

Professional Engineer



University of Manitoba Students Win National Competition

By: J. Lucas, P. Eng.

Three engineering students from the University of Manitoba have won national honours by offering a hand to the disabled.

The clever threesome, Donald Carlson (EE), David Musil (ME) and Michael Peck (ME), tackled a class assignment, a problem offered by industry for student solutions.

The problem was to design a device which would enable quadriplegics to drink a beverage without assistance.

Five months of diligent effort resulted in a product which has the qualities strived for by all designers – it is simple, practical and workable.

The beverage serving “arm” is controlled by movements of the head and chin. In action, it lifts a cup to the operator’s mouth, tips on command, then returns it to a lap-top tray.

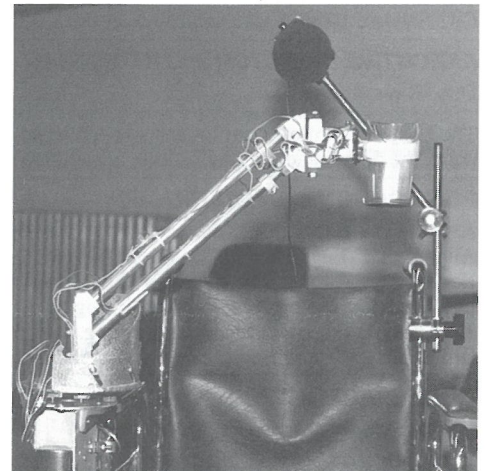
The articulated marvel captured first place for a Corporate Design at the Western Canadian Universities Competition (WECC92) in Edmonton earlier this year.

This first-ever win by the University of Manitoba earned the trio an entry into the national Canadian Engineering Competition (CEC 92) in Kingston.

Our team was up against the regional winners from Ontario, Quebec and the Maritimes. Undaunted, the mechanical manual saluted the competition and took first prize for a Corporate Design.

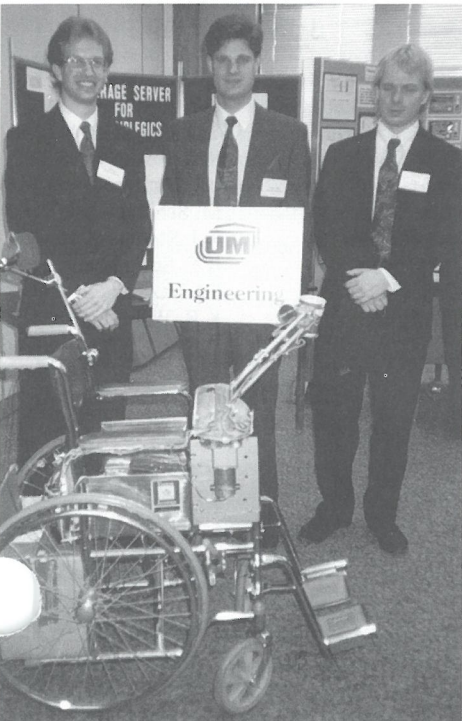
The project was sponsored by ARCOR, a government financed agency mandated to aid in design and manufacturing products for seniors and disabled persons.

Although a national winner, there seems to be no interest on the part of industry or handicapped support groups in furthering development of our newest Canadarm.



Award-Winning Beverage Server

In any case, we have to hand it to our three students for a well-engineered product.



Designers David Musil (l), Michael Peck and Don Carlson (r).

APEM Version of Science Olympics

By: D.C.H. Prowse, P. Eng.

The thrill of success, the mopping up of the floor after a failure, and the elaborate contraptions powered by mouse traps and gravity that, on command, were to unfold and transport 10 litres of water three meters across a plywood ramp! These represent one of six events in the Science Olympics competition held at Yellowquill School, Portage La Prairie, on April 24, 1992.

Seventeen teams of high school students watched as their popsicle stick bridges were loaded to the breaking point (up to 2000 newtons or 450 pounds) by Glenn Morris from the University of Manitoba. They calibrated ping pong ball launchers, recycled garbage and excavated simulated fossil beds. When all the scores were tabulated, Wawanesa, W.C. Miller (Altona) and Souris High Schools received the top rankings.

Dan Prowse, Chairman of this Association’s Public Relations Committee, acted as a judge at

the event. Later, he met with Science Olympics organizers to promote an event for next year’s competition that would demonstrate engineering design optimization.



Glenn Morris tests bridges.

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WE HAVE LOST CONTACT. MAY WE HAVE AN ADDRESS?

A.M.A. Mahmoud D.G. Skinner

Advance Notice

(Please Mark Your Calendars)

The R&D Committee and the Science/Technology Awareness Network (STAN) are co-sponsoring a Luncheon Panel Symposium on "Sustainable Use of Underground Water in Manitoba"

Date: Thursday, October 15, 1992

Time: 11:30-2:00 p.m.

Location: University of Manitoba, Continuing Education Dept. No.11, "The Promenade" Adjacent to Portage Place, Winnipeg, Manitoba.

Cost: \$10.00 (includes lunch).

Letter to the Editor

With respect to the article entitled "Mini-University: A Made-in-Manitoba Innovation" (June 1992), I wish to draw your attention to two items:

- "...11.6% of the children (for the engineering modules) were girls whereas, for the non-engineering modules, there were almost equal numbers of girls and boys..."
- "Like I, you may well conclude that the mechanical projects, relating as they did to bicycles and lawn-mower engines, would have a much greater appeal to 11-year-old boys than would the more abstract projects in the Civil and Electrical streams."

Item 1:

Social conditioning (both by the male-domi-

nated engineering profession and by society as a whole) has resulted in young girls rejecting anything that smacks of engineering at an early age, and is the leading reason why they show such a low level of interest in our profession when choosing a career and entering university.

Item 2:

An example of the very conditioning of which I speak, whereby the male author of this article assumes that it would be unnatural for anyone except an 11-year old boy to show an interest in these mechanical projects.

We've got a long way to go!

David G. Ford, P. Eng.

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100% ON THE PROFESSIONAL PRACTICE EXAM

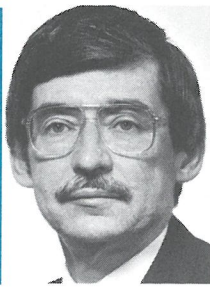
B.M. Briggs	L. Niekamp
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LICENCES ISSUED IN MAY & JUNE, 1992

R.A. Baynit (Ont.)	R.E. Luke (Ont.)
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President's Message

N.P. Feschuk,
P.Eng.



CCPE is establishing a Commission for the Advancement of Engineering in Canada on the recommendation of the 1990 Engineering Outlook Conference of Senior Canadian Business People. The priorities for the Commission, in order, are as follows:

1. Preserve the Right to Self-Governance.

The privilege of self-governance is being questioned by governments and interest groups. The engineering profession intends to demonstrate to all concerned that self-governance is the most effective and efficient way of regulating the practice of engineering.

2. Maintain the Supply-Demand Balance in the Engineering Labour Market.

There has been much discussion about the possible shortage of qualified Professional Engineers in the next decade. This area requires a critical review since today it is apparent that the majority of engineering graduates across Canada are unable to find

employment. The effect of computerization in engineering, the use of technicians and technologists, and the changing role of the Professional Engineer have to be examined to see how this will affect the demand for engineers in the future.

3. Achieve Greater Mobility of Engineers both across Canada and Abroad.

The globalization of engineering practice demands that engineers become mobile. It is CCPE's objective to facilitate transportability of engineering licences across Canada and to enter into international recognition agreements to expand the market for Canadian engineering expertise.

4. Maintain High Educational and Professional Practice Standards.

Engineering technology is expanding rapidly. CCPE's objectives, through the Canadian Engineering Accreditation Board and the Canadian Engineering Qualifications Board, are to establish guidelines that will ensure university engineering programs are tailored to meet the needs of the profession, to ensure that standards of practice are adapted to state-of-the-art technology, and to ensure that professional competence is maintained and enhanced.

5. Develop an Awareness of the Role of Engineers in the Creation of Wealth and Protection of the Environment.

Engineers play a leading role in the creation

and production of products which enhance the quality of life, and in the design of processes which permit the sustainable development of the environment. The public must become aware of the part engineers play in making the world a better place in which to live.

6. Participate in Public Policy Forums as the Voice of the Engineering Profession.

Engineering is often referred to as the invisible profession. Engineers must be encouraged to participate in the debate surrounding national issues.

At the CCPE annual meeting in Whitehorse in early June, it was reported that the above issues have been reviewed by business leaders, and the priorities haven't changed significantly.

Not surprisingly, many of the issues selected for the commission's study have been identified in the APEM Long Range Planning Sessions concluded recently by Council. Your comments would be appreciated. □

Work Placement Positions Sought for Immigrant Engineers

Immigrant professionals face various barriers to re-entering their careers in Manitoba. Among these are a lack of English skills and unfamiliarity with how their profession is practised.

A new program to help immigrant Engineers, Engineering Technicians and Technologists overcome these barriers began on April 27, 1992 in Winnipeg. The curriculum was developed in consultation with APEM.

The 10-month program commenced with a six-month classroom component, which will be followed by a four-month work placement program. Classroom training includes technical English communications, job-finding skills, Canadian Engineering information, and preparation for registration with APEM.

The work placement program will give participants an opportunity to gain work experience in their areas of specialty.

The 16 participants selected for the program come from Poland, El Salvador, Philippines, Russia, the Ukraine, and China.

Market Connections manages the program while funding comes from Employment and Immigration Canada. The program is sponsored by the International Professional Association of Manitoba, a group of 250 immigrant professionals working to improve accreditation procedures for foreign-trained professional and trades people in Manitoba.

For more information, or to host a participant for a four-month work placement, call Glenda Gerbrandt, President of Market Connections, at 943-5777. □

APEM Councillor – Robert R. McKibbin, P. Eng.

By: R.D. Kitson, P. Eng.

Bob McKibbin is new to the APEM Council, but he is no stranger to the service of the profession. He has served on the Social/Annual Meeting and Public Relations committees since 1975. He has also served his community in other ways, having served in many different capacities in church, school board, Chamber of Commerce and other organizations.

Bob is the District Engineer with Manitoba Highways in Portage la Prairie. A family man, he and his wife, Lynne, have four children, two daughters and twin sons.

One son is proof that the seed does not fall too far from the tree: he is an Assistant District Engineer with Manitoba Highways. The other, an MD, saw the light and recently graduated as a mechanical engineer from the University of Manitoba. His youngest daughter, a new high school graduate, has been accepted into the Faculty of Engineering. The eldest daughter is working on a D in speech pathology. Cheer up Bob, three of four isn't that bad!

Councillor McKibbin's election platform had four main planks. The first was the challenge of professional development. He believes that there is a need for better communication skills in the profession. It was this belief that led him to be a charter member of the E.I.C. Toastmasters Club.

Bob's attitude is that if you cannot communicate you cannot share your skills and expertise.

The second election plank was the need for sustainable development. Bob thinks that the role of engineers is to be the leaders in developing and implementing viable sustainable development.

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Councillor Bob McKibbin

What is CCPE doing for me?

By: K.A. Buhr, P. Eng.

WHAT IS CCPE AND WHAT DOES IT DO FOR ME? The answer is not always obvious to our members, so this article attempts to provide some insight into the function of CCPE and the actions it undertakes on our behalf.

The Canadian Council of Professional Engineers, established in 1936, is a federation of 12 provincial and territorial authorities that license engineers and oversee the profession across Canada. The mandate of CCPE is to serve these bodies and the public through a series of programs initiated to ensure a high quality of engineering education, to improve the understanding of engineering as an economic activity, and to promote the role and image of the engineer in society. This mandate has served CCPE and its constituent Associations for over 50 years. However, changes in the fields of engineering and in the public's expectations of professions in general have put pressure on the individual Associations that have a national impact. It is imperative that the Associations unite to examine these changes and expectations and, if necessary, make changes before being forced to do so. The co-ordinating role of CCPE is quite obvious in these circumstances.

CCPE is, therefore, becoming more proactive. It has initiated a long-range planning process to develop a Strategic Plan. The first step of this process led to the development of a proposed mission statement:

"Establish and maintain a common bond between constituent Associations and assist them to meet their common needs and those of members by co-ordinating standards, procedures and programs across Canada, by representing the engineering profession with respect to national and international affairs and generally by increasing the profile and prestige of engineering professions."

The strategies emerging from this long-range planning process help to focus CCPE's activities into seven areas:

1. National and International Mobility

National and international mobility, although always an issue, has generally affected only a few members in the past. However, Free Trade within North America and the emerging global economy and the focus on national unity have changed all that. Now it is an issue and members are demanding action.

CCPE has taken significant steps to improve national mobility. Its member Associations have adopted national guide-lines for admission procedures, a model definition of the practice of engineering, a model Code of Ethics and a manual of professional practice and continuing competence. The Canadian Engineering Qualifications Board (CEQB), a standing committee of CCPE, has identified real and perceived barriers to mobility and convened a national forum to discuss the issues.

Internationally, the Canadian Engineering Accreditation Board (CEAB), another standing committee of CCPE, has verified accreditation procedures and completed mutual-recognition agreements with four countries: United Kingdom, USA, Ireland, and Australia. This should facilitate the transfer of education credits. Adoption of national admission procedures by the Associations, including a move to a minimum of four years of experience before registration, should bring Canadian engineers in line with minimum standards in other countries.

CCPE is now negotiating with the United States Council for International Engineering Practice, set up to develop a subagreement covering engineering services under the Canada/USA Free Trade Agreement, to help improve mobility between our two nations.

2. Uniform Standards for Engineering Education

The CEAB is responsible for developing, maintaining and verifying the application of uniform standards for engineering education in Canada. It is also responsible for the promotion and advancement of engineering and related education in Canada and abroad. The work of the CEAB has saved the individual Associations considerable money and effort by standardizing engineering programs at universities across Canada.

Typically, the Board visits 10 institutions and evaluates more than 40 degree programs each year. The applications for registration for persons who have graduated from CEAB-accredited programs can be quickly processed by individual Associations at minimum cost.

3. National Forum for Discussion of Issues Affecting the Engineering Profession

Issues that are presently affecting individual Associations across Canada and for which CCPE has provided a national forum include: recent moves by technologists to obtain scope-of-practice and right-to-practice legislation in a number of provinces; registration of geoscientists by some Associations; the mobility of engineers across the country; interprovincial disciplinary concerns; and the potential threat to self-governance.

Governments across Canada are under considerable pressure to examine the way professions operate. The pressure comes from various groups, including immigrants (real and perceived limitations to registration), para-professionals (real and perceived monopoly), and the general public (real and perceived lack of discipline of members).

Engineers have an obligation, therefore, to investigate the real and perceived barriers to registration, discipline, and the public understanding of professions, and to ensure that they are removed, before someone else do for us, and on their terms.

Continued on page 12

Engineers on the Run

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

It was cool and cloudy, early that Sunday morning – perfect running weather for the 6000-odd participants in the 13th annual Manitoba Marathon.

This year, 15 of the 2310 relay participants were running for APEM: an increase of 300% over last year; and our Public Relations Committee will be pleased to learn that each and every one of them was sporting a T-shirt displaying the new APEM logo!

Last year's Team APEM was out in full force again this year, although one member – presumably still smarting over the abuse hurled upon him regarding last year's tardy arrival at the exchange station – defected to a faster, more prestigious team. This prestigious team, Team One, was the 22nd team overall, completing the run in a very respectable 3:09:56. (We can only assume that the defector was on time this year!)

Ark Tsisserev, lead runner for the aforementioned prestigious Team One, was not far behind his own team, completing the 26.2 miles in 3:13:29. (He was the 50th person to complete the full marathon.)

Team Two was eight minutes behind Ark, finishing 51st at 3:21:26; and Team Three brought

Continued on page 7



APEM runners in uniform.

Kathleen D. Gissing, P. Eng.

W.G. McKay, P. Eng.

It was indeed a pleasure to be at the Engineering Institute of Canada Awards Dinner in Ottawa, June 6, 1992, and to applaud the presentation of the CP Rail Medal to an outstanding engineer, Manitoba born and educated – Kathie Gissing.

The Medal, first awarded in 1988, recognizes service and leadership to the Institute and to the Societies on a regional and national level.

A 1972 University of Manitoba graduate in civil engineering, the daughter of a well-known engineer with Northern Electric, Kathie started



CP Rail Medal Winner Kathie Gissing.

her career in Winnipeg with District Four of the City. She later worked for Underwood McLellan and Associates before joining the Canadian Portland Cement Association in Edmonton. She is currently with this organization in Vancouver.

Since her days as a student member of the Institute on campus, Kathie has given many years of service to numerous committees in various branches of the Institute. She was the major player in the revitalization of Institute affairs in both Edmonton and Vancouver.

Neither has Kathie overlooked the role of the professional engineer. She was elected to the Council of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA). When she relocated to Vancouver, she again took an active interest in the profession, and was elected as a councillor of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC). In October, 1992, Kathie will become the first female President of APEGBC.

In recognition of her many fields of activity in both the Institute and the Association, APEGBC recognized her outstanding services by presenting to her the 1987 Professional Service Award.

It was indeed a pleasure to again renew acquaintances after 20 years, and to become more aware of what this young engineer of seemingly inexhaustible interests and activities in the learned societies and professions has accomplished. Congratulations, Kathie!

Engineers in the News

Frank M. Fowler, P. Eng., Chairman of the Board, Nelson River Construction Inc., and a Past-President of APEM, recently became the third recipient of the Canadian Construction Association's Robert Stollery Award.

The Robert Stollery Award is presented for outstanding contribution to the construction industry through the application of the highest standards and principles. □

How About an Engineers' Curling Club?

Are there any members out there interested in forming a once-a-week curling club next season? If enough interest is shown, steps will be taken to put something in place. Although the exact nature of the league would be determined by general consensus, we would set up as a mixed "fun" league with at least one Professional Engineer on each team. If anyone has any thoughts on the matter, or is interested in joining, please call Murray Vanderpont at 284-0580 or write: c/o UMA Engineering Ltd., 1479 Buffalo Place, Winnipeg, Manitoba R2T 1L7.

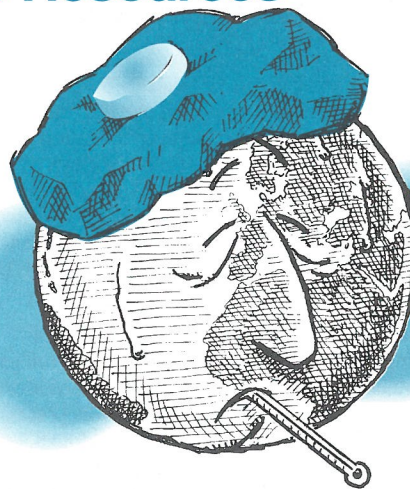
The Changing Chemistry of the Atmosphere and its Effects on Canadian Aquatic Resources

By: E.A. Speers, P. Eng.

Dr. R. (Bob) Hecky, Research Scientist, Department of Fisheries and Oceans, Freshwater Institute, spoke on "The Changing Chemistry of the Atmosphere and its Effects on Canadian Aquatic Resources", before a 'full house' in the Portage Room at the Holiday Inn South.

Dr. Hecky works with experimental lakes southeast of Kenora, determining solar radiation, rainfall, and atmospheric contaminations by sampling through high volume air samplers such compounds as chlorates, carbon dioxide, and nitrates. Phosphates are determined through stream monitoring and occur from industrial pollution and runoff. Nitrates are also found in runoff coming from fertilizers, particularly since 1980. The rates of all contaminants have been going up over the last 20 years and the effect is being felt throughout the world. Dr. Hecky's studies are concentrated on the effect of these changes on the biomass above and below the waterline in Western Canada.

Acidic toxic rains bring many organic molecules including heavy metals and organics, such as atrazine, 2,4,D (even though it has been



banned for over 20 years), and PCBs, which concentrate in the liver and consequently affect the whole life chain, even up to whales, and trichloro-PCBs which are 250 times as toxic. The Chernobyl disaster was quickly discerned in the research evidence.

As the rate of nitrates in the rain goes up, the ability of the lakes to absorb more nitrogen, which is being used by algae and other biomass,

is being reduced. Forests go into decline when the nitrogen effect exceeds the ability to absorb. One research interest lies in quantifying the nitrogen problem.

The carbon content of the CO₂ going into the atmosphere is another problem. Today three billion tonnes go into the atmosphere, and an equal amount goes into the oceans annually. Methane is increasing much faster, having tripled in the last 150 years, coming from peat bogs and sloughs, termites, and cows. (Reviewer's comment: The human population increase is a factor not mentioned by Dr. Hecky.) Two-thirds of the methane production can be attributed to human processes, including combustion.

There is a correlation with temperature relative to the concentration of carbon dioxide and methane in the atmosphere. With the increasing concentrations, a rise of 4-5°C is a possibility and the result could dry up Lake Manitoba, for example. The line of permafrost would be pushed into the high Arctic under this projection, and a great number of lakes would be lost. The present general effect is an increase in forest fires, with a

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Professional Development

Total Quality Management Breakfast Meeting

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

On June 18, the Professional Development Committee presented Total Quality Management (TQM) at its breakfast meeting. Stephen Russell, a senior consultant with Ernst & Young, updated those gathered on how TQM in Canada compares with Japan, Germany and the USA.

Stephen Russell is a chemical engineer who received his MBA from the University of Manitoba. He introduced his discussion with an interesting analogy. "Companies who have not yet introduced TQM are like a hobo waiting to jump on a train. At first, there are many cars to choose from. After a while, you have only a few left and if you don't get on, you will miss the train".

Corporations in four sectors in four countries were surveyed in an International Quality Survey. Two service industries (health care and banking, and financial services) and two manufacturing sectors (computers and peripherals, and automotive) were approached.

From this International Quality Survey, which obtained an 85% response rate, a large database was created.

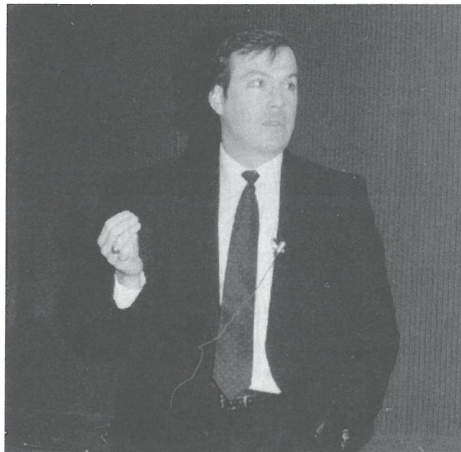
The survey indicated several trends. Those discussed here were drawn from the automotive industry.

Generally, today's management spends too much time reacting to situations. They should strive to introduce a continuously improving process rather than a projected, specific target. (Compare this idea to the game of football. Think

of being able to gain a few yards each play, and consistently driving down the field, rather than throwing the long pass for a touchdown). Even the term TQM will come to be known as "continuous improvement."

Many of the methods used for generating improvements in the 80's are not expected to be effective in the 90's. Improvements will become a long-term goal and not a "quick-fix". Also, customer satisfaction and needs will play major roles in corporate strategies. The chief measure of process improvements will be fewer customer complaints.

Customer requests will become the basis for selecting new products more frequently than mar-



Steve Russell explains Quality Study

ket analysis or competitor observation.

In manufacturing, one of the fundamental differences brought forward was that in Canada the USA, suppliers are chosen by competitive bidding. The lowest cost item is selected. In Germany and Japan, technology considerations dominate the selection process. This shows that companies in Germany and Japan are using their suppliers for the transfer of advanced technologies. In North America, manufacturers are increasingly selecting the low-cost supplier. This practice in North America is expected to continue. To some, this is a growing concern.

Also, corporate strategy in Canada and the USA flows from the finance department. In Japan, research and development (R&D) leads, with little input from operations. In Germany, there is a balance between R&D, finance, operations, and marketing.

In Japan, Canada, and Germany, the most pervasive quality structure is the suggestion system. In the USA, quality teams dominate. Problems in Japan are usually solved within individual departments – not with cross-functional teams. The cross-functional-team approach has been emphasized in Germany and North America.

Currently, it seems middle managers are the major roadblocks to TQM within corporations. In the future, middle manager performance will be assessed based on his or her role as a team player, and less emphasis will be placed on individual performance.

A report on the findings for each sector is available. Ernst and Young is currently working on Best Practices Reports for each of the four previously mentioned sectors. They hope to determine which model works best in each sector.

Judging by the turnout for this Breakfast Meeting, which had the largest attendance to date (112), many will be interested in the findings.

This presentation is available on videotape through the APEM office. □

"Living" With Manitoba's Education System

By: M. Fedikow, P. Eng., D. Baldwin, P. Eng.

The April, 1992 issue of The Manitoba Professional Engineer (page five) contains an article written by V.L. Dutton that briefly describes some of the education-related articles and efforts directed towards upgrading and/or enriching the Manitoba educational system. This article demonstrates the involvement of APEM through published articles and presents an opportunity to participate in the educational system.

The Dutton article gives APEM membership the opportunity to become involved with the Cartwright Community Independent School educational process. Opportunities of this type are constructive and laudable exercises; however, we feel the crux of the Manitoba educational problem might have been elucidated in the Dutton article by a closer examination of the suggestions for

reform made by Josef Macek.

Dr. Macek, a geologist with the Manitoba Geological Survey, has been attempting to reform the Manitoba education system through an assessment of first principles in the educational process, i.e. a quality program that includes good textbooks. Accordingly, we fear that the quote attributed to a "science teacher friend" in Dutton's article glosses over the seriousness of textbook inadequacy. "Living" with an educational system that relies on inadequate texts means that teachers must commit inordinate amounts of time and resources to deal with poorly designed curriculum guides "supported" by oversimplified and sometimes erroneous texts. Logical and incremental knowledge transfer to the students suffers and it therefore becomes impossible for students to

effectively undertake home study. Parents and guardians are also removed from the educational process in the absence of an effective guide that would permit them to follow, monitor and assist in their child's progress.

Dr. Macek has written a number of independent critiques of the Manitoba educational system and his contribution "Towards A Better Education" has been praised as insightful and timely by some Manitoba educators. Despite this recognition, none of the recommendations has been implemented.

Since the release of this latest report, Dr. Macek has received approximately 300 requests from a diverse audience across Canada. Professional engineers, university professors, secondary school teachers and concerned parents have written to request copies of his report, lend verbal support to his efforts, and share their frustrating experiences with him.

In light of the relative academic performance of Canadian students internationally, it becomes

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Letters to the Editor

Dear Editor:

As an APEM member with "foreign credentials", registered in 1988, I would like to share some thoughts prompted by the President's Message in the June 1992 Manitoba Professional Engineer newsletter.

I strongly oppose WGIC's suggestion that the registration process is unfair, discriminatory or degrading. On the contrary, I found the Board of Examiners very understanding and accommodating when, at my request, it reconsidered the original assessment, and I was allowed to write an examination more closely related to my area of expertise. True, the registration process is demanding, but equally demanding are the responsibilities of the Professional Engineer. My personal satisfaction at becoming a member of the Association was worth every hour spent on studying, and every penny paid in fees.

As for the payments, I have found, from my own experience, that various assessment, administrative, examination and registration fees can be prohibitive, especially for people establishing themselves in a new country. Perhaps the Association should consider a bonus system linked to the examination results, where discounts would be applied towards future fees. The APEM should also consider accepting formal University of Manitoba courses in lieu of examinations. Naturally, only certain courses, pre-approved by the APEM, would be acceptable. On the other hand, the Province could achieve its political goals by sponsoring university courses, providing educational loans, or creating appropriate tax breaks. This would require the cooperation of the APEM, the Province and the University of Manitoba, but the final result would be beneficial for everyone. If such vehicles were created, the Association should be obliged to inform applicants of various options, since new Canadians frequently face difficulties in finding credible information.

In any case, the registration criteria should be left to the Association and must not be compromised.

Sincerely,
Andrzej K. Kosciuk, P. Eng.

Whither Engineering and Technology?

Engineers are held by the public as those most responsible for the environmental impact of industrialization and resource development, including socio-economic impacts. In the latter category, the great efficiencies reaped by modern communication and computer technologies may well be reducing job opportunities and openings (engineers included). We should be asking ourselves, "Whither engineering and technology"?

As an engineer, I could hardly be an anti-technologist, but I am concerned by the absolutization of technology that is so prevalent in our society. It is apparent to me that technology has not deepened the meaning of life but rather has narrowed it. Indeed, while technology has reached greater heights than ever before in the world's history, life for many has, perhaps, never been more empty, shallow, and uncertain. Seeking self-salvation through an autonomous, absolutized technology, we have come to worship the created thing (technology) rather than the Creator.

There is evidence that in trying to carve out a technological utopia that is earthbound, our best hopes and sincere desires eventually are thwarted by unwanted or unexpected results, e.g. ozone depletion, unemployment, meaninglessness. Damaging consequences surface so that our reaching for an earth-made utopia appears more like a descent into a man-made abyss.

Over the last few years we have watched the collapse of a once dreamed-of utopia – Marxist Communism. In ignoring the importance of human freedom, responsibility, and spirituality and by subjugating the individual to the will of the state, horrendous evils developed, including environmental degradation. It is estimated that some 16-20 percent of the former USSR's territory is an environmental catastrophe, and 40 percent is polluted – essentially all the inhabited areas. This was certainly not the intent of Marx and Lenin.

The current sense of triumphalism in the West because of the collapse of communism and the West's clear technological superiority is misplaced. Technology alone will not save us or lead to a more just and peaceful society unless its meaning is placed within the framework of the meaning and purpose of life as derived from outside and above itself. The latter is not an issue for science and technology, which are limited to the study and use of matter in motion, but is the province of the philosopher and the theologian. Technology will play a more positive, life-giving role when its takes its proper place in the hierarchy of things.

A story is told of three artisans constructing a magnificent cathedral. Each was asked what he was doing. One said that he was using a cutting tool to shape limestone blocks (the technological, reductionist, response). The second man gruffly conveyed that the only reason he was there was to be able to buy food and consumer items (the materialist's response). The third craftsman replied in humility, "I am building a house for the glory of God." For each of them their common artisanship has a different meaning and purpose. What is the meaning of technology to you?

Yours truly
B. Stimpson, Ph.D., P.Eng.

APEM Councillor – Robert R. McKibbin, P. Eng.

Continued from page 3

He feels that it is part of the mandate of the profession to exercise our skills and leadership in environmentally responsible ways, so that the third plank is met-and that is the protection of the public.

The fourth plank was the image of the profession in the public eye. Bob considers this to be of utmost importance. He feels it is the duty of all engineers to get out of the office and share their enthusiasm for the profession with others. We should go to the schools on career days and tell young people about the challenge and excitement of engineering. We should make the public aware of the contributions we have made to their lives – contributions that are all too often taken for granted.

Councillor McKibbin urges all engineers to get involved with the profession. We can all help improve the engineering image by letting people know what we are doing about the problems facing our society today. Our organizational skills can help in non-technical areas. We should just get out and get involved.

When asked what one significant accomplishment he would like to be able to look back upon at the end of his term, Bob wanted to be able to say that he had left the profession a better one than when he started. He wanted to be able to say that his actions had improved the image of the profession to the point where significant numbers of bright young men and women were joining us in meeting the future needs of the profession and society. That would not be a bad legacy to leave and, with our help, I believe that councillor Robert McKibbin, P. Eng. can do just that. □

Engineers on the Run

Continued from page 4

up the rear, in a time of 3:22:50 (a few seconds better than last year, despite the flu bug, which slowed Dave Ennis by three minutes to an eight-minute mile!) Team Three placed 56th overall, and third in the "corporate mixed" category.



Ark Tsisserev completes full marathon.

All of this translates to a total of 104.8 miles run by 15 engineers at an average 7.5 – minute mile: all in all, a pretty good showing for the profession!

Next year, says Murray Vanderpont, Past-Chairman of the Sports Committee, we're hoping to have five or six teams entered. So, dust off those old Nike's, and get out there. It's never too early to start training! □

Council Reports

May 11, 1992

By: A.E. Ball, P. Eng.

AT WHICH COUNCIL SPENDS ONLY A PORTION OF ITS TIME DEALING WITH CONSTRUCTIVE ISSUES

It's a sad day when a good portion of time spent in Council meeting is to consider and discuss the legal aspects of human rights complaints and hearings associated with registration appeals. When the actions have been settled, I'm sure the details will be well known.

Fortunately, there were other more constructive items on this month's agenda, and all revolved around various aspects of enhancing and sustaining (or blemishing) the profession's stature. These included new registration requirements, continuing competency and graduate engineer mentor programs.

Registration Requirements

Council endorsed a recommendation from the Executive Committee on making the "Concepts in Professionalism" seminar a requirement for new registrants. This would certainly support the continuing competency initiative that the Association is moving towards, but there could be some logistic problems associated with out-of-town registrants. This item was referred back to the Professional Development Committee for development of the implementation details.

Continuing Competency

Council also concurred with the principle of mandatory monitoring of professional development, and requested that the Professional Development Committee research existing systems of other professions and jurisdictions and develop a plan for Manitoba.

June 15, 1992

By: B.A. Dobran, P. Eng.

AT WHICH COUNCIL ADVISES PUBLICATION COMMITTEE ON PRESENTATION OF NEWSLETTER, AND ESTABLISHES A NEW NON-PRACTISING MEMBERSHIP DESIGNATION

The June 15, 1992 Council meeting was chaired by Vice-President Carl Anderson. One of the first items of business was to bring back a motion that was tabled at the last Council meeting. A new motion was passed, stating that Council advise the Publication Committee that the official logo be used only in its official form and colour in the Manitoba Professional Engineer. (As you can see from this issue of the MPE, the Publication Committee is reluctant to comply with Council's advice!)

The approval of licenses, transfers, registrations and re-instatements went smoothly. One of the EIT applications was voted on separately, since the candidate is self-employed, and therefore not working under the direct supervision of a professional engineer, as required by the By-Laws. All EIT applications were granted. It was announced during the meeting that a blanket Professional Liability Insurance Policy has been applied for, to cover, among other things, the Mentors of EIT's.

Registration Board

Council considered the Ad Hoc Committee's draft Terms of Reference for a proposed Registration Board. The main purpose for the Registration Board will be to consider all applications for registration, temporary licensure, transfer, reinstatement and EIT membership, and to approve or refuse all such applications, on behalf of Council. The Registration Board will also rule on appeals against admissions decisions of the Director of Admissions, the Board of Examiners or the Admissions Review Board. Council prepared some suggestions for the Ad Hoc Committee to incorporate into a revised draft, to be completed for the July 13, 1992 Council Meeting.

Graduate Engineer Mentor Program

The APEM has, in the past, registered graduate engineers after they have worked the required two years, even though they have not worked under the direction of Professional Engineers. In some cases, all three of the required references have been non-engineers. If these applicants were, in fact, practising engineering, they were doing so in contravention of the Engineering Profession Act.

To correct this situation, Council has been asked to consider a Mentor Program for graduate engineers who do not have Professional Engineers as supervisors. The concept is to have a professional designated as the candidate's mentor for a two-year period, while the candidate is working in an "engineering" environment. Apparently, at any one time there are a number of graduate engineers working for small industrial companies where there is no direct supervision by a registered professional. So this mentor would act as a counsellor to the engineer-in-training, available to answer questions and discuss technical issues. This reporter has great difficulty with this concept. I'm a firm believer in the aspect of learning on the job and of learning from the experienced people around me. When I think back on my early years out of college, I worked in a design office environment with a multitude of talented engineers, and had the opportunity to learn something from all of them. I'm not convinced that an occasional telephone conversation or review of a work diary can match the experience gained from the direct contact and guidance of an experienced individual on a daily basis.

We talk of improving the profession's image, becoming more involved in professional organizations and supporting the advancement of new technologies, but all of these directions require very active participation. In my mind, the training and registration of our new engineers should meet these objectives, by ensuring that they have a sound professional upbringing – including direct supervision by an experienced engineer.

This item will be researched further and retabled at the next meeting.

Council Elections

Council decided that there should be three Council vacancies filled in the upcoming elections, in order to maintain a constant number of councillors. Council requested that the Legislative Committee review the By-Laws with respect to Council elections, to ensure that a constant number of councillors (11) be maintained from year to year.

Non-Practising Membership

It was decided that professional engineers who are unemployed and who can demonstrate to the satisfaction of Council that they are actively seeking employment be eligible for non-practising membership in accordance with By-Law 36.2.2(d). In these circumstances, a member could return to practising membership once employed, without delay, by paying an additional fee.

City of Winnipeg Technical Advisory Committee on Waste Management

Council nominated Ted Speers, P. Eng. to sit on the subject Technical Advisory Committee.

Board of Examiners' Recommendations

Council accepted the Board of Examiners' recommendation that APEM accept programs accredited by the Institution of Engineers Australia, from 1989 onward, as being equivalent to our Canadian Engineering Accreditation Board's accredited programs. Council also adopted the recommendation that every applicant for registration be required to supply a transcript of marks for review, effective immediately.

Registration of Geoscientists

Last year, Council endorsed the geoscientists' proposal that APEM consider registering both engineers and geoscientists under one Act.

On June 3, 1992, there was an APEM/SPRGM (Sub-committee for the Professional Registration of Geoscientists in Manitoba) joint meeting. Discussions are on-going, defining the concerns on both sides.

The APEM Open

V.B. Mackenzie, P. Eng. and sometime golfer

Golf, at least in the minds of golfers, is the greatest game mankind has ever invented. It is full of unexpected triumphs and failures. It is gratifying, tantalizing, precise and unpredictable. It satisfies the soul and frustrates the intellect. It is rewarding and maddening. Nothing quite matches the feelings of watching a well-hit ball sailing up into the blue sky, reaching its apex and falling to the green turf far down the fairway.

"... the early finishers, warm and dry(?), watched with glee as those unfortunates still on the course slogged back to the clubhouse, thoroughly and completely drenched."

All the elements were there on June 3rd when some 116 intrepid participants gathered at the Selkirk Golf and Country Club for a day of golf and companionship. A golf course is an intoxicating place. This is especially true on a June morning when the warm sun presses down on the shoulders; when the grass has just been mowed and lies damp and green with its fresh-cut smell when the sky is deep blue and an occasional white cloud drifts by. So it was as the first foursomes teed up to get our annual tournament underway. Little did anyone suspect that Mother Nature was quietly smiling behind her hand and withholding a vast surprise for these trusting and cheerful mortals.

Certainly, the tournament progressed smoothly until about three o'clock. Then black storm clouds moved in from the south. Several bypassed the course but, at about four o'clock, Mother Nature lowered the boom! Thunder, lightning, gale force winds and a veritable cloudburst of rain ended the day's club-swinging activities. Ended it, that is, for all but one intrepid foursome

that carried on through the rain-flooded fairways and greens (-only in APEM!).

Meanwhile, back at the clubhouse, the early finishers, warm and dry(?), watched with glee as those unfortunates still on the course slogged back to the clubhouse, thoroughly and completely drenched. But an engineer's happy hour is a marvellous reviver. Engineers are hardy souls - not a complaint was heard.

After the guzzling, socializing, renewing of old acquaintances and barbecuing were well underway, the awarding of prizes and trophies took place. Many of the prizes were won by golfers of questionable abilities. Others were won by those who obviously take the game seriously and who turned in some very respectable scores. Among these latter, Rob Borody had the low score for the day, and will have his name inscribed on the Landon Cup, joining other talented golfers of past years. He had been hard-pressed by Marv McKay, Don Mulder and Harold Wilson who all played well (and who all, coincidentally, finished before the monsoon struck). The low net winner was Irv Sandule, and



Councillor Ray Hoensen (l) presents Sullivan Trophy to Darwin Kupskey

describe some of the projects that different engineers may become involved with, but they also shared information from practising female engineers, and provided a first-hand look at the life of a female engineering student.

They told junior and senior high school boys and girls, as well as interested members of the general public, that Canada needs more engineers, that engineering is a viable career choice for women, and that engineering can be fun, as well as challenging. They pointed out that over 50% of Japan's companies (including banks and insurance companies) are run by engineers, and challenged the Winnipeg students to consider engineering as a career option.

The presentations were, as expected, very professionally delivered; and I am sure that, as a result of Kathy's and Sarah's efforts, more than one young Winnipeg student will be studying engineering in the future. □

he was closely followed by Gary Markham, Darwin Kupskey and Bob Partridge. Darwin, being the low APEM member, will have his name on the Sullivan Trophy. However, despite all the above, it should be noted that the real winners were the participants - all of them!

Once again, the sports committee is to be congratulated on organizing and running a fine tournament under somewhat disconcerting circumstances. (The mysterious system for determining winners when some foursomes were unable to finish their rounds was not announced and was not questioned - certainly an unspoken tribute to the committee by the participants.) □



Rob Borody (r) receives Landon Cup.

European Economic Community Integrates Engineering Professions

The Europe Economic Community is currently integrating all of the engineering professions of Western Europe into one organization. This organization will be one of the largest engineering professions in the world and will have a world-wide impact.

Dr. Axel Meisen, P. Eng., Dean, Faculty of Applied Science University of British Columbia, will speak on the topic of the European engineer at the Association's Annual General Meeting Luncheon October 30, 1992. Dr. Meisen's presentation will consider:

- the concept, historical background and professional responsibilities of the European engineer;
- the past, present and future status of the European engineer with respect to the Europe Economic Community;
- the effect of the European engineer on the engineering profession in Canada;
- a comparison between the structures and functioning of the engineering professions in Europe and Canada; and
- opportunities and conditions for Canadian engineers to practise in Europe.

Scholarship Winners Promote Engineering

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

On Sunday, May 3, 1992, Queen's University engineering students and 1989 Canadian Engineering Memorial Foundation scholarship winners Kathy Preston and Sarah Westcott arrived in Winnipeg to promote the profession of engineering to interested Winnipeggers.

During three separate presentations organized by this Association's Public Relations Committee, Kathy, a graduate of engineering chemistry, and Sarah, a first-year "survivor" planning to enter second-year engineering physics, told their audiences what engineers do. Not only did they

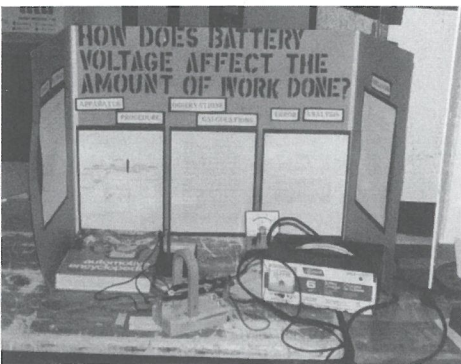
APEM Public Relations Committee Judges at Schools Science Symposium

By: C. Nieuwenburg, P. Eng.

On Friday, May 1st and Saturday, May 2nd, APEM participated in the 1992 Manitoba Schools Science Symposium (MSSS) held at the University of Winnipeg. The Symposium is billed as the largest science fair in the world, and after two days of judging, my nine volunteer judges and I can certainly attest to it! We had the daunting task of trying to sift through the over 500 projects to find candidates for APEM's awards of one \$500 engineering scholarship to the University of Manitoba, and three \$200 scholarships to an engineering session at the University of Manitoba's "Mini-U" program. The winner of the \$500 scholarship had to be a grade 12 student whose project was engineering-related, while the winners of the Mini-U enrolments had to have shown a keen interest in engineering through their projects, and had to be 10-15 years of age.

Using the list of project titles and their categories supplied to us by the MSSS Organizing

"The students were so excited and eager to be judged that it was a pleasure to do so."



Committee as a guideline, my judges and I spent the Friday evening previewing the 110 projects whose titles looked promising, and to assess whether or not they were truly engineering-related (no students were present). In many instances, we discovered that titles can be very deceiving, and we managed to reduce the number of projects to be judged to 90. Saturday morning was spent interviewing the students of these 90 projects, and these hours were by far the most rewarding for us as judges. The students were so excited and eager to be judged that it was a pleasure to do so. Unfortunately, we were not able to find a candidate for the engineering scholarship. However, we found more than enough students ideal for the Mini-U program, and therefore awarded two more Mini-U enrolments for a total of five, which were presented by APEM President, Pat Feschuk during the Sunday afternoon Medals Ceremony. The deserving winners were James Koenig (Wind Blade Efficiency), Heidi Adamko (Hovercrafts), Nicole Asselin (Battery Voltage and Amount of Work Done), Jeffrey Knox (Disc-hovering) and Chris Tysiaczny (Water Filtration and Purification).

Many thanks to my nine patient and helpful judges (you know who you are!), and to Shirley Matile for her (always forthcoming) assistance. □

Engineers' Duty to Report

Engineers have a legal responsibility to report to the authorities having jurisdiction on matters when they are aware of incidents contrary to legislation including the Engineering Profession Act. The afternoon panel discussion at the Association's Annual Meeting October 30, 1992 will examine the issue of whistle blowing. Dr. Art Schafer of the University of Manitoba, and a representative of the Government of Manitoba's Attorney-General's Department, will be on hand to discuss the engineer's duty to report, and to comment on the topic of legislative protection.

The discussion will also include a representative from the Association of Professional Engineers of Ontario, who will provide an overview of Ontario's current practice and experience dealing with an engineer's duty to report.

CCPE Elects New President

The Canadian Council of Professional Engineers elected Micheline Bouchard, ing., President, during its 56th Annual Meeting, held in Whitehorse, Yukon Territory on June 4-5, 1992.

Ms. Bouchard graduated from Montreal's Ecole Polytechnique in 1969 with a Bachelors degree in engineering physics. In 1978, she obtained a Masters degree in electrical engineering from the same institution. From 1978 to 1980, she was President of the Ordre des ingenieurs du Quebec.

Ms. Bouchard is currently Vice-President, Marketing of the DMR Group Inc., an international firm in information technology services that employs more than 2,300 professionals in Canada, the United States, Australia and Europe. She is also a member of the Board of Directors of each of Canada Post, Uni-Media, Corby Distilleries, Gaz Metropolitan, and London Insurance Group, and she is Vice-President of the Montreal Board of Trade.

As President of CCPE, Ms. Bouchard will give high priority to the Council's new five-year strategic plan, which calls for an expanded role for CCPE in the development of national standards, professional development, national and international mobility of engineers and the promotion of the profession.

According to Ms. Bouchard, "it is particularly important to heighten public awareness of the important role engineers play as creators of wealth in our society. Moreover, engineers have a strategic role to play in helping to ensure the protection of the environment through the practice of sustainable development". □

1989 Canadian Engineering Memorial Foundation Announces Graduate Scholarship Award

The Board of Directors of the 1989 Canadian Engineering Memorial Foundation is pleased to announce the opening of the competition for its Graduate Scholarship Award.

One \$5,000 scholarship will be offered each year to a woman entering or enrolled in a graduate engineering program. Selection of the scholarship recipient will be based on academic achievement and community leadership.

The recipient of the first Scholarship will be

selected in the fall of 1992.

Details of the scholarship criteria and application form will be forwarded to all universities across Canada offering accredited undergraduate engineering programs.

For further information, please contact:

Lorelei Scott,
Canadian Council of Professional Engineers,
Telephone: (613) 232-2474,
Fax (613) 230-5759.

News From Other Associations

By: L.Y. Ganetsky, P. Eng.

Saskatchewan

Sustainable Buildings

Developers and builders may soon be called upon to take into account the environmental impact of the materials and the construction methods they use to build both residential and commercial projects.

In the Netherlands, the nation's Ministry of Housing, Physical Planning and the Environment has begun a project called "Sustainable Building" to encourage reduced waste and lowered environmental impact for buildings.

The ways that construction materials are produced – for example, whether or not the wood comes from a rain forest – should be considered, as should the materials' long-term effect on both the environment and those who live or work within the building. For example, the phosphoric gypsum often used in constructing walls releases radioactivity and should therefore be avoided, the group notes.

Construction methods are also important, ranging from taking care not to pollute local water supplies during the construction process to using materials such as brick that provides natural insulation and can be recycled if and when the building is demolished.

To promote "sustainable building", the Ministry constructed its new headquarters at a location where the environmental impact was low and where workers could easily use public transportation. Recycled building materials were used for the project.

Some of the group's suggestions for making houses and buildings "sustainable" are:

- Use recycled building materials where possible.
- Don't use tropical wood.
- Make use of passive and active solar energy.
- Facilitate rainwater collection and use for such activities as watering gardens or outdoor cleaning.

Notice

This is notice that on July 13, 1992 a conviction on charges of unprofessional conduct and conduct in the practice of engineering detrimental to the public interest was registered against and a reprimand issued to L.P. Williams, P.Eng. in accordance with Section 43.4.8(e) of By-law 43.

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

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

- Avoid large open spaces such as open stairways or atriums that take a lot of energy to heat or cool.

Newfoundland

Model Bridge Competition

In conjunction with the National Festival of Engineering '92, the students of Memorial University Engineering Society, together with the Association of Professional Engineers & Geoscientists of Newfoundland (APEGN), conducted a Model Bridge Competition.

The Festival of Engineering '92 ran from April 6-11. The bridge competition was held Saturday, April 11 at the Avalon Mall. Also appearing were a series of booths showcasing the latest engineering innovations developed in Newfoundland by Newfoundland companies. Throughout the week, speakers from APEGN and the University visited schools speaking on topics of varied interest.

The competition completed a week of activities centered on promoting the awareness of engineering in society and engineering as a career choice for future university students.

The purpose of the Model Bridge Competition was to promote the engineering profession within the community by means of a "hands-on", friendly competition between junior high school students. The object was to introduce students to some basic engineering principles in an enjoyable medium, and to foster awareness of the role engineers play in some of their everyday activities.

Junior high school students in the St. John's/Mount Pearl and metro area matched wits and skills by constructing the strongest bridge from only popsicle sticks and white glue, respecting the rules governing dimensions and weight

restrictions. Bridges were judged on the loads they could withstand, aesthetics, and originality. Models were preconstructed and transported to the competition. This year's contest drew 13 entries and involved over 50 students from various junior high schools.

The testing involved placing each bridge in an apparatus which housed a hydraulic load-cell. The bridge lengths were to cover a 50 cm span, be no higher than 25 cm and no wider than 15 cm. The load was gradually increased until the bridge failed by collapse or deflected five centimetres. This load was recorded by a digital meter and then entered into the following formula:

$$\text{Strength Ratio} = \frac{\text{Load Applied}}{(\text{bridge weight})^2}$$

The remainder of the score was determined according to aesthetics and originality.

The winning design weighed only 0.25 kg and supported a weight of 27.27 kg before collapsing. □

Garrison Diversion Resurrected

The State of North Dakota has recently prepared a report proposing a modification to and resumption of the Garrison Diversion Project in that State.

Dave Sprynczynatuk P.E. from North Dakota State Water Commission will speak on the current status of the Garrison Diversion Project at the Association Annual Meeting Breakfast October 30, 1992. □

Westman Chapter News

By: R. Menon, P. Eng.

The annual meeting of the Westman Chapter of APEM was held on May 12, 1992.

In attendance was APEM President Pat Feschuk, who brought greetings from the Association and an excellent account of the activities of the Council and the Association.

Gil Mourant, P. Eng., Chief Structural Engineer with I.D. Engineering Canada Inc., provided the members with an after-dinner presentation on designing and constructing an airstrip and a wharf



President Feschuk, Gil Mourant and Dick Menon at Westman meeting.

in Antarctica. We had been trying for two years to get Gil to come West and talk to us on this project, but he spent the last two winters playing soccer with the penguins (not the Pittsburgh variety) at the South Pole. We are glad that he was finally able to be our guest and give an excellent slide presentation on life way down under.

Gil's technical paper was mixed with sufficient general information on life in Antarctica to make the presentation very interesting and entertaining. Most members agreed, in private, that this was the best presentation ever. I would, therefore, like to thank Gil for sharing his experiences with us, and for taking us on a journey to the South Pole.

Chapter elections were also held at the meeting. Executives for 1992-93 are: Doug Delgatty (Chairman), Don Solkoski (past Chairman), Rob Reisz (Vice-Chairman), Stella Fedeniuk (Secretary-Treasurer). The four members-at-large are David Ford, Collin Walker, Ken Colcomb and Ian Christianson.

The Westman Chapter hopes to continue in the fall with supper meetings. Until then, have a safe and pleasant summer. □

What is CCPE doing for me?

Continued from page 4

4. Adequate Supply of Qualified Engineers

As part of our mandate to govern ourselves, it is essential that we ensure an adequate supply of qualified practitioners to ensure the protection of the public.

The Canadian Engineering Human Resources Board (CEHRB), the other standing committee of CCPE, produces studies, statistics and commentaries on the supply and demand of engineers in Canada. The information produced is used by both government and industry. The CEHRB intends to become the recognized authority on the engineering labour market in Canada.

5. Awareness of the Importance of Engineering

CCPE provides governments and the public with a greater knowledge and appreciation of the importance of engineering in Canada. Lack of awareness of the importance of engineers to society is one of the serious problems facing our country today. The CEHRB has sponsored two conferences on the Engineering Outlook, bringing together senior business people to discuss the link between engineering competitiveness and the creation of wealth in Canada and the world.

The Festival of Engineering was inaugurated in 1992 as a national engineering week with the theme "Engineering our Future". It will be promoted as an annual celebration.

6. Primary Source of Information on Practice of Professional Engineering

CCPE is proposing to become the primary source of information on the practice of professional engineering and related public policy matters. This will include an inventory of experts across the country who can be called upon to provide opinions on significant engineering-related matters of concern to the public.

7. National Service Programs

CCPE provides programs to further the professional, societal and economical interests of engineers across Canada.

It offers life insurance, disability insurance, automobile insurance and RRSP's to the some 146,000 engineers in Canada. CCPE also participates in the National Professional Liability Insurance Program.

CCPE also provides a national forum for recognizing outstanding engineers in Canada. The national awards include the CCPE Gold Medal Award, the CCPE Meritorious Awards for Professional Service and for Community Service, and the CCPE Young Engineer's Achievement Award.

In summary, I believe that CCPE plays a significant role in Canadian professional engineering, and its role will become even more important as the emerging global economy dictates the need for internationally recognized qualifications, transportability of credentials and improved public awareness of engineering. □

"Living" with Manitoba's Education System

Continued from page 6

apparent that we can no longer afford to "live" with the educational status quo. A good first step might be to acquire one or more of Dr. Macek's assessments of our educational process and bring its contents to the attention of teachers, adminis-

trators and bureaucrats. Might we suggest that APEM, through its obvious interest in Manitoba's educational process, become involved in an assessment of Dr. Macek's efforts with an aim to formulating a position paper and/or recommendations to our elected representatives?

For APEM membership interested in assessing Dr. Josef Macek's approach to educational reform, he can be reached at 79 Petriw Bay, Winnipeg, Manitoba, R2R 1K2. □

Homework Help — an Experiment in Public Relations

By V.L. Dutton, P.Eng.

To assist high-school students, it is proposed to provide a "consulting" service for them starting in September. "Experiment" will be evaluated during the Christmas period. It is hoped to recruit a minimum of six engineers in order to spread the work-load. Leave you name with Sylvia, 942-6481, and you will be contacted.

Place: Louis Riel Public Library,
1168 Dakota Street, St. Vital.

Times: 10:00 a.m. to 12 noon on Saturdays

The Changing Chemistry of the Atmosphere...

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resultant increase in grasslands in western Canada. The current temperature rise of 3-4°C is a 20-year record, causing lake temperatures to rise, giving more ice-free days, increased drying and less runoff. The residence time in the lakes is increased by a factor of three, giving a general increased concentration of a lake with its nutrient amounts, causing the lake to become more transparent with further breakdown due to ultraviolet penetration. The thermal change goes deeper. Snow depth is reduced.

Dr. Hecky's studies indicate a dark scenario, emphasizing the urgent need to greatly reduce atmospheric pollution worldwide if we are going to succeed in the goal of sustainable development. □

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