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THE KEYSTONE PROFESSIONAL

In This Issue:

APEGM The Association of Professional Engineers and Geoscientists of the Province of Manitoba

JUNE 2006
www.apegm.mb.ca

2006 Consulting Engineers of Manitoba Awards of Excellence

N.J. Kelly, P.Eng.

A celebration of engineering achievements by members of the Manitoba Consulting Engineering industry took place April 20 at the 7th Annual Manitoba Awards of Excellence in Consulting Engineering held at the Winnipeg Convention Centre. Winners were announced at a dinner attended by over 300 guests including representatives of the engineering industry, government and Manitoba's business community.

Hosted by the Consulting Engineers of Manitoba (CEM), this prestigious annual event recognizes the achievements of consulting engineers in Manitoba, their contributions to society and serves as a prominent showcase of the industry's outstanding products and services. The CEM Awards were, by popular demand, hosted by Master of Ceremonies Mr. Peter Jordan, Gemini-award winning television personality with CBC television. Musical performance throughout the evening was provided by the David Lawton Jazz Quartet. Elizabeth Murray, "honourary piper" to Queen Elizabeth II, piped in the dignitaries during their entrance to the Awards ceremonies.

Seventeen projects, ranging in size and complexity, were submitted by consulting engineering firms in one or more award categories. From this selection, Awards of Excellence and Merit were presented in five categories: Building Engineering, Infrastructure, Industrial, Environmental, and Innovation. Projects ranged from large, high profile projects to equally impressive projects with significant engineering challenges, yet less public profile. Collectively, the projects in contention provided a good cross-section of the various areas of expertise that CEM Member Firms apply to assignments benefiting Manitobans and also to other assignments in markets across Canada and in countries throughout the world.

Presenter Roy McPhail, P. Eng. and 2006 Lifetime Achievement Award Winner Alv Dyregov, P. Eng.

Judging was conducted by a "Blue Ribbon" panel of esteemed independent industry professionals, chaired by the University of Manitoba's Dean of Graduate Studies, Dr. Jay Doering P. Eng. . The judging panel included Barry MacBride, P. Eng., City of Winnipeg, Dr. Doug Ruth, P. Eng., Dean of Engineering, University of Manitoba, Dr. James Blatz, P. Eng. of the University of Manitoba, Lawrence Ferchoff, P. Eng., past-president of APEGM, Dr. Digvir Jayas, P. Eng. University of Manitoba, Jim Thomson, P. Eng. of the Manitoba Floodway Authority, John Markowsky, P. Eng. of Manitoba Hydro, and Bill Larkin, P. Eng. of the City of Winnipeg. Each project was subjected to a critical review and was evaluated on its demonstration of seven key areas: innovation, added value, advancement of technology, technical excellence, degree of difficulty, management of risk, and most importantly, benefit to society.

Keystone Award – Crosier Kilgour & Partners Ltd. – The Millennium Library Project and presenters George Esau, Oldfield Kirby Esau Inc, and Jill Eagleson, XL Insurance, CEM Title Sponsors. Crosier also received an Award of Excellence in the Building Engineering category presented by Ron Hambley and John Bockstael representing sponsor Winnipeg Construction Association.

Presenter and CEM President-Elect Roger Rempel, P. Eng. and 2006 Engineering Action Award winner John Woods, P. Eng.

As is CEM tradition, the Keystone Award, an overall "Best of Event" award, was presented to the project that best demonstrated the standards of excellence in product and service upheld by the Awards of Excellence Program. In addition, two individual honours were bestowed upon CEM members – the recently instituted "Engineering Action Award" signifying outstanding service and dedication to CEM, the Canadian consulting engineering profession and the community

Continued on page 6

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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 topics that would be of interest to the membership.

Publications Mail Agreement Number 40062980

New Members Registered March & April 2006

K.S. Amy	J.L.G. Croteau (QC)	D.A. Marshall (SK)	S.V. Shah
K.A. Basaraba (AB)	S.L.B. Dolyniuk	I.B. Milne (AB)	T.L. Sondresen (SK)
A.N. Baskin	T.A. Habtemariam	L.A. Morgan (ON)	B.J. Soriano
Y.G. Bergeron (QC)	M.D. Haug (SK)	R.F. Nichols (BC)	Y. St-Jacques
S.A. Bezak	W.A. Heywood (SK)	T.R. Nyabeze	M.J. Tinholt
D.E.W Blakely (AB)	T.N.J. Hughes (BC)	D.A. Opseth (SK)	D.A. Van Nes
K.L.W.L. Chandrasena	A. Iskander (AB)	J.D.T. Rimmer	C.A. Wagg (ON)
J.A. Chimko	F. Jian	P.D. Robertson	Y.M.F. Wahba (ON)
J. Coulson (ON)	S. Lecompte (QC)	J.W. Rodger (NS)	H. Yang
	J.J. Malkoske	S.A. Sadler	

Licensees Enrolled March & April 2006

M.L. Snowden (OK)

Members-In-Training Enrolled March & April 2006

A.M. Butcher	M.D. Kulchycki	L.T. McLeod	S.D. Parrott
M. Capano	M.V. Laganse	T.C.S. McPhail	S.B.J. Peters
A.L Chakraborty	M.C.M. Lam	J.J. Melendez	S.M. Ullah
M.S. Enzlberger	W. Liu	S. Mitra	S.M. Wang
D.A.L. Evenson	D.R.P.	W.S. Muhandiram	M.R. Weselowski
S.J. Friesen Reed	Lokugonaduwage	L. Mulugeta	S.H. Zaenali
R.C. Holatko	G.D. Marjovsky	A.G. Nernberg	
A.R. Komus	D.W. McLarty	L.T.A. Nguyen	

Reinstatements March & April 2006

T.P. Pohjoisrinne

Members Deregistered April 1, 2006

A.T. Abrera	R. Deziel	C.A. McDowall	R.C. Somerville
R.D. Allen	I.A.S. Elkholy	B.L. McIntosh	B.R. St. Amant
A. Anand	M.I. Elnaggar	M. Mitchell	J.D. Stidwill
D.J. Barkman	D.H. Goritz	D.M. Nagasaka	A. von Eppinghoven
R.E. Barrett	O.G. Gutierrez	H.V. Paul	M.W. Wickham
R. Bartel	J.S. Jonasson	C.A. Pugliese	A.N. Wilson
W.L. Binger	R.J. Kachulak	L. Sedore	G.K. Yuill
L.B. Birdsell	C.A. Kaszycki	L.B. Shulakewych	W.A. Zemlak
G.A. Bosgoed	D.A. Koverzin	E. Shwedyk	
S.B. Campbell	V.P.H. Liu	R.J. Slade	
A.P. Cyriac	G.A. Martinez	K.R. Snelgrove	

Resignations as of January 1, 2006

D. D'Amour	J.G. Dickin	A. Grice	G.M. Pankiw
S.G. Barnett	M. Dobran	R. Hand	M.D. Rusk
R.J. Blanchard	J. Duguay	W. H. Karolat	J. Siefken
R. Bojovic	R. Dyck	E.J. Klein	L. Stepnuk
R. Brunke	D.G. Fawcett	J. McMurry	D.A. Stewart
B. Caldwell	E. Garay	B.B. Mills	J. Subbiah
K. Colcomb	K.L. Gompf	M. Narsing	

Members-In-Training Removed from Enrollment April 1, 2006

S.X. Arkia	J.V. Catris	C.W. Hanuschak	T.J. Mryglod
A.P. Baquiran	K.W.G. Chalmers	J.B.D. Koehler	S.D. Philopulos
A.G. Bowen	D.T.L. Colonval	R.J. McCormack	J.M. Plohman
H.L.A. Brojges	Y. Doustshenas	D.C. McGee	
A. Castro	J.D. Ferriss	R.P. Mejia	

Certificates of Authorization March & April 2006

4330226 Canada Inc.
Can-Tec Services Ltd.
Design, Construction & Inspection
G - MECH Engineering Inc.
Hatch Mott MacDonald, Ltd.
Ininew Limited Partnership
Integrated Distribution Systems LP DBA Waterous Power Systems
Jacques Whitford Limited
J.M. Giffin Engineering Inc.
Opresnik Engineering Consultants Inc.

President's Message

Dr. Digvir S. Jayas, P.Eng.

Enhancing Our Visibility

Engineers have played a major role in the development of civilization; however, they have done it silently. The resulting "invisibility" raises some questions that point to a need for increased public awareness. When scientists and engineers land on the moon, why is this called a scientific achievement instead of a scientific and engineering achievement? Why is the typical Science Fair not called the Science and Engineering Fair when a significant portion of the projects developed by students are "engineering" projects?

Are you aware that without the intervention of engineers in the late seventies, the Natural Sciences and Engineering Research Council of Canada would have been called the Natural Sciences Research Council of Canada? With public perceptions like these, there is a definite and continuing need to inform and educate the general public on the contributions and roles that engineers play in their lives. How then can we enhance the visibility of engineering and geoscience and help the public understand what professionals do and when their services should be sought?

Imagine, as one means, a beautiful building where school children could tour and view the achievements of engineers and geoscientists from Manitoba, Canada and the world. Imagine a place where the general public could rent space and attend receptions and events and come to appreciate engineering marvels. If such a building were named, *The Engineering Achievement Building*, or some other name with the word "engineering" in it, then everyone would remember that they went to an engineering building and learned about engineering accomplishments.

The Engineering Achievement Building could be compartmentalized to focus on aspects of our lives that depend on engineering and geoscience and to show engineering achievements related to each of these aspects. For example, the *Building* could have sections focused around communication, food production, clothing, shelter, energy, transportation, exploration of the earth and other planets, etc. This is not an inclusive list. The *Building* could be designed with expansion in mind and could be developed in stages. The *Building* could also commemorate and honour prominent Manitoba engineers and geoscientists.

The obvious question is how can we finance such a *Building?* It will require a major fund-raising effort. Engineering has played a major role in your life. You have a passion for engineering. What value do you place on your commitment to engineering? Can you contribute between $1000 and $2000 in honour of your profession, to be distributed over three years as a charitable donation? Can you convince your employer to contribute to this cause? We would also need to convince the municipal, provincial and federal governments to contribute to the project. Highlighting engineering achievements should be seen as both a cultural and an educational enrichment.

Do you, as a member, see a need for such a *Building* to enhance the image of the engineering profession? Do you see a need to rename the Science Fair to the Science and Engineering Fair? Do you have other ideas to enhance the visibility of the professions? Please e-mail me with your thoughts at digvir_jayas @umanitoba.ca or write to me at the APEGM address. Your input and involvement are critical! ■

APEGM Annual General Meeting

Grant Koropatnick, P. Eng., Secretary

The 2006 Annual General Meeting of the Association of Professional Engineers and Geoscientists of the Province of Manitoba will be held on Saturday, October 28, 2006, at St. Joseph's Hall, 340 Juniper Drive, THOMPSON MB, R8N 2B1 Ph. 778-7547.

NOMINATIONS FOR ELECTION TO THE COUNCIL

Members of Council whose term of office continues for another year are:

M. T. (TIM) CORKERY, P.GEO.;
W. C. (BILL) GIRLING, P.ENG.;
D. D. J. (DON) HIMBEAULT, P.ENG.;
B. R. (BOB) MALENKO, P.ENG.;
ROBYN L. TAYLOR, P.ENG.

Members of Council whose term of office expires at the 2006 Annual General Meeting are:

JAMES A. BLATZ, P.ENG.;
DIGVIR S. JAYAS, P.ENG.
(Will continue as Past President);
J. W. PATRICK LENGYEL, P.GEO.;
B.J. (JIM) MILLER, P.ENG.;
EDWARD M. RYCZKOWSKI, P.ENG.

Those nominated for election to the **FOUR PROFESSIONAL ENGINEER** positions on the Council are:

JAMES A. BLATZ, P.ENG.;
B.J. (JIM) MILLER, P.ENG.;
EDWARD M. RYCZKOWSKI, P.ENG.;
JOHN C. WOODS, P.ENG.

Those nominated for election to the ONE PROFESSIONAL **GEOSCIENTIST** position on the Council are:

(One to be nominated)

Additional nominations may be made by the membership. Nomination forms are available from the Association office. The consent of the nominee must be obtained, and the nominator and six other members must sign the nomination form. Nominations must be received in the Association office on or before Friday, September 15, 2006. Each completed nomination form must be accompanied by the nominee's resume, a history of the nominee's Association activities and the nominee's platform (not to exceed 100 words). Forms for the resume are also available from the Association office.

BY-LAW CHANGES

By-law 17.1 prescribes that any proposal to introduce new By-laws, or to repeal or amend existing By-laws, at a duly convened meeting of the Association must, unless initiated by the Council, be signed by not fewer than six members. Proposals must be given to the secretary at least 45 days before that meeting. In this case the date for the receipt of a proposal is **Wednesday, September 13, 2006.**

RESOLUTIONS

By-law 5.1.4 prescribes that resolutions put forward at an annual general meeting must be in writing, signed by the mover and seconder and received by the Secretary no less than 48 hours prior to the commencement of the meeting. Either the mover or the seconder must be present in person or by distance conferencing at the meeting for the resolution to be considered. ■

In Memoriam

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

Walter Naumko Thomas Harold Gillman

Mining's Back at the Prospectors and Developers Annual Convention

N. Soonawala, Ph.D., P.Geo (Ret)

A premiere event on the calendar of Canada's mineral exploration community, the annual convention of the Prospectors and Developers Association of Canada (PDAC), was held at the Metro Toronto Convention Centre, March 5 through 8, 2006. This 74th annual convention attracted over 14 500 attendees. Generations of Canadian explorationists have gone to PDAC conventions to network, learn about the leading mineral exploration plays of the year from around the world, catch up on the latest government policies, learn about developments in the science of mineral exploration, see the newest exploration equipment, get a feel for the mining investment market, and also, partake in the pleasures of the conventions' famed hospitality suites.

PDAC conventions are focal points not only for Canadians, but also for the international mining community which recognizes Canada's leading role in the industry world wide. Sixty-five percent of all the world's public mining companies are listed on the Toronto and Vancouver stock exchanges. Ontario alone attracts about 8 percent of the world's total mineral exploration spending, and Manitoba is also a world class exploration destination. This year's convention welcomed delegates from about 100 countries, including official delegations from 40 countries which were headed by senior government officials.

The theme of the keynote session was *Mining's Back*. The first speaker at the session was the Federal Minister of Natural Resources, Gary Lunn, who at that time, had been on the job for only 28 days. He touched on the need to reduce regulatory red tape, deal with a looming shortage of qualified personnel and the need for more exploration, all without compromising environmental standards. The need for new, younger talent was also noted by Peter Dimmell, the president of PDAC. The generation of highly educated geoscientists, technicians and engineers, which led the industry over the past thirty to forty years, is about to retire. Unfortunately, mineral exploration sciences are not as popular with today's students as they once were. The PDAC student affairs committee, in its efforts to encourage students to work in the industry, organized a successful student-industry networking lunch which attracted 250 students and industry representatives.

Aboriginal participation in the mineral industry was highlighted by case histories from Quebec, Labrador, Ontario, British Columbia and Northwest Territories of exploration plays for diamonds, nickel, aggregates and other commodities. Presentations from Latin America covered geological and business aspects of activities in Chile, Mexico, Brazil, Bolivia, Ecuador, Guatemala and Peru. Canadian companies spoke about their successes within Canada as well as in their projects overseas including in post-Soviet Mongolia. The session on exploration geophysics presented information on new geophysical techniques and case histories of their use.

The Investors Exchange was a mining investment show held for the benefit of investors who may be interested in investing in the mining industry. Exhibitors included mining companies, stock exchanges, brokers and financial institutions with mining interests. The Trade Show displayed equipment and services offered by industries that support mineral exploration; some examples include air transportation, drilling, geophysical services, analytical laboratories, software companies, and law firms.

Finally, there was a glittering awards evening where recipients of PDAC's annual awards were recognized and honoured for their achievements in the industry or their contributions to PDAC. ■

(Compiled from material on PDAC website and Winnipeg Free Press of March 7, 2006)

Council Report

Thursday, March 9, 2006 *A.D. Erhardt, EIT*

After the usual introductions and approval of the agenda, the Council meeting came to order just after 11 a.m. Things began with an additional agenda item in regards to the University of Manitoba Engineering Society. Councillor James Blatz has been asked to serve as a faculty representative for UMES. The discussion drifted towards the location of the Engineering and Geoscience Week "Proclamation". Several ideas were thrown into the ring for future sites including the new engineering building, the legislature and the atrium of the new Manitoba Hydro building. All of the suggestions were to be forwarded on to the Provincial Engineering and Geoscience Week committee for future debate.

Following some Council monitoring maintenance, the debate of the "looking to exempt" policy for geoscientists began. A brief summary of the issue was presented and ideas were discussed. The policy would apply to geoscientists of specific graduating classes following the addition of geoscientists to the Association. This policy would allow the Academic Review Committee to determine whether or not an applicant was eligible for the exemption. After the debate, Council approved the policy unanimously.

Discussions then moved on to the Home Inspectors Association (HIA) issue. A draft of a memorandum of understanding between APEGM and the HIA has been drafted and is awaiting review by both Council and legal counsel. The content of a potential brochure along with how to distribute the information was discussed, with the main concerns being liability and safeguarding the public. Council was in favour of the MOU and brochure in principle, subject to the review and approval by legal counsel.

After reviewing some updates and revisions to existing bylaws, Council reviewed a memorandum from three other Canadian associations in regards to inter-association mobility for members. The memo invites other associations across Canada to drop the "notwithstanding clause" from the previous agreement which dates back to 1999. After considering how this would relate to the Engineering and Geoscientific Professions Act, it was decided that APEGM could not endorse the memo as it usurped the authority of the Registration Committee.

A current APEGM member forwarded a suggestion for a professional stamp design that is distinctive to Manitoba. Executive Director, Grant Koropatnick, directed Council to develop a subcommittee to examine the issue and its viability. Following some general administrative issues and the review of councillor assignments to a variety of engineering committees, the meeting adjourned shortly before 2:30 p.m. ■

Editor's Note

There were two typographical errors on page 3 of the April issue of The Keystone Professional. Building Alternatives Inc. is located in Anola, MB. The name under the photo for the Professional-in-Training.Award is Timothy J. Krahn.

CCPE CEO's Message

Marie Lemay, P.Eng.

Adapting to a Changing Climate

Climate change is a significant shift in the variability, average or extremes of climatic conditions for a specific location and over a period of time.

Thorough international scientific research supports the theory that the earth's climate is changing. There is also growing confidence that the impact of climate change poses a legitimate threat to public safety and economic sustainability, which has a profound affect on the way we live and work.

I believe that, as professional engineers we have a responsibility to effectively manage the risks associated with the changing climate and its impact on the public.

From an engineering perspective, climate change will necessitate changes to building codes, engineering practices and standards, affect the way facilities are designed, and ultimately alter the economic lifespan of infrastructure and thereby impact commerce and industry. Severe weather events also threaten public safety and welfare.

Regional changes in climate are already affecting specific industries. For example, in Canada's northern regions, winter ice roads are becoming less viable and disappearing permafrost is affecting pipelines and mining operations. In the future, decreased rainfall may lower water levels in the Great Lakes, meaning that ships will not be able to carry as much cargo, resulting in increased shipping costs. Reduced water availability will also decrease the production of hydroelectric power. Flash flooding may damage, or even destroy, valuable federal, provincial or municipal infrastructure as well as private property. Changing weather patterns may decrease aridity, affecting our farms and forests through reduced harvests, increased diseases, pest infestations, and more forest fires.

These are just a few examples of how the impacts of a changing climate will require adjustments to the practice of engineering. Engineers in all disciplines will need to consider how to design, build, operate, and maintain infrastructure that can withstand or reduce the impact of current and future climatic changes and increasingly frequent and severe weather events.

Mitigation, which might involve the use of more efficient, clean, and green technologies, can help slow the rate of climate change. Such actions produce many benefits, including greenhouse gas reduction.

But, while *mitigation* is sound engineering practice, CCPE believes that engineers must go one step further. Engineers must proactively adapt their designs and infrastructure strategies by developing long-term approaches that actively consider shifts in the severity and frequency of changing weather patterns.

Since February 2004, CCPE has been working on a national Climate Change Impacts and Adaptation Action Plan (CCAP) in cooperation with its 12 constituent members (CMs). This plan involves collaborative communication with outreach and education strategies to identify long-term solutions to climate change.

One initiative within our action plan is the creation of the Public Infrastructure Engineering Vulnerability Committee (PIEVC). Spearheaded by CCPE, PIEVC is a national committee comprised of senior level representatives from all three orders of government as well as key non-governmental organizations.

PIEVC's mandate is to facilitate an assessment of the vulnerability of Canada's public infrastructure to the impacts of climate change. Subject to available funding, PIEVC plans to produce a final report on the vulnerability of Canada's infrastructure and subsequently will provide direction to engineers on what must be done to reduce these vulnerabilities to a tolerable level.

In addition to the action plan, CCPE has developed close working relationships with several federal government departments that share our concerns about the sustainability of our environment and infrastructure.

Educating fellow engineers, engineering students, and the public, to raise awareness about our changing climate is extremely important and CCPE has taken a lead in this area.

CCPE has developed an extensive and informative PowerPoint presentation on climate change and its effects, which is available to all CMs. This presentation has recently been delivered at several CM annual general meetings. CCPE's goal is to maximize the use of this educational tool by having our CMs communicate and share the presentation with their regional chapters.

Finally, CCPE is contributing to the upcoming EIC Climate Change Technology Conference, taking place in Ottawa from May 9-12, 2006. During this educational conference, a number of highly regarded experts will offer revealing views about climate change and its effects. For more, please visit www.ccc2006.ca.

If you have any suggestions on how your specific engineering discipline or practice can best adapt to the changing climate, the profession would like to hear from you. Please contact your provincial or territorial licensing body. You may also send your feedback to David Lapp, P.Eng., CCPE's Manager, Professional Practice, at david.lapp@ccpe.ca

As engineers, we must not ignore this important issue that will affect how engineering is practiced for generations to come. We must collectively develop, incorporate, and integrate long-term sustainable engineering practices that will adapt to the impact of a changing climate. ■

2006 AGM Notice

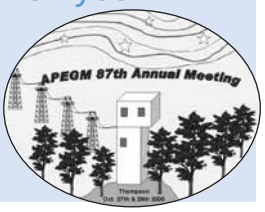
The 87th Annual General Meeting of the Association of Professional Engineers and Geoscientists of Manitoba will be held in Thompson on October 27-28, 2006.

This year marks the 50th Anniversary of the discovery of the Thompson ore body and the start of the community of Thompson. On the eve of significant hydro projects and new road construction to link the province to Nunavut, the future is exciting. This is a wonderful time to celebrate life in the North and recognize the contribution of Engineering and Geoscience to the community of Thompson and our province.

AGM activities will include a Professional Development Conference, Industrial Facility Tours, a Gala Dinner, as well as the AGM Business Meeting. A companion program is also being organized. More information will be provided in the *Keystone Professional* September issue and on the APEGM website.

Mark down October 27-28th on your calendar! See you soon!

The AGM Organizing Committee



Executive Director's Message

Grant Koropatnick, P.Eng.

Dilbert is No Blockhead

I like the Dilbert cartoon. I always have. It's not because Dilbert is an engineer. No, it's because he is a geeky guy who understands the human dynamics around him when everyone expects otherwise. Does that sound a bit familiar? Many times, engineers understand what is going on around them but the people around them don't. Sometimes we struggle to accurately convey to others what we are thinking and what we are doing.

Engineers have amassed a great amount of knowledge and wisdom down through the centuries. We have solved many scientific mysteries and have contributed to the safety, comfort and well-being of societies all over the world and continue to do so. However, something which we have been slow to develop is the political savvy amongst the decision makers in those societies. Similar to Dilbert, engineers tend to state a position and defend that position with strong logic, facts and well crafted words often at the expense of their careers. Dilbert delivers his accurate analysis, but "Big Boss" is on a different wavelength and frequently ignores or misunderstands him. Wouldn't it be a different spin to see Dilbert buying Big Boss a beer at the local pub? Or teeing up a ball with Big Boss on the links? I've never seen those scenarios in a Dilbert cartoon strip, but it doesn't mean that they're not possible in reality.

Recently, the Canadian Council of Professional Engineers initiated the **"BGE Project – Bridging Government and Engineers."** It was highlighted on page 5 of the April Keystone Professional. Some APEGM members will be called upon to participate in the BGE Project with our federal MPs, but we need a similar provincially focused effort. What if we began such a project here in Manitoba with our provincial politicians? Are there any engineers and geoscientists out there that would like to shoot a round of golf with their local MLA? Or perhaps take some time to invite their MLA out for a coffee, glass of beer, breakfast or lunch? I realize this may sound intimidating to some of you, but don't sell yourself short. It's not as hard as you may think.

If schmoozing with your MLA or MP doesn't sound like something you're ready for, then what about cultivating your political skills by serving on an APEGM committee. It's not that difficult. The committees provide lots of opportunity to meet and greet fellow professionals and to develop ideas, programs and influence decisions that affect the membership and the public of Manitoba. You get to work with other volunteers on similar interests. Of course, you'll have to walk into a room, stick out your hand and introduce yourself to people you might not know, but each time you do it, you will gain confidence in "networking" and grow your political skills.

Again, you're not likely to see these scenarios in a Dilbert cartoon strip, but you can make them happen in your real-life situation and it will benefit your career. When engineers develop strong political skills and put them to use in the community, the professions gain and maintain a strong position in the decision-making offices of our governments, businesses, social agencies and community groups. Is this where we want to be as APEGM professionals? I think so. We need stronger political skills and better advocacy skills to go with our strong analysis and problem-solving skills. Don't wait to read about it in a Dilbert cartoon strip – you're not likely to see it. Get out there and grow your political skills. Speak to your manager about opportunities to represent your company or department at a social, political or community event. You and the professions will be better for it. Dilbert is no blockhead, but he needs some help getting started. If you're interested in this topic, give me a call and let's see what we can come up with. Have a great day. ■

Continued from page 1...

conducted by a CEM professional and the Lifetime Achievement Award celebrating the leadership, achievements and contributions of a CEM Professional Engineer throughout their career. The CEM Awards' title sponsor XL Insurance/ Oldfield Kirby Esau presented the Engineering Action Award to CEM Past-President John Woods, P. Eng. and the Lifetime Achievement Award to Al Dyregrov, P. Eng.. The Lifetime Achievement Award Winner also presents the Keystone Award to the best overall project of the CEM Awards in a given year. Mr. Al Dyregrov, P. Eng. was selected by CEM to present the Keystone Award in honour of his distinguished record of service to the consulting engineering community. Mr. Dryegrov presented the Keystone Award to Crosier Kilgour & Partners Ltd for their design of the Millennium Library Project.

The CEM Awards of Excellence Program continues to grow and the CEM thanks the Manitoba engineering community for continuing to participate in this showcase and celebration of our industry. Media coverage of the event was provided in the Winnipeg Free Press and Winnipeg Sun. The award-winning projects will be showcased further in other public events and locations throughout the next year.

The 2006 Consulting Engineers of Manitoba Awards of Excellence were awarded as follows:

KEYSTONE AWARD:

Firm: Crosier Kilgour & Partners Ltd.
Project: Growing Spaces, Opening Minds – The Millennium Library Project

AWARDS OF EXCELLENCE:

Category: Building Engineering
Firm: Crosier Kilgour & Partners Ltd.
Project: Growing Spaces, Opening Minds – The Millennium Library Project

Category: Building Engineering
Firm: Earth Tech (Canada) Inc.
Project: Lac la Croix School Mechanical System

Category: Infrastructure
Firm: Stantec Consulting Ltd.
Project: Falcon Lake Water Treatment Plant – Innovative Iron and Manganese Removal Solution

Category: Environmental
Firm: TetrES Consultants Inc.
Project: Integrated Decision-Support Tools for Mine-Site Tailings Management Planning

AWARDS OF MERIT:

Category: Infrastructure
Firm: KGS Group, Acres Manitoba Limited, & UMA Engineering Ltd.
Project: Red River Floodway – Project Definition and PDEA1 Environmental Assessment (PDEA1)

Category: Industrial
Firm:SNC-Lavalin Engineers & Constructors Inc.
Project: Thompson Smelter Upgrades

Category: Innovation
Firm: Crosier Kilgour & Partners Ltd.
Project: Powerhouse Redevelopment Project: Cast Iron Column Connection Design and Testing

Category: Innovation
Firm: Wardrop Engineering Inc. & Corbett Cibinel Architects
Project: Restoration of Wesley Hall

Personal Awards of Recognition:

- Al Dyregrov, P. Eng. *Lifetime Achievement Award*
- John Woods, P. Eng. *Engineering Action Award*

Congratulations to all firms entered in the 2006 CEM Awards Program, in particular to the firms who won Awards of Excellence and Awards of Merit. The CEM would also like to thank its Award Sponsors for 2006:

- Event Title Sponsor: XL Insurance/Oldfield Kirby Esau Inc.
- Award Category Sponsors:

  Winnipeg Construction Association

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Professional Development

Winnipeg Airport Site Redevelopment

PD Presentation by R. Edgar.

Report by N. Soonawala, Ph.D., P.Geo (Ret)

A major site redevelopment project for the Winnipeg International Airport commenced in September 2005. The current phase, at an estimated expenditure of $560 million, is scheduled to end in 2009 and will result in a new terminal building, a new or improved parkade, other groundside and airside facilities, and better infrastructure such as roadways. The redevelopment is one of the largest capital projects in Winnipeg's history and of great interest to the engineering industry.

We thank Robert Edgar, Senior Vice President Airport Redevelopment, Winnipeg Airports Authority Inc. (WAA), for presenting this Professional Development luncheon talk at Canad Inns Fort Garry, Winnipeg, on March 30, 2006. It was a thorough review which touched upon almost every aspect of the redevelopment project.

The WAA was established in 1997 and at about 130 employees, is a relatively small entity. Its mission is "to provide the community with excellent airport services and facilities in a fiscally prudent manner." The airport is in an attractive position since Winnipeg is an important destination as well as origin in the transportation market, with direct access to trucking and railways. It is a 24-hour airport with a strong cargo market. The airport serviced 3 million passengers in 2004, and this volume is expected to increase to 4.6 million passengers by 2020.

The program planning for the redevelopment included analyses of the traffic forecasts, the condition and capacity of the facilities, cost estimates, and financial modelling. The baggage system, security, concessions and IT and T were some of the specific components of the planning process.

The program management and design teams were selected through a transparent, open competition, with final selection being based on evaluations of review committees, interviews and reference checks. Parsons was selected as the Program Manager. A host of other engineering and architectural firms are also contributing to the project, with Wardrop being the Owner's Advocate.

The new terminal building, the most visible part of the redevelopment, will have a grand entrance and will be technology based. Its design is a complex process which has to accommodate a variety of occupancies, security requirements, IT and T requirements, signage, common-use facilities, heating, cooling and lighting of large open spaces, and changing requirements from air carriers. The terminal is also the coordination point between the groundside and airside components of the airport.

The Town Square Hall

Mr. Edgar presented excellent, coloured pictures of the planned look of the future concourse, "town square hall," departure hall, baggage claim area and outside views of the terminal. It drove home the point that this terminal will be truly a 21st century facility, in contrast to the sixties look of the current terminal so familiar to all of us.

Mr. Edgar also had a bit of advice for engineers – simply performing tasks is not enough. Ask your client what business functions he/she expects the facility to achieve, and also probe into his/her future business expectations and the critical facilities necessary to support his/her business model.

The expenditures in the $560 million range for the redevelopment are expected to be recovered through airport improvement fees. A $250 million privately placed bond issue, which closed in September 2005, was rated A1 Stable and A Stable by Moody's and Standard and Poors respectively. The capital projects will generate over 7300 person years of employment, $311 million in wages, and economic output of over one billion dollars.

By the time Bob Edgar's talk ended, it was clear that the WAA is well on the way to achieving its goal, stated in the design definition as "WAA will establish a signature airport site redevelopment design that is consistent with our vision of leading transportation innovation and growth. Unique, striking and outstanding, our terminal structure will reflect our prairie roots and heritage of an important Canadian transportation centre that will continue to play a leading role in the future of this country." ■

The Terminal Approach View

The Business of CLIMATE CHANGE

A. Ascher, APEGM Appointed Councillor

Climate change, regardless of differing opinions on the degree to which human activities are contributing or causal factors, has established itself as a reality to be addressed, not just in Manitoba but also globally.

Within the professional engineering community, acceptance of this reality is manifesting itself in numerous ways. The Canadian Council of Professional Engineers (CCPE), for example, is taking a leading role in forging links between engineers, political decision makers and scientists to ensure what it terms a "well coordinated multi-barrier approach to adapt to evolving physical environments."

In its June 2005 position statement on climate change, CCPE further references a twofold responsibility for engineering practitioners: "Engineers are responsible for building and maintaining infrastructure that can minimize the damage and impacts of climatic extremes, and for developing innovative approaches that minimize greenhouse gas emissions."

CCPE now has a 3-year Climate Change Action Plan in place that sets out five areas for CCPE to work on in close partnership with its constituent members and the federal government. These include education and awareness, continuing professional development, guidelines, codes and standards, and increased networking between scientists and engineers.

Rolling out from this plan, in 2005 CCPE launched the Public Infrastructure Engineering Vulnerability Committee (PIEVC). This group has been set up to assess the vulnerability of Canada's public infrastructure to climate change. PIEVC has representatives from all three levels of government, the Federation of Canadian Municipalities and the insurance industry.

PIEVC's steering committee held its first meeting on October 6, 2005. A scoping study focusing on storm water and drainage systems is being undertaken from January through March 2006. This study is aimed at better understanding the requirements for a national study of all infrastructure, and to develop engineering protocols for use in national vulnerability assessment. Terms of reference for the national vulnerability assessment are being drafted concurrently.

This is just one example of how climate change has moved from theory, and being perceived as a strictly environmental issue, into Canada's economic, technological and social mainstream. Mitigation and adaptation to climate change is becoming big, and cross-sectoral, business.

Yet to view climate change solely as an emerging, even burgeoning, marketplace is to miss the much larger picture.

As Environment Canada notes on its Climate Change website, a rise of only a few degrees in global temperature is expected to fundamentally alter all life on earth – and that some of this change would be "effectively irreversible." The site notes:

"Ecosystems evolve slowly in response to changes in the average conditions and variability of past weather. Many species, like most trees, can respond only very slowly. Others have unique climate niches that may disappear, leaving them vulnerable to extinction. Likewise, the socio-economic infrastructure and culture of human societies are closely adapted to the climate within which these evolved, and a rapid climate change would make it difficult to adapt quickly, causing an increased risk of weather-related economic disasters. Experts also predict longer and more frequent extreme weather events such as heavy rains, droughts, floods, and severe storms whose impacts on humans and natural ecosystems could be significant (for example, longer and more frequent heat waves could increase heat-stress related deaths). Regional changes in crop yields and productivity due to climate change are likely to increase the risk of famine, particularly in semi-arid and arid regions of the tropics and subtropics. Global warming is also expected to increase the potential transmission of infectious diseases such as malaria, dengue, and yellow fever through the expansion of the range in which disease-carrying organisms can survive."

Engineering practitioners today thus increasingly face a mixed blessing: business opportunities arising through what is generally accepted in scientific and government communities as the long-term and incrementally negative consequences of human activities.

Therefore, grey areas and differences in perception abound. For some engineering practitioners, for example, protecting public interests threatened by climate change may be a driver equal to, or perhaps even more significant than, the business opportunity.

Regardless of how climate change plays out in the broadest sense, countless opportunities nevertheless present themselves every day to "think globally, act locally." Engineering practitioners may therefore also choose to frame the 'business of climate change' in the context of taking proactive measures in their places of business, i.e. their offices or other workplaces.

Such action can be as simple as implementing a 'no idling' policy, or even checking regularly to ensure fleet vehicle tires are not under-inflated (under-inflated tires increase fuel consumption).

There are many excellent web sites offering practical ideas and resources to businesses wishing to reduce their GHG outputs and/or

Continued on page 9

Engineering Philosophy 101 . . . what makes a profession?

M.G. (Ron) Britton, P.Eng.

Professions occupy an unique place in our Canadian society. Through provincial and territorial legislation, governments have assigned the right and responsibility to control the professions to those who practice the professions. This is a privilege that most professionals take very seriously. It is the basis for our existence as legal entities.

Increasingly professions find themselves under siege by various groups with various agendas. As a result it is important that each of us understand the basis upon which our privileged positions are founded. Simplistic slogans and definitions will not strengthen our professions. Professionals must understand and accept the philosophical roots of their calling if they are to face the realities of the work-a-day world with confidence. Yes, normal circumstances see us being paid for our work, but, surely there is more to professionalism than that.

Today's situation has grown out of an historic context in which three professions evolved. The three so-called "learned" professions of the past: medicine, law and the priesthood, reacted to the human need for protection of one's health, one's wealth and one's ultimate fate. These professions were, and are, of service to the individual person. Each was held in high esteem, and each was afforded the luxury of being free to govern itself. By and large, this situation still exists, and it has become a model that other occupations that aspire to be called professions seek to imitate.

Many "newer" professions, like engineering and geoscience, react to corporate or societal needs rather than individual needs. We provide services and, hopefully, benefits are derived. This concept of service runs through most, if not all, of the actions of the professions. Service (to individuals, corporations or the public-at-large) forms a cornerstone upon which all professions are built.

If service is the only criterion, then serving staff in restaurants can be called professionals. After all, they provide a service for which they are paid. But there must be some basis, other than physical activity and payment, upon which a professional service is founded.

The term profession has, as its root, the word profess and this helps in further clarification. It is generally accepted that professionals base their services on some body of knowledge that requires specialized training and certain intellectual skills. In other words, we profess to know enough about some particular field to be of service to those who do not have the benefit of our education, knowledge and experience. So the need for a body of knowledge to exist defines a second cornerstone for a profession.

The utilization of a body of knowledge to serve the public (or individual) places a serious responsibility on the practitioner. Obviously, the knowledge used to provide the service should go beyond that which is generally known. Therefore, those receiving the service must place their trust in the integrity of those delivering it. This requires, and the public expects, standards of conduct beyond the accepted societal minimums. These standards may exist in law but are more likely to exist as concepts. The concepts lead to "rules" which define how a professional will interact with others, both inside and outside their profession. These "rules" are formalized into codes of ethics. Written codes are published for all to read and they represent what is expected of a professional. These "rules of the road" represent the third cornerstone upon which professions are based.

The fourth and final cornerstone of a profession is authority. Professions are given the authority by the public, through legislative action, to establish and maintain organizations that will define the standards of education, experience and performance that are required for admission and continuation. Once the professional organization is in place, its members assume the responsibility to enforce their standards on their members. The public expects, or should expect, that those who profess to practice a profession hold membership in this governing body. The profession is placed in a position of trust and, in order to maintain this trust, it must keep its own house in order.

In summary the concept of professionalism is founded on four basic conditions:

1. service,
2. a body of knowledge,
3. a code of ethics, and
4. authority.

If these conditions are met, a profession exists and those who meet the constraints of membership can call themselves professionals. Persons who become professionals commit themselves to the standards of their profession. The group commitment becomes an individual commitment. Or maybe it is the other way around. ■

Continued from page 8...

become more energy efficient in other ways. Following are three such web sites:

- **http://www.oee.nrcan.gc.ca/**

  This web site for Natural Resources Canada's Office of Energy Efficiency includes links to 5 in-depth areas: Transportation (Fleets, Rebates, Fuel Management, Idling and Training); Commercial and Institutional (Buildings and Equipment); Industrial (Facilities and Equipment); Communities and Government (Buildings, Transportation and Procurement); Residential (Appliances, Equipment and Housing Professionals). Under Transportation, for example, are further links to a fuel consumption calculator to track fuel economy, as well as to a guide that calculates the cost-efficiency of purchasing vehicles using alternative fuels. In addition, newsletters (as well as case studies and technical guides) can be found at **http://oee.nrcan.gc.ca/industrial/technical-info/index.cfm?attr=24.** Individuals can also subscribe to the "Heads Up CIPEC" and "Heads Up Energy Efficiency" electronic newsletters.

- The Pembina Institute for Appropriate Development is an independent, not-for-profit environmental policy research and education organization based in Alberta. The Pembina Institute has the following auxiliary site dedicated to climate change issues: **www.climatechangesolutions.com** On this site is a link to ideas geared specifically to small and medium-sized enterprises, including the Cool Business Guide, and worksheets to guide a company through developing its own climate change strategy.

- Manitoba Hydro's Power Smart Program for Business can be found at **http://www.hydro.mb.ca/saving_with_ps/psmart_business.shtml** Included here, for example, are details of a program to install energy efficient lighting in new construction or renovation projects. Case studies of many retail, institutional, hotel and other projects completed in Manitoba are profiled.

Manitoba Hydro also has an online energy profiling tool called EnerTrend at the following address. **http://www.hydro.mb.ca/business_customers/enertrend.shtml** ■

APEGM 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.

Manitoba Renews Program To Recognize Foreign-Trained Engineers

A. Kempan, P.Eng. (Ret)
Condensed by A. Kempan from a Government of Manitoba news release.

On March 17, 2006, Labour and Immigration Minister Nancy Allan announced new funding support of $360,000 for an initiative to help internationally-educated engineers meet Canadian accreditation standards.

"A key component of any successful immigration strategy is effectively assessing and recognizing or upgrading the educational and professional credentials of newcomers," said Allan. "We are sending a very positive message to potential immigrants that Manitoba welcomes them and their skills."

The 12-month Internationally Educated Engineers Qualification program is delivered at the University of Manitoba's faculty of engineering with the support of the Association of Professional Engineers and Geoscientists. The program features an academic component and a paid work-experience placement with an employer in the participant's engineering discipline. Successful completion of the program means the participant's combined engineering education is recognized as equivalent to Canadian education standards. The one-year program is designed to shorten the typical three-year period a foreign-educated engineer would take to meet Canadian standards.

Since the program started in 2003, 15 internationally educated engineers have successfully completed the program requirements, resulting in 14 becoming employed in the engineering field and one entering into graduate studies. Another 13 participants are expected to graduate in 2006. The target enrolment for the program for the next three years is 12 participants per year for a total of 36.

The funding is being provided in equal instalments over the three-year term of the program from the Manitoba Opportunities Fund and through the Council on Post-Secondary Education to the University of Manitoba. Funding is also provided through the Manitoba Immigrant Investor program and the federal Foreign Credential Recognition program in the Department of Human Resources and Skills Development Canada.

Manitoba's Provincial Nominee Program accounted for 57 percent of all immigrants to the province with 4600 skilled worker and business nominee arrivals in 2005. The total number of landings in 2005 reached 8089, more than double the number of arrivals in 1999. ■

British Columbia and Ontario Implement Streamlined Policies for Registration of Geoscientists Under Mobility Agreement

APEGBC and APGO recently implemented policy changes that will facilitate the registration process in BC and Ontario for applications under the Canadian Council of Professional Geoscientists' Inter-Association Mobility Agreement (IAMA).

Under the new policies, professional geoscientists applying for registration under IAMA generally need only submit an application form and fee, confirmation from their home Association of membership in good standing, and in the case of APEGBC, proof of Canadian citizenship or residency (APGO has no citizenship or residency requirements). Applicants may also be required to pass a Professional Practice & Ethics examination. A completed application will typically be processed within one week. The new policies will affect both new and current IAMA applicants.

APEGBC and APGO have taken this step in recognition of the mobility inherent in geoscience practice, and the demands of industry. By making the registration process easier and faster for IAMA applicants, individuals who are transferred to BC or Ontario or who have projects in either province, will find this greatly facilitates their ability to readily comply with provincial registration requirements. Both Associations believe that, in particular, this development will be appreciated by the oil and gas sector and the mining sector.

All geoscientists are reminded that it is a requirement to register in all provinces in which they practice.

More information on registration with APEGBC or APGO is available on their respective websites.

APEGBC:
www.apeg.bc.ca/re/InterProvincialGeos.html

APGO:
http://www.apgo.net/membership/index.html. ■

THOUGHTS ON

Design

...when push comes to shove

M.G. (Ron) Britton, P.Eng.

Remember that fundamental principle they beat into us in Physics? "Every action has an equal and opposite reaction". I suspect that it is tattooed on every engineer's soul. However, is it a tattoo that simply rests in our collective memories when we undertake to address a new problem or does it rest close to the surface of our conscious efforts?

I admit that my view of life is biased by my structural background. Over the recent past, however, I've come to appreciate some of the constraints other "brands" of engineers deal with. During this experience I've found that the old Physics "truism" keeps surfacing as I attempt to understand the basis of the problems/solutions others deal with. I've also found that I look at those unfamiliar problems from a much more fundamental perspective than the structural problems I am familiar with. And I keep reminding myself that the easiest problems to solve are those you know nothing about.

Many of us have been confronted, usually in a social situation, by someone who asks, "When are you engineers going to fix our pothole problem?" Most of us who are not involved in pavements and transportation retreat to the comfort of explaining that we are not competent in that area of engineering. Recently, after such a confrontation and my standard retreat, my "adversary" suggested that no one seems to be competent. I was left feeling more than a bit inadequate. Having failed to come to our profession's defense, I began wondering why road conditions have, in fact, reached their current state. Even though I cannot solve the problem, I thought I might be able to explain it.

It seems simple enough. On the one hand you have vehicles that apply loads. The other part of the system is roads that support the loads. Back to basic physics, right? This suggests that the problem lies in the "equal and opposite reaction" side of the equation because the roads (the reactions) are in bad shape.

Some of those who claim to "know", point out that we have a budget problem that results in a lack of maintenance. Others argue, with equal conviction that the budget problem goes back to cutting corners on construction. Still others claim that our Red River gumbo (bubble gum) and its sensitivity to moisture and frost mean we will never have good roads. Those with a focus on potholes point out that the aggregate we use in the concrete pavement is frost sensitive, so that needs to change. And of course, the trucks keep getting bigger and heavier so we obviously need to do something.

There is probably some truth in all the pet theories that are advanced as solutions. Trucks are getting bigger and heavier, speeds keep increasing, and traffic volumes are up. We need "better" roads.

In the meantime, people are looking at new/different materials that overcome the shortcomings of existing materials. Others are considering ways to stabilize expansive clays so they will support greater loads. Governments are being pressured to provide adequate funding. There are even suggestions that heating the road surface will solve the wear surface freeze/thaw problem and prevent the subsoil expansion problem that goes along with frozen soil.

Virtually all of the attention is focused on improving roads from both performance and durability perspectives.

But what is happening on the "For every action" side of the equation? Is it reasonable to concentrate on fixing the "reaction" and simply quantify the "action"? Is the growth of traffic size and volume a given that cannot be controlled? Is the solution to bad roads more reasonably found in a redesign of the way vehicles put loads on the roads? Huge tractors "float" over farmers fields pulling very heavy loads, and they don't destroy the soil. Is there anything to be learned (contributed) from looking at the load side of the issue? Has current truck/trailer design simply outgrown our ability to support it economically? Are these informed questions, or just more noise?

The real question is whether or not it is fair to place all the responsibility for redesign on the "reaction" side of the equation. Thinking about the "road problem" reminded me about a roof beam I designed for a service station many years ago. My recommendations were dismissed because "the loads are wrong". Up until then I had considered that loads came from tables and I had no control over them. I discovered I was wrong.

Clearly my pondering is too simplistic to ever approach a solution to "bad roads". I claim no competence in this area (a claim I believe I have proven) and I will continue to retreat to the "I'm not competent" defense when confronted about it. But I will persist in looking at both the "variables" and the "constants" associated with design projects I undertake. Strange, how often one runs into "variable constants" that change the entire complexion of a problem. ■

Attention MITs (and former MITs)

We are running out of space – so as of July 1, 2006, APEGM will no longer be retaining progress reports or supervisor reports after Members-in-Training have been registered as a P.Eng or P.Geo. Pertinent information from these reports will still continue to reside in our database and within the member folders. Also, final references will continue to be retained as per our Privacy Policy.

Therefore, MITs please make sure that you retain a copy of your progress report(s) prior to sending it to APEGM and to your supervisor(s).

If MITs are currently on the Pre-Registration program, and have not kept copies of their past reports in the past, and would like copies sent, please contact the APEGM office. Please note that there will be a fee of $53.50 ($50 plus GST) to cover the Association's administrative costs.

For further information, please see our Privacy Policy and our updated Document Retention Policy on our website. (The updated policy will be available as of June 1, 2006).

If you have any questions, please contact Sharon at ssankar@apegm.mb.ca and use subject header: Progress Report Retention.

Sincerely, Sharon Sankar, P.Eng.
Director of Admissions/Privacy Officer, APEGM

Young Manitobans With A Bright Future!

D.J. Etcheverry, GIT

From April 27-30, the University of Winnipeg Duckworth Center was again alive with young Manitobans attending the annual Manitoba Schools Science Symposium (MSSS). Children and youth from grades four through 12 entered almost 500 projects that ranged from creative papier-mâché creatures in the "Create an Alien" category, to university level research projects in the "Health Sciences" category. Again this year, APEGM's Public Awareness Committee arranged to provide prizes in the Special Awards category for those projects that related to Engineering and/or Geoscience.

As they have done for the last number of years, enthusiastic APEGM volunteers judged the projects for the APEGM Special Awards. The best of these projects, based on ingenuity and effort, would receive awards totalling $3135.00 in cash and other various prizes donated by APEGM ($1475) and other contributors ($1475). The other contributors comprised a number of Manitoba businesses: Crosier, Kilgour & Partners Ltd.; FWS Construction; IEEE Winnipeg Section; KGS Group; Manitoba Hydro; Maple Leaf Construction; Nelson River Construction; Teshmont Consultants LP; The National Testing Laboratories Limited; and the Vector Construction Group.

Awards

An assortment of prizes including cash, McNally Robinson gift certificates, digital cameras, job-shadowing opportunities, and mini-university vouchers were given out by APEGM president, Dr. Digvir Jayas, to the following elementary, junior, intermediate, and senior level students:

Elementary Grades 4-6

Tyler Matthews—*R.O.V. Remotely Operated Vehicle*

Ari Robinson—*Creating Stronger, Cheaper, Lighter Bridges*

Jules Gilbert—*Expandable Briefcase*

Mathew Sarides—*A Self Propelled Projectile Launcher*

Riley Laurencelle and Jeremy Lenchyshyn—*Tsunami!*

Isaac Wiebe—Cool Conductors

Kaitlynn Sandulak and Erik Ursini—*What Powers Your House?*

Junior Grades 7-8

Cody Shaw—*Piezo Power*

Jennifer Yong—*Tremendous Trebuchets*

Adam Nowicki—*Construction Woods Under Torsional Load*

Michael Wiens—*Totally Turbines*

Michael Teichman—*Brace Power*

Nirusan Jayaranjan—*Safe Streets: Preventing Drunk Driving*

Intermediate Grades 9-10

Colin Xiong and Shubho Bhattacharyya—*The Power of Waste*

Shanleigh Thomson—*Beaches, Germs and Sand*

Senior Grades 11-12

Matt Haydey—*A Novel Prototype Preamp Design*

Kevin Zhang and Victor Mui—*Microchannel Heat Sinks*

Volunteers

APEGM would like to thank the following members for helping with the APEGM special awards at the symposium:

Wynn Bridges—*Judge*
Devang Joshi—*Judge*
John Rooney—*MSSS Coordinator for the Public Awareness Committee & Judge*

Hugh Roche—*Public Awareness Committee, Judge*

Lian Tan—*Judge*

APEGM would also like to acknowledge those of you who signed up with the MSSS as judges in other categories; keep up the good work and hope to see you back next year! ■

APEGM president, Dr. Digvir Jayas, presents elementary student Tyler Matthews with an award for his Remotely Operated Vehicle (R.O.V.) project.