater impact on business and society than the telephone."

The message and information presented in the talk made it very clear that the Internet is a very powerful tool that can be used by businesses to expand their marketplace. The examples cited of



Kerry Augustine discusses Internet Opportunities.

both business-to-business and business-to-consumer transaction applications showed the benefits that can be gained by proper implementation of Internet development strategies. The presenter mentioned that anyone with five years of Internet-related experience could be considered an Internet expert considering that its use for business and private communications has only really been available for five or so years. In light of the rapid growth and development of the Internet that has taken place over such a very short time, it is difficult, but exciting, to think of where the Internet will take us in the coming years. □

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

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

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

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

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

If you are unable to comply in any respect with these requirements, or if the Association's

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

Thesis Day – Are You Interested in Being a Second Reader (External Examiner)?

The Department of Electrical and Computer Engineering at the University of Manitoba has scheduled the 4th Year Thesis Day for Friday, March 19, 1999. In preparation for this day, we are inviting professional engineers in the community to come and join us in the judging of undergraduate presentations.

If you are interested in taking part, please contact:

Judy Noble, ph. 474-9603, or
e-mail: jnoble@ee.umanitoba.ca



Manitoba Engineers Recognized for 1997 Flood-Fighting Efforts

By: J. Blatz, EIT

The Canadian Geotechnical Society (CGS) held its annual national conference in Edmonton, Alberta, October 5 to 7, 1998. CGS is a constituent learned society of the Engineering Institute Of Canada (EIC), with 50 to 55 active members in Manitoba. The national society has about 1400 members representing both Geotechnical Engineering and the Geosciences. Its President is Dr. James Graham, P.Eng., of the University of Manitoba. The society, with the involvement of the National Research Council as publisher, produces the *Canadian Geotechnical Journal* – one of the most highly regarded geotechnical journals in the world.

Approximately 250 engineers from across Canada and six other countries attended this year's conference. This conference included 11 technical sessions spanning the three days and covering all areas of geotechnique. It also pre-

sented a professional-development seminar dealing with claims and claims management.

A component of this conference that was somewhat different was a special session dedicated to the 1997 Manitoba Flood. The Manitoba Flood Session was presented by three Manitoba professional engineers who discussed various components of the flood-fighting efforts. The first speaker, UMA Engineering's Ken Skaftfeld, P.Eng., detailed the placing of seven million sandbags as secondary dykes and the construction of 22 km of clay dykes (600,000 cu. m.) within city limits. Bill Fisher, P.Eng., of Hugh Munro Construction Ltd., described the construction of the Z Dyke, showing a short film and commentary. KGS Group's Dr. Rob Kenyon, P.Eng., detailed the formation and operation of the Geotechnical Emergency Response Team (GERT), a geotechnical engineering "swat" team formed by the City of Winnipeg to provide im-

mediate technical response to dyking problems during the flood peak.

The audience response was one of amazement at the feats which were accomplished in terms of emergency construction, emergency decision-making, and crisis management. The questions and discussion continued long into the evening following the presentation, a tribute to the Manitoba geotechnical community.

Thanks to those involved, and congratulations for a job well done. □

October Council Meeting

Continued from Page 8

As was the case at the last meeting, Council dealt with another registration issue regarding a former member, Mr. G.A. Smith. The Registration Committee had refused to re-instate Mr. Smith until he wrote the Professional Practice Examination, a decision Mr. Smith appealed to Council, as was his right. No details surrounding the case were presented at this meeting, except that someone needed to set a date and determine whether APEGM should have legal representation there.

One of the last items at this meeting was a review of correspondence from two APEGM members. These letters were presented at the September meeting and no particular action was deemed necessary, but now the question arose about what Council should do with this type of presentation. One member's letter consisted of a document enumerating the alleged evils of water fluoridation. He felt that engineers bore some ethical burden in this process, because he deemed it a public safety issue. Since the letter was addressed directly to CCPE and the APEGM copied, Council felt that no further action was necessary. Councillor Pollard also felt that it was a public health issue.

The second member's letter was from the Chairman of The Due Diligence Committee (Self Appointed). This member made reference to the MAA suit and seemed to imply that APEGM was suppressing publication of the court ruling in some way. He made a case, although a circuitous one, that its contents could be useful in dealings with architects. He felt that President Washchyshyn was remiss in not mentioning the court case in his President's Message column. President Washchyshyn thought this member didn't project a professional tone in his communications and so President Washchyshyn wasn't inclined to answer. In the end, Council decided that no direct response was required, in either case, on this occasion.

Finally, the meeting ended with a short farewell speech from Councillor Symonds, who was concluding a six-year stint with APEGM and retreating back into the business world. He said how much he enjoyed his time with the Association and how even the tough times were enjoyable. At this time Councillor Symonds conjured up several vessels of bubbly which he dispensed to the gathering. Thank you, Councillor Symonds, for your distinguished service to APEGM. □



Rob Kenyon (l), Ken Skaftfeld, and Bill Fisher (r) discuss Manitoba's 1997 flood-fighting efforts.

Attention, Employers

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

On January 1, 1995, this Association implemented a mandatory Pre-Registration Program for engineering graduates and immigrant engineers. Under this program, engineering graduates are required to be enrolled as EITs with this Association **while they obtain four years' acceptable engineering work experience**, which is monitored by this Association's Experience Review Committee.

Even though significant efforts are made by this Association to apprise engineering students at the University of Manitoba of this requirement, there are still engineering graduates who are not enrolling as EITs at the commencement of their work experience in Manitoba. There are also graduates of other universities in Canada

who come to work in Manitoba and who cannot be expected to know this Association's requirements.

Unfortunately, the **experience obtained before enrollment as an EIT is not considered acceptable.**

Please ensure that any engineering graduates in your employ are enrolled with this Association, to enable their work experience to "count" toward registration.

Note: this requirement will also pertain to geoscience graduates, once this association commences with their registration – which will be early in 1999. There will likely be a "grand-parenting" policy for geoscience graduates, as we bring them into the fold – but, ultimately, this policy will affect them, too. Please ensure, therefore, that any geoscience graduates in your employ are apprised that they will have to be enrolled as Geoscientists-in-Training, and have them call this office to request an application. □

Technological Entrepreneurship and Engineering in Canada

Continued from Page 2

lem identification, enormous power to focus, vivid imagination, sales ability, and good communication) these make a potent combination which results in successes that are difficult for others to match."

The winning formula involves several characteristics of the entrepreneur: total commitment to the task at hand involving personal sacrifices, constant pressure, and stress; compulsive focus on customer satisfaction; insatiable interest in how things are done; and overall focus on all aspects of the business.

Canada's position relative to other advanced countries is affected by the structure of the Canadian economy, the tax system, and the difficulties of raising sufficient capital at the early stages of technology ventures – the financial gap. More knowledge is needed in managing, incubating, and growing knowledge-based industries. A chapter covers the financing of innovation showing the investment spectrum and the needs for different sources of investment in the innovation chain, from the idea, the R&D, and product development to production and distribution.

The investor looks first to sound management, good technology, and a promising market. Entrepreneurs should choose investors carefully. They should look for more than money; they should select investors with an active interest in having the venture be a commercial success, and with a background of personal business acumen to serve as advisors.

While this report commends the importance of innovative activity, there is no criticism of the banking system which has done little to assist the SMEs, being afraid to take risks with start-up companies. Nor is there criticism of government

where bungling has shelved many promising developments.

This brief Book Review must of necessity be broad-brush coverage. There is a section on case histories, on the Canadian Innovation Environment covering the Canadian Technology Network and the Industrial Research Assistance Program.

In the United States in 1977, the Small Business Innovation Research Program (SBIR) was initiated by associates at the National Science Foundation. SBIR provides grants to SMEs in three stages in amounts varying with the scientific and technical merit, and may reach U.S. \$850,000 per project. In effect, government, which now backs the program, will fund up to 100% of the costs plus a percentage for profits.

Although large firms produce most of the U.S. GDP, small firms are reported to develop six times more new products. The SBIR formula has been working for 20 years to convert government R&D results quickly into jobs. It encourages entrepreneurs to take risks and start businesses, forging partnerships between government, small-tech firms, universities, and private investors.

The response has been exceptional: 25,000 proposals are submitted annually, and more than 250,000 have been received since 1983 – all from firms with less than 500 employees. 465 of the recipients had fewer than 10 employees; 50% were firms less than 10 years old; and 51% had university affiliations. New products resulted in 40,000 awards to some 8,000 companies, for a total of \$6 billion to date. "The project value of accumulated SBIR-related investments exceeds U.S. \$50 billion!" "Needless to say, the government gets far more in return!" Canada is interested in a similar program.

Comments are also given on creation of innovative firms through spin-offs, and of entrepreneurship via the Internet. There is much, much more, but I hope this review will give you some idea why I recommend this book to the entrepreneurs amongst us. □

New President

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Britton: The distinction between the two professions will probably end up being handled very much like the distinction between architecture and engineering. There are clear lines of responsibility between the two professions. The beauty of it, now, is that it will be an internal issue, and it won't involve external relationships like we have with the Land Surveyors, the Architects, the Landscape Architects, and the Technologists and Technicians. We've got dispute-settling mechanisms externally with these four groups. We will now have in-house dispute-handling mechanisms which can deal with the definitions for Geoscientists. Practice Guidelines, I suspect, will grow. Hopefully by this time next year the Geoscientists will be fully integrated. As Council learns more about the differences and distinction between the professions, then we will be in a position to communicate that better through the new communication vehicle. There is a new name coming to Council for approval. Our publication will no longer be "The Manitoba Professional Engineer." This should help everyone realize that this is an integrated organization.

Blatz: What are your comments on the progress and success of the current APEGM four-year EIT program? Do you see APEGM continuing with this program or moving back to a two-year program such as PEO has recently done?

Britton: I think moving back to a two-year program would be analogous to stepping firmly back into the 1960s. The EITs I have talked to think that this program provides them with a much better experience base to work from. The new EIT program is a good one. It has other advantages as well, such as homogenization with the American system. If we are ever going to be able to get free trade across the border, four years is a requirement. We will continue with the four-year program as I think it is good for the profession. I believe we have a selling job to do with employers, which is part of the broader enforcement picture. I think that in some employers' minds the extended EIT program is a penalty. We as a profession have to go to those employers and make them realize that this is not the case. I think we are turning out a quality product (which is what we are intending to do). I personally feel comfortable with the quality of the new registrants, and I think they understand the profession and their responsibilities. I think people my age could learn a lot from them, quite frankly.

Blatz: Do you have any final comments you would like to pass on to the membership about becoming President?

Britton: It's an honour, and at the same time, frightening. It's also very exciting. The opportunity of meeting people at events gives you a very different perspective. I can take that experience back to the classroom. I take a lot from the Council meetings to use in my classes. It probably means that it is another year where I will be defined as a golfer who owns clubs rather than a golfer who uses them, and I guess I won't get as many books read. Hopefully, I will keep the grass cut! □



Call for Entries, CCPE National Scholarships

Six cash prizes totaling \$52,500 will reward excellence in the Canadian engineering profession and support advanced studies and research. The following scholarships will be awarded:

- Three CCPE-Manulife Financial Scholarships valued at \$10,000 each will provide financial assistance to engineers returning to university for further study or research in an engineering field.
- Two CCPE-Meloche Monnex Scholarships of \$7,500 each will support engineers returning to university for further study or research in a field other than engineering. The field of study should favour the acquisition of knowledge which enhances performance in the engineering profession.
- A CCPE-Encon Endowment of \$7,500 will be awarded to a professional engineer pursuing studies in the area of engineering failure investigation, risk management, and/or materials testing.

The deadline for applications is April 1, 1999.

For an application form, please contact the APEGM office. For more information please contact Lynn Villeneuve, CCPE Member Services Assistant, (613) 232-2474, ext. 246 e-mail lynn.villeneuve@ccpe.ca or fax (613) 230-5759.