THE MANITOBA
Professional Engineer
ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF MANITOBA
December, 1991

Earning Our Image – Quality In Our Works And Ways

The Annual Meeting Panel Discussion on Total Quality Management

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

Four respected business and academic leaders took part in the afternoon panel discussion at the Annual General Meeting on October 25, 1991. These included guests Bert Kraemer, President and General Manager of Reimer Express Lines, Dr. Lai Chan, Professor and Head of the Department of Statistics, University of Manitoba, and Lorne Ames, P. Eng., President of INCO Manitoba, as well as the discussion moderator, Walter Harrison, P. Eng., Director of Nuclear Services at AECL Research, Whiteshell Laboratories.



Councillor Walter Harrison, P.Eng., Moderator

Mr. Harrison stated that our Image and Quality are inextricably linked – we must earn our Image through our works and ways. He also provided a brief overview of Total Quality Management (TQM) concepts and history. TQM has evolved from the simple product-screening routines (where products would be inspected and the defective ones discarded or corrected), through the quality control and quality assurance feedback loops (that provided a system of checks to reduce defects), to participative Quality Management and the culture of Continuous Improvement.

Quality in the 90's will focus on customer satisfaction, where work tasks and processes will be specifically defined to achieve and maintain high-quality standards essential for complete customer satisfaction.

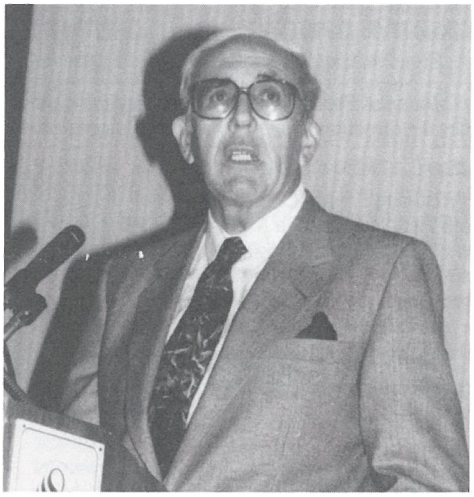
Quality and the Customer – Mr. A.G. (Bert) Kraemer

Before taking responsibility for one of Canada's largest transportation companies, Mr. Kraemer was globetrotting with Firestone, the giant US rubber company. In 1986, he came to Reimer Express Lines with a mandate to improve the company's quality of service. Reimer is now a recognized leader in TQM.

This achievement has been possible by simply reinforcing the old adage that the "Customer is King". TQM is market-driven; both domestic and foreign competition are very strong and, to survive, a company must be productive and efficient. This can be thought of as reducing non-conforming results as well as making all work tasks add value to the product or service. The phrase "that's good enough" is no longer acceptable to customers of the 90's, where the trend is to demand virtual perfection from services and products. To counteract these demands, Reimer's goal is to provide legendary service by striving for on-time delivery of every shipment.

Senior management must be heavily involved in the transition to TQM. As Mr. Kraemer puts it, "Management must walk like they talk". Without the CEO's understanding and support, TQM is doomed to failure. Likewise, in unionized companies, it is critical to involve union leaders early in the planning sessions. Leadership is also important in small companies where, due to fiscal restraints, it may be necessary to plan and implement the program by learning from the experiences of others.

Recognition as to the nature of the customer is essential to developing a TQM culture – in TQM circles the customer is defined as the next person or identity to receive the results of your work.



Bert Kraemer, President and General Manager, Reimer Express Lines

Consequently, this image of the customer can dramatically change the working environment in an organization, especially between departments. Management must also empower its employees by giving them the authority and information to fulfill their objectives. This can be a very trying time for all staff, since many managers feel they are giving up control to their staff, whereas the staff feel uneasy with what they perceive to be greater responsibilities. Better understandings result when both parties realize that the workers can rely on their managers to direct, coach and help them, in a team effort, to meet the company objectives. Also vital to the success of TQM is the reward and recognition of staff and – a perfect example of what motivates most people – recognition by one's peers for a job well done.

In all cases, TQM is an evolutionary process that occasionally plateaus, and requires direction and effort to ensure continuous improvement. Mr. Kraemer emphatically stated that quality is not an option in the 90's, but essential to the survival of both large and small companies. And, contrary to popular belief, quality does not cost; it pays.

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THE MANITOBA

Professional Engineer

December, 1991

Published by the Association of Professional Engineers of the Province of Manitoba
530-330 St. Mary Avenue
Winnipeg, Manitoba R3C 3Z5
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Increase in Annual Dues

By: D.A. Ennis, P.Eng.

Members will probably have noticed that the invoice for their 1992 Annual Dues represents a $15.00 increase over the 1991 dues ($170.00 vs $155.00).

Council is cognizant of the financial pressures that are currently affecting the membership, and it is not without serious consideration that this increase has been authorized. Ironically, the two most visible factors influencing the economy are major contributors to the increase.

The first is the impact on the Association revenues of the reduction in interest rates over the last year. The investment income from the Association's reserves is projected to decrease from $67,000.00 in 1990/91 to $50,000.00 in 1991/92 despite a modest increase in the reserve. Rates have been lowered by 38% between July of 1991 and now.

The second is the impact of the GST on the cost of operations. Members are not charged GST in addition to the Annual Dues. However, the GST paid by the Association is included in the dues. The 1991/92 fiscal year will be the first full year of GST. The estimated increase in the cost of GST is just under $13,000.00, with the estimated cost for the year at just under $22,000.00. If this is distributed amongst the 3290 dues-paying members it is approximately $6.60 per member. When compared with the amount of GST that would apply, even assuming no increase whatsoever in dues, (i.e. $10.85, on $155.00 @ 7%), Council has decided not to change its policy in this regard.

Members who were not at the Annual Meeting and who wish to have a copy of the Association's Budget may obtain one by contacting the office by telephone (942-6481), FAX (942-3718) or mail.

Those who pay their annual dues by cheque are reminded that the Association accepts postdated cheques provided that they are dated on or before the February 29th deadline.

In contemplating dues, engineers may be interested to learn about the levels of dues paid by other Manitoba professionals. A recent survey reveals the following: Manitoba Association of Architects $360.00; College of Physicians and Surgeons, $535.00 plus GST; Manitoba Dental Association, $1595.00; Law Society of Manitoba, $2035.00 plus GST. □

100% ON THE PROFESSIONAL PRACTICE EXAM

K.A. Retha

ENGINEER-IN-TRAINING MEMBERSHIP SEPTEMBER & OCTOBER, 1991

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W.S. Ngu

WE HAVE LOST CONTACT. CAN WE HAVE AN ADDRESS?

G.E. Bandola
G. Buttner
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H. Dansereau
J.D. Denoon
E.H. Fung
G.M. Halliday
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R.A. MacPherson
J.W. Meagher
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P. Po
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R.J. Sawchuk

Letter to the Editor

Dear Bill:

On Saturday evening I was doing what I don't do often enough: just sit in my study, listen to some music and read whatever I feel like, something not related to a lecture, research idea or overdue writing deadline.

I picked up the June 1991 issue of The Manitoba Professional Engineer. I do appreciate getting that in the mail, it always goes into the pile of stuff to read, never in the round file—and right from "A Conceptual Design for the Red River Water Arch" to the end had a good enjoyable read. You and your Publication Committee members do a good job but I guess most people are too busy to say thanks. So Bill, thanks a lot to all of you from one of your quiet out-of-province readers.

Yours sincerely,
Norman R. Ball, PhD
Director, Centre for Society, Technology and Values,
University of Waterloo

NEW MEMBERS REGISTERED SEPTEMBER & OCTOBER, 1991

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M. Arbez
T.J. Armstrong
W.M. Arnold
D.G. Bell
B.M. Bichel
L.B. Birdsell
R.G. Boehnke
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A.J. Kettler
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W.D. LeBlanc
R.C.M. Lee
B.J. Lence
J.E. McClung
H.J. Maretz
P.C. Moeykens
D.W. Nicholson
B.A. Orbanski
S.J. Ormiston
C.M. Parker
G.B.P. Plohman
A.W. Ptak
J.R. Ramsay
W.D.A. Rose
G.K. Saevil
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B.D.I. Tabac
G.A. Webster
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President's Message

N.P. Feschuk, P.Eng.



In preparing for this article I used the opportunity to review the President's Messages for the last three years. Comparing concerns and issues raised in the three messages to my experience on the 1972-74 Council and my past year on Council it would appear that the concerns and issues haven't changed over the last twenty years.

We are still concerned about: engineering education and whether the engineering program should be extended to cover more technology/establish pre-engineering university entrance requirements such as two years of science/add additional business, human relations, and environmental courses and extend the degree program to six years; visibility of the profession; ethics; the desire of the technologists to seek separate legislation for "right-to-title" and the short- and long-term impact of such legislation on the safety of the public; and the necessity to upgrade admission standards.

At first glance it would appear that the issues that were around twenty years ago are still here. They are. What has changed is that the issues and concerns which the profession was concerned about twenty years ago are now issues which the public is concerned about.

The Province of Manitoba is now looking at admission standards into the professions and trades to determine what can be done to accommodate the registration of foreign-trained applicants for engineering and other professions and trades. This process will result in public dialogue and hearings. The recommendations forthcoming may impact the profession significantly.

At the 1990 St. Louis American Public Works Conference a private Personnel Placement Officer specializing in public works placements explained why many Public Works Managers positions were being filled by non-engineers. His reason was that a graduate engineer with five to ten years experience, as a rule, had deficiencies in the area of communication skills and in the social, cultural, political and environmental aspects of engineering design and is therefore unable to meet the community's concerns. My association with American Public Works Association and the Solid Waste Association of North America certainly point out that many (certainly the majority of appointments in the last few years) of the senior public works personnel appointments are University graduates from disciplines other than engineering. I feel the engineering graduate who is trained in the area of municipal services should be in the best position to advance to top positions in Public Works. If this is not happening then is there a deficiency in engineering education as suggested by the Personnel Placement Officer? Do engineering programs have to be extended to include courses in the areas of human relations, communication skills and the impact of engineering work on the environment?

The visibility of the profession is a concern to all of us. Premier Filmon has publicly stated that the engineer has a role (or is it an obligation) to take an active part in the community whether in community clubs, other community groups, school boards, the legislature or parliament. The bottom line is that the profession's visibility is a product of the activities of each of us as individual members. Our public image is enhanced by the works of our members who are active outside the profession when they are identified as professional engineers.

"What has changed is that the issues and concerns which the profession was concerned about twenty years ago are now issues which the public is concerned about."

CCPE has recommended a code of ethics that will not only affect our professional conduct but also our conduct as individuals when we function outside our professional careers. APEM in its proposed code of ethics now before the membership incorporates many of the CCPE recommendations. The public demands a high ethical standard from professionals both at work and away.

The technologists have applied for "right-to-title" legislation and the profession has to come to grips with the impact this will have on the safety of the public. It is apparent that governments across Canada are prepared or at least considering adjusting the scope of professionals to allow other groups to legally involve themselves in the areas which have been the domains of the traditional professions.

CCPE has recommended, and some of our sister associations appear to be prepared to adopt, four years minimum applicable experience after graduation before registration. Standards with respect to "applicable" experience are changing to accommodate the changing role of the professional engineer in society and the expectation of the public with respect to registration.

Twenty years ago all these items were concerns and issues within the profession. Today they are public concerns and issues. If we do not address these concerns and issues they will be addressed for us.

I would welcome your comments and concerns, preferably in writing. I can be reached at the Association office.

My thanks to Past Presidents McDonald, Buhr, Laliberte, and DePauw whose Presidents' messages and comments I reflected on.

Welcome and Thanks

On behalf of the Association I would like to welcome newly-elected Councillors Chapman, McKibbin and Stewart, welcome appointed Councillors Fyfe and Cornell, congratulate Councillor Hoemsen on his re-election and thank retiring Past-President Buhr, and Councillors Goble and Pawlikewich for their contributions to Council and the Association.

To the new Councillors I would offer this advice: prepare yourself for a very busy year. To the retiring Councillors and Past-President I would request that you make your concerns known and provide guidance to the new Council that only your experience can offer. □



An Advocacy Group for the Engineering Profession?

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

As part of the Annual General Meeting, an awards luncheon was held at the Westin Hotel. Approximately one hundred attended to see Merit Awards presented to Ralph Bullock, Hon. Gary Filmon and William McKay. Bud Christie received the Outstanding Service Award. William Mackenzie was honoured with an Honourary Life Membership and Bristol Aerospace Ltd. was given a Certificate of Engineering Achievement for its work with the Black Brant sounding rocket.

After an excellent lunch and awards presentations, Colin MacArthur, Q.C. from the Manitoba Bar Association spoke on "An Advocacy Organization for the Engineering Profession". (Information describing the contributions of the winners is given elsewhere in this publication).

Engineers often consider themselves as the "invisible profession"

Mr. MacArthur explained that for both the legal and medical professions, the body promoting the views of the profession was a separate entity from the governing body. For example, lawyers have the Manitoba Bar Association to publicly advocate their views and are governed by the Manitoba Law Society. Physicians are governed by the College of Physicians and Surgeons and express their concerns through the Manitoba Medical Association.

At present, engineers do not have an advocacy group to promote their views. According to Mr. MacArthur, most engineers are of the opinion that these views should be expressed by their group. The mandate of the Association of Professional Engineers is to protect the public.

To further support Mr. MacArthur's opinion for a need for a separate interest group, he offered the example of the provincial government presently considering legislation giving technologists "right-to-title". Many engineers have expressed their concerns over technologists taking the domain of the professional engineer. Mr. MacArthur pointed out that the APEM would not be the appropriate body to lead any such discussions forwarding the engineer's viewpoint. Engineers often consider themselves as the "invisible profession" and there has been negative publicity from ill-advised publications or recent failures. Engineers must ask, "Who will advance the image of the profession?" Other questions to consider, "Who will speak for engineers as a group?" A recent study estimated that one in ten doctors were alcoholics. "Do you think lawyers or engineers are any different? Who will put forward programs for engineers with substance abuse problems? Who will put programs forward in the community to allow the public to come to know the profession? Who will meet on a regular basis to discuss problems within the various engineering disciplines? and Who will ensure maintaining a high standard of professionalism?"

Many of these questions are not presently receiving adequate answers.

Engineers cannot be content to accept engineering as the invisible profession. They must advocate an independent professional body. Individuals must be prepared to give back what they have received from their profession.

"Who will advance the image of the profession?"

After Mr. MacArthur's presentation, President-elect Pat Feschuk addressed the luncheon gathering. He reiterated that the APEM mandate was to protect the public and any advocacy of the profession is outside its scope. He again raised the question to the membership as to who will deal with these concerns. President Feschuk stated that there is an apparent lack of support among engineers for an advocacy group, since most seem to feel that the provincial organizations should be performing this function. However, the President agreed that the professional engineering associations should not bear the responsibility of an advocacy group.

All engineers must help to come to grips with this issue and participate in a solution. The AGM committee is to be commended for the Awards Luncheon and Mr. MacArthur's presentation of this interesting topic. □

APEM 1991 Awards

MERIT AWARDS

The Merit Award recognizes outstanding achievement, including the direct advancement of the profession of engineering in Manitoba, by an individual member.

William Ralph Bullock

Ralph Bullock graduated from the University of Saskatchewan with a Bachelor of Science degree in Engineering Physics in 1958 and a Master of Science in Upper Atmosphere Physics in 1960, with credits from U.C.L.A.

Ralph commenced his 34-year career with the Canadian Armament Research and Development Establishment in Valcartier, Quebec in 1957, in the areas of circuit design and solid-state physics. In 1960 he worked as a Research Associate in solid-state physics at the University of British Columbia.

In the same year, he joined the Rocket and Space Division of Bristol Aerospace Ltd. He immediately became leader of a group responsible for the development of diagnostic payloads for the Black Brant series of scientific sounding rockets. He continued working in this area until he was promoted to Manager of the Electrical Engineering Department. In 1979, he was promoted to Director of the Rocket and Space Division, and in 1980, to his present position of Vice-President, Engineering and Quality.



Ralph Bullock, Merit Award Recipient.

Ralph Bullock has become well-known and respected by members of the Government and the scientific community for his energy and commitment to the success of Canada's space science programme and the Black Brant. His strong technical leadership in the engineering activities at Bristol has made Bristol Aerospace Ltd. a Canadian and world leader in the areas of advanced propulsion systems, space systems, and aircraft systems design, repair and overhaul. In 1990 Ralph Bullock received the Canadian Aeronautics and Space Institute McCurdy Award.

Hon. Gary Albert Filmon

Gary Filmon received his Bachelor of Science degree in Civil Engineering from the University of Manitoba in 1964 and his Master of Science degree in Civil Engineering in 1967. He then served as a consulting engineer for five years with Underwood McLellan Ltd., before moving on to spend 11 years as president of Success/Angus Commercial College.

In 1975, Gary Filmon was elected as a Winnipeg city councillor. On council, he served as chairman of the Assiniboine Park-Fort Garry Community Committee, as chairman of the Committee on Works and Operations, as a member of the Executive Policy Committee, and

as a member of the city's official delegation to the provincial government.

In 1979, Gary was first elected to the Manitoba Legislature. Within a month, he had been appointed Legislative Assistant to the Minister of Finance and Energy and Mines, a role in which he served for 15 months before being sworn into the provincial cabinet. In 1981, he became Minister of Consumer and Corporate Affairs and Environment, and he assumed responsibility for the Manitoba Housing and Renewal Corporation.

In 1983, Gary became leader of the Manitoba Progressive Conservative Party, and in 1988, he became Premier of Manitoba.



Gary Filmon receives Merit Award.

As a registered Professional Engineer, Gary has brought a unique perspective to the government of our province. In particular, he has provided leadership for the engineering profession in an area where engineers have a special role to play: that of sustainable development. Gary has a strong commitment to developing and implementing a sustainable development strategy, and currently serves as Chair of the Round Table on the Environment and Economy.

William Gordon McKay

Bill McKay graduated from Queen's University with a Bachelor of Science degreen in Civil Engineering in 1940. He spent the last four "war" years working for the Federal Government before joining Underwood McLellan & Associates (now UMA Group), from whence he retired 37 years later.

Bill's extraordinary service to the profession during, and since, his 41-year career is detailed on page 6.



Bill McKay receives Merit Award from Ed Lach.

OUTSTANDING SERVICE AWARD

The Outstanding Service Award recognizes outstanding service rendered to, or on behalf of, the APEM by a member of the Association.

W.D. (Bud) Christie

Bud Christie became registered with the Association on March 16,1959 and has been a continuous member for 32 years.

Bud was a member of Council from 1985 to 1989 (5 years), and was President in 1988. He served on the Sports Committee for four years, the Consulting Engineers Committee for four years, the Awards Committee for one year, the Executive/Finance Committee for three years, the Admissions Review Board for four years, the Ad Hoc Committee - Technologists for three years, and the Nominating Committee for three years. In recognition of his 27 committee years of valuable and dedicated service to the Association, the Outstanding Service Award was conferred on Bud Christie.



Bud Christie accepts Outstanding Service Award.

HONORARY LIFE MEMBERSHIP

Life Membership, Honoris Causa, is granted by unanimous decision of Council to a member who has, in the opinion of Council, rendered meritorious service to the Association; who is no longer practising on a full-time basis as a Professional Engineer; who has preferably been continuously a member for not less than 35 years; and who has attained the age of 65.

William B. Mackenzie

Bill Mackenzie was registered in this Association on March 4,1957 and has been a continuous member for 34 years.

Bill served on the Sports Committee for 6 years and the Annual General Meeting Committee for two years before being appointed as Managing Director and Registrar of the Association of Professional Engineers of the Province of Manitoba on July 3, 1984.

Bill Mackenzie retired from his position as a member of the Association's staff on June 30, 1991.



Bill Mackenzie receives Life Membership.

CERTIFICATE OF ENGINEERING ACHIEVEMENT

The Certificate of Engineering Achievement recognizes engineering excellence in, and major contributions to, the concept, design and implementation of an engineering work by a member, or group of members, of the Association.

Bristol Aerospace Limited

The 1991 Certificate of Engineering Achievement was awarded to Bristol Aerospace Limited for its pioneering efforts in the development and application of the Black Brant sounding rocket.

In 1981, the National Aeronautics and Space Administration (NASA) honored Bristol Aerospace Limited with a Public Service Group Achievement Award for "their pioneering efforts in the development and application of solid propellant motors and Black Brant sounding rockets". Project Appollo, Skylab and the Space Transportation System (Shuttle) programs all benefitted from the application of the Black Brant by NASA. In addition to solar eclipses and the aurora, Comet Halley was obscured by the Black Brant.

Acceptance of the Black Brant system is literally world-wide. Since 1962, more than 700 Black Brants have been launched, with a combined vehicle/payload success rate of 91%. □



Trevor Murch accepts the Certificate of Engineering Achievement on behalf of Bristol Aerospace.

Bill McKay, P. Eng., Engineer Extraordinaire

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

You have probably heard William Gordon McKay's name a lot, recently.

1991 was a pretty good year for the editor of this periodical and chairman of the Publication Committee. He became a Fellow of The Canadian Society for Civil Engineering in May. He then received this Association's Merit Award at our Annual General meeting in October. Then, as if that wasn't enough, he was invited to Ottawa in November to receive the Canadian Council of Professional Engineers' (CCPE's) Meritorious Award for Professional Service! And Bill McKay retired from the workforce nine years ago! (What will he do this month, I wonder?)

Born in 1917 in Regina, Saskatchewan, Bill moved almost immediately with his family to Portage la Prairie, Manitoba, where he was raised. An only child, Bill's father was a commercial traveller in the fruit and vegetable business, and his mother was a nurse.

Bill had no role model to guide him toward engineering - just a fascination with "things mechanical" and with "putting things together." He completed his first year of engineering studies at the University of Manitoba - then located on Broadway Avenue - in 1937, moved to Kingston, Ontario to pursue mining engineering at Queen's



University, became overwhelmed by the size of the class and the temperament of some of the miners in it, and promptly switched to a very small civil engineering class, from which he graduated in 1940. He then commenced a master's programme in municipal and hydraulic engineering. Unfortunately, his municipal engineering professor, a member of the U.S. Army Corps of Engineers, was called to war duty, and the programme ceased. Bill went to work immediately for the federal government, investigating sewer and water installations for military projects in Southern Ontario, and later in Alberta, Saskatchewan and the Northwest Territories. He was less than impressed with many of the installations in southern Ontario, but extremely impressed with the systems in "the west", many of which had been designed by an Air Force engineer named Roy McLellan.

Bill developed a very high regard for Roy McLellan's municipal engineering capabilities. When the war ended, Roy McLellan went back to his engineering firm in Saskatoon - Underwood & McLellan, and Bill McKay asked if he could join him.

In 1946, Bill met Loreen Wells, who was working for the Saskatchewan College of Physicians and Surgeons. They married in 1948, and had their first child, Kent, in 1950, while Bill was working on the installation of sewers and

Continued on Page 9

Chronology of Events in the Engineering Life of Bill McKay, P.Eng.

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

1940	graduated with a B.Sc. (Civil Engineering) from Queen's University in Kingston, Ontario
1941-45	became District Engineer for the Public Health Engineering Division of the Federal Department of Pensions and National Health (St. Catherines & Edmonton) - investigating sewer and water systems for military projects in Ontario, Alberta, Saskatchewan and Northwest Territories
1943	joined the American Water Works Association (AWWA)
1944	joined the Engineering Institute of Canada (EIC)
1945	joined the firm of Underwood and McLellan as a junior engineer; first in Alberta, later moving to the head office in Saskatoon
1946	joined the Association of Professional Engineers of the Province of Saskatchewan (APES)
1948	joined the U.S. Water Pollution Control Federation (WPCF)
1949-52	served as chief project engineer in installation of sewer and water systems in Flin Flon, Manitoba
1949	joined the Western Canada Water & Sewage Conference (WCWSC)
1952	when Underwood & McLellan became a limited company (UMA), became one of the five associates - major projects included rehabilitation and construction of RCAF projects in prairie region
1953	became President, Western Canada Water & Sewage Conference - (WCWSC)
1955-59	served as General Manager, UMA
1956	joined Association of Consulting Engineers of Canada (ACEC) - prairie chapter
1957	became President, APES
1962-70	served as President, UMA
1965	for registration fee of $30, joined APEM
1968	relocated UMA head office and moved to Winnipeg
1969	served as President, EIC
1969	became Chairman, Canadian Section (now Ontario Section), AWWA
1970	served as Chairman, Board of Directors, UMA
1970	received AWWA George Fuller Award for service to the industry
1971-75	became Corporate Secretary, UMA
1973	served as President, Association of Scientific Engineering and Technical Communities of Canada (SCITEC)
1974	was named a Fellow, EIC
1978	became President of the Federation of Associations on the Canadian Environment (FACE)
1978-82	served as Secretary, Camp #8, Iron Ring Ceremony
1981	served as President, Association of Consulting Engineering of Manitoba (ACEM)
1982	retired from UMA, but not from active service to the engineering community
1982	became a life member, APES
1982	became a life member, CSCE
1982	became an Honorary Warden, Camp #8
1982-87	became the first Executive Director of ACEM
1983	was named a life member of AWWA
1983	was named a life member of WPCF
1984	became an honorary member of WCWSC
1986	joined Publication Committee, APEM
1988	became Chairman, APEM Publication Committee
1988	received the WPCF Arthur Sidney Bedell award for personal service
1989	became Chairman and Editor, APEM Publication Committee
1991	became a Fellow of CSCE
1991	received the APEM Merit Award for outstanding achievement in advancement of profession of engineering in Manitoba
1991	received the CCPE Meritorious Award for Professional Service

Pat Feschuk Takes The Helm

By: J. Bogan, P.Eng.

Recently, I had an opportunity to sit with newly appointed President Pat Feschuk to discuss his plans and concerns for the next year.

Briefly, Pat Feschuk served on the APEM Membership Committee for four years (1964 - 1968), including two years as Chairman, the Publication Committee (1971 - 1972), Councillor (1972 - 1974), and Vice-President (1990 - 1991). He has also previously served on the Continuing Education Committee of the Winnipeg Branch of the Engineering Institute of Canada, President of the Manitoba Chapter of the Soil Conservation Society of America, President of the Canadian Prairie Chapter and Director on the International Board of Directors for the Governmental Refuse Collection and Disposal Association, and as President of the Manitoba Chapter, Canadian Public Works Association.

Mr. Feschuk is currently employed with the Operations Department of the City of Winnipeg. Since 1979, he has served as the Manager, Equipment and Material Services, Works and Operations Division.

One area of concern that President Feschuk expects the Association to be examining is the Admission Review process for foreign applications to the Association. Reviewing credentials from various institutions throughout the world can be challenging and results of the current process are often not satisfactory for some applicants.

Registration in the Association will also receive considerable discussion. The Canadian Council for Professional Engineers currently recommends four years experience rather than two years. Some associations now feel two years may not be sufficient. At present, registration with individual American states may only come after four or five years experience, depending on the state, and successful completion of a written examination. There is no blanket organization covering all states.

Mr. Feschuk stated that the Association will continue its discussions concerning the role of MANSCETT and possible legislation giving them the right to title. This appears to be typical with other engineering associations throughout Canada. He also mentioned that this issue has been with our Association in some form since he first served with Council.

The Government of Manitoba has also indicated that it will be reviewing the roles of self-governing professional organizations. Any findings will be reviewed and discussed for their potential impact on APEM.

Personally, President Feschuk is not convinced that the projected shortage of engineers is accurate. At the same time, the Association will continue to support increased participation in engineering by women.



Pat Feschuk, P.Eng.

Engineers must also increase the public's level of awareness of the profession. Engineers must help themselves be recognized and ensure that we maintain our quality of service. The Association will be considering several ways to promote these ideas in public. Activities outside engineering will also be encouraged.

We look forward to President Feschuk's term and the issues which need to be addressed. □

Notice

Payment of Your 1992 Annual Fees

Membership fee invoices have been mailed to all members. Please be reminded that, according to the by-laws, MEMBERS SHALL PAY THE ANNUAL FEE IN ADVANCE, ON OR BEFORE JANUARY 1, 1992. If you have not received your invoice, please contact the APEM office.

For those members no longer practising in Manitoba, and wishing to resign in good standing, letters of RESIGNATION of membership must be received in the Association office before DECEMBER 31, 1991.

Applications to enter the NON-PRACTISING or NON-RESIDENT category must also be received in the Association office by DECEMBER 31, 1991.

The penalties for late payment and the procedure necessary for reinstatement are matters covered in our Act, our By-Laws and our regulations.

"Image and a National Service Organization for Engineers"

By: W.B. Mackenzie, P.Eng.

The first speaker to address our Annual General Meeting theme, "Building the Image", was Murray McInroy, P. Eng., Executive Director of The Canadian Society of Professional Engineers.

Since the Society has as one of its mandates the interests of its members (in contrast to APEM, whose mandate is the public interest), Mr. McInroy was asked to address the question - "Can a self-interest-oriented engineering organization enhance the public image of the profession?" At a well-attended breakfast meeting Murray outlined the history of his organization which was formed in Ontario in 1979 with the approval and encouragement of APEO.

CSPE had (and has) as its primary mandate "the professional, economic and social interests of its members", but its charter also provides that it should be a "representative voice for professional engineers". This latter mandate, if implemented effectively and in the public interest, could certainly enhance the image of the profession.

However, our speaker advanced the view that no single engineering organization has seriously attempted to, or, in any event succeeded in becoming the national voice of the profession. He felt that the extremely broad and varied interests of practising engineers (now represented, he says, by more than 40 separate and distinct special-interest engineering organizations) make it very unlikely that any one body will be able to effectively become the voice of the profession.



Murray McInroy addresses breakfast crowd.

He concluded his address by saying that if the various engineering organizations do not reach an accommodation of a common purpose, "then our profession will continue to remain in the shadows of the technological environment, when engineers should be playing a leading role." □

Council Reports

August 19, 1991 *By: D.S. Jayas, P.Eng.*

"AT WHICH COUNCIL CONSIDERS THE NEED FOR PRACTICE GUIDELINES FOR ENGINEERS".

President Wm.M.A. McDonald, P.Eng. presided over the August 19, 1991 APEM Council meeting which began at 1:00 p.m. in the Association Boardroom. Financial statements and applications for licences, engineers-in-training, transfers, registrations and reinstatements were approved.

Professional Registration of Geoscientists in Manitoba.

Council showed an interest in accommodating the request of geoscientists for professional registration through Engineering Profession Act. Council established a committee to examine the issue more thoroughly and especially to examine whether it is in APEM's best interest to inclu Geoscientists in the Act.

Guidelines for Engineers.

When an engineer moves from one firm to another, whether in consulting or any other field, it is not uncommon to be in a position of dealing with former clients. The previous employer may see this as stealing clients, especially if both employers are in competition. A committee was established to review the need for a policy and, if warranted, to prepare a guideline to assist engineers, employers, and clients of Consulting Engineering firms in deciding upon the preferred course of conduct for professional engineers who change employers and work for organizations in competition with their previous employers. □

September 9, 1991 *By: W.G. McKay, P.Eng.*

"AT WHICH COUNCIL SENDS ON TO THE MEMBERSHIP A NEW APPROACH TO PRACTICE AND ETHICS".

Council moved quickly through the approval of the agenda and past minutes, to arrive at the financial statements. As the July statements presented the year-end position, a sizeable surplus was noted. The Executive Director cautioned that the auditors' year-end statements indicated some adjustments to this surplus would be necessary and that the coming year's operation would likely absorb the surplus through catch-up on some of the delayed expenditures.

From time to time Council is challenged to decide between legal advice on matters of By-laws and perhaps the more humanistic approach. Such was the case in a request for an appeal of an admissions ruling: legally, the By-law specified a thirty-day period in which the hearing was to be held; however, the applicant suffered illness and in its wisdom, despite what may at some time become a legal implication, Council delayed the date of the hearing.

CCPE National Contingency Fund.

One of the procedures which a provincial engineering Association has to carry out is the discipline and enforcement against its members and also, in some instances, against corporations. In the case of the latter, the problem arises over the misuse of the term "engineer" which in turn could mislead the public with respect to the professional capabilities of an employee.

Some corporations may challenge the Association's authority in such matters and hence a costly, legal entanglement can take place between the corporation and the Association. There is also the case wherein the Association can become involved in third-party professional liability. Depending upon the size of the Association, the reserves can be big or small, and currently APEM has a reserve of $600,000. CCPE feels that a national fund could assist when funding is inadequate to allow a provincial Association to proceed in such cases. Two funds are proposed: one for directly related provincial cases, whereby the amount of money taken from the fund would be a loan repayable by the provincial Association; and the other for cases of national significance, for which funds would be taken on a non-refundable grant. One can reflect on the high cost of protecting one's actions, be it by the profession or by the engineer, of the "deep pocket" syndrome, all of which seem to relate to the high cost of mistrust and indifference. Council voted to support the program.

The Discipline By-law - Revisions To By-law 41

The Practice and Ethics committee has, for some time, been involved in an extensive review of this By-law which governs the discipline of engineers in matters which may be considered "Offensive Conduct". At this meeting, Council approved the presentation of this revised By-law to the membership at the coming Annual General Meeting. The revisions have been extensive, and comments are limited to pointing out that there will no longer be a Practice and Ethics committee, but rather two committees - an Investigative committee and a Discipline committee, with no common members betwe the two committees. Whereas the hearings of the Investigative committee will remain confidential to the public, the hearings of the Discipline committee will be open to the public. Such a move appears to be the trend among discipline committees of other professional bodies.

Revised Code of Ethics

Also approved for presentation to the membership at the Annual General Meeting was a new, revised Code of Ethics. Mr. C. Bouskill, Chairman of the committee responsible for its creation, had prepared an article on the revised Code of Ethics, which was carried in the October issue of The Manitoba Professional Engineer for the information of the membership.

MANSCETT and the Association

The discussion between the Engineering Technologists and the Association continues. On a national basis, the relationship between these two bodies

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October 15, 1991 *By: V.L. Dutton, P.Eng.*

"AT WHICH COUNCIL REVIEWS ITS BOTTOM LINE AND SUSTAINABLE DEVELOPMENT".

Let's start with "the bottom line" this time. Your Councillors spent some time examining, and discussing, the Auditors' Report and the Financial Statement. With the day-after-day reporting of the financial goings-on of our politicians throughout the country, it was exhilarating to be reminded by Past-President Buhr that our Association still operates under Engineering Law No. 1:

Expenses = Income

Anticipate, in a future issue of the M.P.E., a report as to how the budget is established and our annual fees set.

I believe the adjective to be used is still "exhilarating" when reporting on your Council's handling of the always-vexatious situation that often arises with requests for reinstatement. One of our younger associates had found that his job had taken him away from the city for an extended period during the summer. There was a bit of a mix-up of his mail at home and he didn't receive notice that his dues were payable until our rules concerning suspension went into effect. The sensitive handling of this case renewed the faith this reporter has in the common sense of his associates.

The proposed Technologists Act continues to be of concern to the Council as it must be to our provincial legislators. The in-coming Councillors will hear more of this topic, it would appear.

There was one delegation: Ted Glass and Jack Atchison appeared on behalf of the Research and Development Committee. You will recall that, at the 1989 AGM, we were challenged by our associate, Premier Filmon, P.Eng. , to take the lead in demonstrating, through our approach to life as witnessed in our designs, a sensitivity to our environment and the inheritance with which we will endow our grandchildren. Council reacted to this challenge by asking the Research & Development Committee to "compile a preliminary position paper on Sustainable Development". Y received your copy of this paper last March. Reaction to that first dra produced the second version; it had been prepared by Glass and Atchison and was being presented to Council. Since a number of references were made to The Premier's Round Table, your reporter first had to learn something about that entity in order to appreciate the concerns of Council about this group and why "the link with the Manitoba Round Table was

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Understand What You're Signing

A Notice from the Manitoba Association of Architects Regarding an Inquiry into the Conduct of a Manitoba Architect

THE COMPLAINT

The Manitoba Association of Architects received a formal complaint from the City of Winnipeg against a member of the Association. The complaint alleged that a member of the Association issued a letter of certification for interim occupancy of a certain premises which stated that "all areas to be occupied meet the necessary safety requirements of the Building Code", prior to those conditions having been met.

The complaint was referred to the Investigative Chairman of the Association, who subsequently reported in writing and made recommendation to the Executive Committee.

THE FACTS

Certification was issued by the member to induce Building Life Safety inspections by the City of Winnipeg which are required prior to issuance of occupancy permits. In doing so, the member relied, in good faith, on the contractor's promise that the work would have been completed by the time of occupancy. However, the member did not subsequently rescind the letter of certification prior to the interim occupancy of the premises, although the member, the member's client and the City of Winnipeg had reason to know that the condition of the premises was not in compliance with the Building Code.

The member acknowledged that all of the facts forming the basis of the complaint as set forth above were true.

THE DISPOSITION

The Executive Committee, following consideration of the Investigative Chairman's written report and recommendations, directed that a formal censure be offered, as a record of disapproval of the member's conduct, for having issued and thereafter for having failed to rescind a letter of certification which the member knew to be false, in part, at all material times. The Executive Committee further directed that, in offering a formal censure, the member be required to consent to its publication (without reference either to the member, or to the specific project concerned), by special mailing, to all registered members of the Manitoba Association of Architects, and to the office of the Association of Professional Engineers in the Province of Manitoba.

The member agreed to formal censure and anonymous publication.

In accordance with Article 16.5 (a) of the MAA By-Laws, a formal censure cannot be the subject of appeal by the Association or the member.

THE CONSIDERATIONS

There were a number of considerations involved regarding the complaint, which led to the offering of a formal censure in this particular case:

- The member did not treat the circumstances lightly, nor did he blatantly neglect his professional obligations during the course of events.
- Some two weeks prior to the interim occupancy, the member had been concerned and had suggested cancellation or postponement; however, the client was adamant that interim occupancy would proceed on the date specified.
- Work completed as the days ensued was very significant, making a judgement difficult as to whether sufficient work could be completed to justify interim occupancy on the designated date.
- The contractor, whose assurances the member relied upon to complete necessary deficiencies by the date of interim occupancy, is generally considered by the design profession and city officials to be very reputable.
- Recognizing that the project was not complete at the time of the request for the certification, the member contacted the city to review the form that the letter of certification should take. As deficiencies were revealed at the time of inspection, the member met with city officials to discuss how the safety of occupants might be ensured in the event that an emergency did arise and these measures were incorporated prior to the interim occupancy. Every effort was made to facilitate and expedite the requirements needed to meet occupancy standards by the time of interim occupancy.
- Discussions with city officials in 1988 related that similar occurrences are not uncommon. This, however, has been the first formal complaint lodged with the Association by the City of Winnipeg.
- As a result of deficiencies within the MAA By-Laws relating to disciplinary procedures (at the time the complaint was lodged), the MAA was somewhat reluctant to proceed past the investigation stage until such time as amendments to the By-Law were approved. This caused a delay and resulted in extended concern and anguish to the member involved.

CONCLUSION

Registered members of the Manitoba Association of Architects should regard the preceding with all due seriousness. The City of Winnipeg and other authorities will consider lodging formal complaints (the City of Winnipeg Act now provides for access to files by professional associations where the material is the subject matter of a complaint). These complaints will be dealt with seriously by the Association. Members should be aware that, depending on the nature and circumstances of a complaint, suspension or expulsion from membership could result. □

Bill McKay, P. Eng., Engineer Extraordinaire

Continued from page 6

watermains in Flin Flon, Manitoba (the project Bill considers to be the highlight of his engineering career). Nancy was born in 1953, and Jeff in 1961, both in Saskatoon.

In 1968, as President of the company, Bill moved UMA's head office and his family to Winnipeg, where he has resided ever since.

Bill McKay was an extraordinary engineer who gave his all to his company and to the profession. Not only did he join a number of technical and learned societies, he also participated in those societies by serving on countless committees and holding numerous offices - usually including that of President. His devotion and service to the profession continue to this day, despite his retirement, in 1982, from UMA and from the workforce.

Upon his retirement, Bill went to work as Executive Director of the Association of Consulting Engineers of Manitoba (ACEM), a position he held for five years before joining this Association's Publication Committee and becoming its Chairman.

In addition to his exemplary service to the profession, Bill has long been active in community, service club and church affairs. He has been a member of the Rotary Club since 1952 (serving, of course, as President of the Saskatoon Nutana Club in 1965); and he has always been extremely active in church affairs, currently serving on a property management committee for the Anglican Diocese of Rupertsland and on a working committee looking at restoring the 150-year-old St. Andrews-on-the-Red. He also spends one morning a week at the Dalnavert Museum House, interpreting early residential housing to Manitoba's youth; he is very involved in, (and, of course a past president of!) Heritage Winnipeg; and he is currently Chairman of the Engineering Institute of Canada's (EIC's) Life Members Organization.

So, does Bill McKay see himself slowing down and enjoying the fruits of his considerable labours in the foreseeable future? Actually, Bill claims that he is already enjoying a more relaxed approach to living! He recently stepped down as Chairman of our Publication Committee to make more time for working on his family history and for helping to compile a history of engineering for the EIC. We know he'll do an excellent job of both! And we know Loreen, his wife of 43 years, will enjoy his increased presence on the home front! □

Attention Curlers!

The next Annual APEM Curling Bonspiel will be held on Tuesday, January 14, 1992.

Mark your calendars now!

Demand-Side Management Luncheon Meeting

By: J.B. Thorsteinsson, P.Eng.

In support of Science and Technology Days 1991, the Research and Development Committee organized a Demand-Side Management Luncheon Meeting which was held at the Canadian Institute of Industrial Technology on October 2, 1991. Co-sponsors of this event were Manitoba Hydro, Winnipeg Hydro, Science Technology Awareness Network and the Electric Service League of Manitoba.

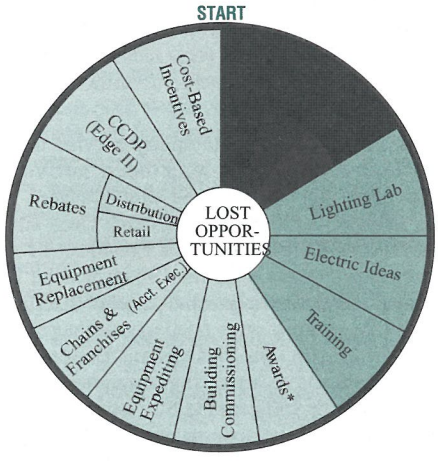
Mr. Bill McDonald, President of APEM, was Master of Ceremonies for this event. The guest speaker, Mr. John Elizalde, who is the Director of the Resource Management Division in the Bonneville Power Administration's office of Energy Resources was introduced by Mr. R.B. Brennan, C.A., President and C.E.O. of Manitoba Hydro who confirmed that the Power Smart Demand-Side Management (DSM) Program adopted by Manitoba Hydro in 1991 was budgeted at $250 million over the next ten years with a targeted electrical demand saving of 100 MW.



President Bill McDonald presented John Elizalde with a suitably engraved framed print as a momento of his visit to Manitoba, October 2, 1991

Mr. Elizalde's one-hour slide and video presentation was well received by the audience of 40 which was composed of 15 from industry, 22 from government and 3 from education. An evaluation form analysis rated the topic 4.38 (out of 5) and the speaker 4.67 (out of 5).

Strategy for Capturing Commercial Lost Opportunities



** to be administered by professional organizations*

Highlights from the handout covering Mr. Elizalde's presentation include the following:

Bonneville Power Administration is a Federal Power Marketing Agency, serving the Pacific Northwest. It provides about 45% of Pacific Northwest power use and 75% of the Pacific Northwest transmission capacity. Customers include 16 direct service industries; 8 investor-owned utilities; 129 public agencies; and 20 outside the Pacific Northwest.

Resources
* 8362 MW Firm (87% Hydro)
* 1218 MW Non-firm
* 23,529 MW Capacity

Loads
* 8756 a MW Firm
* 17,664 MW 60 Minute Peak Record

Bonneville Power's Conservation Resources Draft Plan 1992-2000 is budgeted at $3 billion with a targeted electrical demand saving of 600 MW.

In order to achieve this target Bonneville Power has a number of DSM Programs in place to encourage either a shift in electrical demand to off-peak periods or a reduction in electrical demand through improved end-use efficiency.

Mr. R.J. Linton, P.Eng. , General Manager of Winnipeg Hydro who thanked the speaker for his excellent presentation and 1/2 hour question period, advised that the timing of this DSM Luncheon Meeting was most propitious as Winnipeg Hydro had just "signed-on" the Powe Smart Program.

President Bill McDonald presented John Elizalde with a suitably engraved framed print of Canada Geese flying over Manitoba lakes for his excellent DSM presentation and as memento of his visit to Manitoba's Science and Technology Days 1991.

A video of Mr. Elizalde's presentation is available to members from the Association office. □

Environmental Industries Development Initiative

The Environmental Industries Development Initiative (EIDI) is intended to assist the development of businesses which preserve, protect or enhance the external or internal environment.

Through the Environmental Innovations Fund, Industry Trade and Tourism may provide a financial contribution of up to 50% of eligible costs to a maximum of $25,000 to support companies in the environment sector undertaking feasibility studies and exploring economic development opportunities (new products, processes, technologies or markets).

Eligible costs may include one or more of the following: an independent consulting study, financial analysis, economic analysis, market research, technological or engineering appraisal, business plan, feasibility study or a directed exploratory mission. Eligible recipients include individuals, businesses, industry associations, and other organizations pursuing commercial market opportunities for environmental products and services to be located in the Province of Manitoba.

Applications should include an overview of the purpose and scope of the study/trip, and be accompanied by the most recent financial statements and a copy of the request for proposal (RFP) to independent consultants or the consultant's proposal to the organization.

Provincial approval to cost-share a study or mission must be obtained prior to the work commencing. Applicants will normally be required to undertake and pay for the work, before being reimbursed for the agreed-upon portion of the costs. The Department should receive a copy of the completed study/trip report and verification that the work has been completed satisfactorily and has been paid in full.

Applicants will have private and exclusive use of the results for a period of one year from the date that the Province disburses its share of the costs after which, if the applicant has not commenced to implement the findings, the Department may share the results with other interested parties. Successful applicants will be ineligible to receive further assistance from this program for a period of one year.

For further information please contact:

Environmental Industries
Development Initiative
Manitoba Industry Trade and Tourism
500-155 Carlton Street,
Winnipeg, Manitoba R3C 3H8
Tel: (204) 945-0124 Fax: (204) 945-1354; or

Dr. D. Archer
Director Sustainable Development
Tel: (204) 945-8745 Fax: (204) 945-1354

"World in Motion" Update

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

On October 9, 1991, thirty volunteer engineers attended a preliminary training seminar at the Sheraton Hotel in preparation for the "World in Motion" programme which has recently been introduced to some eighty elementary schools in Winnipeg. The "World in Motion" programme was created by the Society of Automotive Engineers (SAE) International to help promote engineering, science and technology with students in grades four through six. It teams engineers with science teachers in the classroom.

The introductory module was presented by Christina Simpson, the past president of the Science Teachers Association of Manitoba. She spoke on such topics as: student attention span, appropriate use of visual materials and classroom management techniques. Ms. Simpson drew on her fourteen years of teaching experience to make observations and recommendations to the "World in Motion" engineers who will be entering the classrooms in the next few months. □



Grade 6 "World in Motion" participants.

Going Public With "A World In Motion"

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

Wednesday, October 30, 1991 marked the official "kick-off" of the Public Relations Committee's "World in Motion" programme.

Manitoba Industry, Trade and Tourism Minister, Hon. Eric Stefanson, and APEM President Pat Feschuk were on hand at Pembina Crest School to introduce the unique, hands-on science programme.

Following the presentations, grade five science teacher, Giselle DesAutels, assisted by a number of volunteer parents and teachers, introduced her class to some of the experiments in the programme. The children loved it! In fact, they enjoyed its so much that none of them wanted to go for recess! And, when asked what they want to be when they grow up, three ten-year-old girls all announced that they want to be engineers! □



Hon. Eric Stephanson observes "World in Motion" experiments.

September Council Meeting

Continued from page 8

varies from outright "no association" to one of "negotiation and recognition of each other." APEM will continue its communications with MANSCETT, and is prepared to work on revisions to the Engineering Profession Act, to define a scope of practice for engineering technologists and to provide for a "right-to-title". One sometimes contemplates whether a common act would not create a more identified and understanding profession.

CCPE Report on the Future of Engineering Education

This is a lengthy document comprising an extensive review of engineering education at all levels. The Public Relations committee commented on the lack of emphasis on continuing education. Council agreed to pass on to CCPE the comments of the Public Relations committee and the University Liaison committee. On the matter of continuing education, one speculates where, when and how this will all play an active role in the life of an engineer. The major question that remains unanswered is: "Whose role is it, the universities, the learned societies or the provincial bodies?"

Workplace Safety and Health Advisory Council

APEM council received a request to recommend three members to the advisory council, which was done.

And so, at 2:50 p.m., the meeting adjourned; its brevity perhaps indicating that it would be the last of the summer meetings, and that for some councillors a term of office was nearly over. □

October Council Meeting

Continued from page 8

done deliberately because the profession should not appear to be a splinter group going its own way, but should be part of the main plan". (Watch for an article about the Manitoba Round Table in a future issue.)

The concern of the Councillors about liability was evident in their questioning, as was their concern for how to differentiate between sustainable and unsustainable development when they look at a design proposal. Can you tell the difference? The following paragraph, taken from the draft Minutes of the Council meeting, should interest you. "- With regard to a definition for Sustainable Development, Mr. Atchison advised that this has not been defined by anybody. It is in general use by economists and environmentalists and the National Committee of Sustainable Development. It does not seem to be a priority. Lawyers say there is no definition and it is interpreted as being not challengeable by law. It is a philosophy. It is a grass-roots concept." Would this reporter be displaying a certain cynicism that is all-too-frequently seen in aging men when he suggests that, as is inherent in our profession and in spite of what guides might be adopted or references made to Sustainable Development in our Code of Ethics, the individual engineer is thrown back squarely on his own moral resources? The challenge to elementary-school teachers, Sunday School teachers, parents, Guide and Scout leaders, and all others who help to mould the developing child, have never been more important that they are today.

"It was moved by Mr. Harrison and seconded by Mr. Feschuk that Council support the initiatives and objectives of Sustainable Development and the work done by the Research & Development Committee, which its feels is moving in the right direction, and that Council would like to see another revised draft of the guidelines incorporating the advice given to Messrs. Glass and Atchison at this meeting, to make this a definitive, "stand alone" document by attaching the principles as an appendix so they are readily available to the reader."

This was President McDonald's last Council meeting. After Council disposed of the other items of business, our President thanked our Councillors for "their co-operation and accomplishments during the past year", to which, I am sure, you will allow me to add your, and my, thanks. I am sure, also, that you will join me in thanking our retiring President for the hours of time he has spent on our affairs during his term of office. "Thank you, Bill." □

Vino and Curds

By: B.A.K. Danielson, P.Eng.
H.S. Zbigniewicz, P.Eng.

The Summit Room at the Westin Hotel was the location of this year's APEM Wine and Cheese reception in honor of the Past President, award recipients, delegates, Council and committee members. The formal part of the evening commenced with greetings from both our President, Bill McDonald, and the Annual Meeting Committee Chairman, Bob McKibbin.

Mr. Ed Lach, Awards Committee Chairman, presented seven scholarships to the following outstanding U of M engineering students: Nga Ting Alex Wan, Daniel Thomas Hiqubran, Nolan Gregory Domenico, Kohji Suzuki, Lai Ping Chan, Thomas Louis Legal and Daniel Delmar Mann. Additionally, Nolan Gregory Domenico received the Major Charles Canada Northlands Development Award.

The formal part of the evening concluded with incoming President Pat Feschuk, on behalf of the Association, presenting Deanne McDonald with a gift of thanks for her support to Bill over the course of his term as President.

The informal part of the reception gave all those attending a chance to meet and re-acquaint themselves with fellow APEM members and out-of-town visitors in a very relaxed setting. □



Bill McDonald says "goodbye".



Pat Feschuk thanks Deanne McDonald.



Daniel Mann receives certificate for Highest Standing in 3rd year Agricultural Engineering.



Nolan Domenico receives certificate for Highest Standing in 3rd year Civil Engineering.



Alex Wan accepts certificate for Highest Standing in 1st year Engineering.

Call For Submissions –

Canadian Institute of Mining Special Committee on Reserve Definitions

At the May 1, 1991 meeting of CIM Council, a resolution was approved establishing a Special Committee to develop standard definitions of ore reserves.

Interested persons are invited to submit their comments and suggestions on any topic related to the reporting of reserves in the mineral industry. Submissions, to arrive no later than December 15, 1991, should be forwarded to:

John T. Postle (Chairperson),
Roscoe Postle Associates Inc.,
Suite 2201, 120 Adelaide St. W.,
Toronto, Ontario, M5H 1T1

Women Enter Faculty of Engineering in Record Numbers

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

In 1989, 38 of the 386 students entering first-year engineering at the University of Manitoba on a full-time basis were women. This 9.8% "intake" brought the percentage of female students in the faculty to 8.8% (101 out of 1143).

In 1989, 40 of 357 students (11.2%) enrolling in first year were women, bringing the total to 129 out of 1248 students in the faculty, or just over 10%.

In 1991, a whopping 17.1% (71 out of 416) of the first-year class comprises members of "the fairer sex"; and the faculty now boasts of an impressive 170 female students in a total student enrolment of 1324 (12.8%).

And the discipline of choice? Women make up 16.1% of the second-, third- and fourth-year civil engineering classes (15.3% of the regular programme and 19.5% of the co-op programme); 14.5% of the industrial engineering classes; 13.6% of the agricultural engineering classes (i.e. 3 of a total 22 students); and 10.9% of the mechanical engineering classes. There are currently two women of a total 32 students (6.2%) studying geological engineering, and six of 113 (5.3%) studying computer engineering. Just under 5% of the electrical engineering class comprises female students.

By contrast, APEM has, as of November 15, 1991, 84 female members out of a total 3,396. This is less than 2.5% of our membership - and 12 of these women are no longer resident Manitoba, which further reduces the percentage of women practising engineering in this province. (It is, however, a great leap forward from this time ten years ago. In 1981, there were just 12 women registered out of a total of 2670 - less than half of one percent!) □

Profession Meets Professors

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

Following a two-year hiatus from this formerly annual event, Members of APEM's Council and University Liaison Committee finally met recently with members of the Faculty of Engineering at the University of Manitoba to potate, masticate, cogitate and deliberate over "matters of mutual concern".

The event was hosted by the Faculty of Engineering, and organized to perfection by Dr. Sami Rizkalla and Mrs. Betsey Hogan.

Following a truly delectable repast, Dean Garland Laliberte and University Liaison Committee Chairman Bob Partridge launched hastily into a programme designed to stimulate, motivate and create debate.

On the topic of Women in Engineering, introduced by the Dean, there was no debate. Everyone in attendance seemed anxious to increase the number of women entering both engineering schools and the profession, and every speaker proudly described initiatives being taken in this regard and the impact, to date, of those initiatives.

It was quite an experience, listening to all of those men trying to come up with new ideas for attracting women into engineering schools, keeping them there, getting them into the profession and keeping them there. I'm not too sure whether introducing Food Engineering and Environmental Engineering programmes into the curriculum will achieve the desired result of making the profession more holistic; I **can** say, from personal experience, that women don't want to be singled out as much as the men would like to single them out; and I agree wholeheartedly with the observation that "some engineering graduates make good citizens; others make good Premiers".

On the topic of industrial experience for professors, introduced by Sami Rizkalla (who firmly believes that professors **must** have industrial experience to be effective), two problems became apparent: industry doesn't seem to **want** to utilize the research skills of professors in solving practical engineering problems; and industry is reluctant to open its doors to the faculty when the faculty will not permit anyone without a Ph.D. to **teach** engineering subjects.

It was agreed that you cannot force a marriage, but that, if there is to **be** a marriage, there must be a proposal and an engagement. One professor was quite content to remain in the world of academia, where ideas are shared, not obfuscated; and another was quick to point out that academics have solutions in search of problems, while industry creates solutions to known problems. There was no consensus, therefore, on the desirability of the marriage.

The final topic, the duration of the engineering programme and the possibility of increasing it from four to five years to incorporate management, communication and social awareness skills, was introduced by Vish Gupta. Vish quoted Chinese proverbs, 16th century writers, and even Winston Churchill to demonstrate that human nature and human needs have not changed over hundreds of years, and to urge the professors to include more social sciences and psychology courses in their programmes.

This topic evoked the most debate. Comments ranged from the fact that the current four-year programme already takes an average 4.7 years to complete, through the problem of transition between high school and university and the importance of teaching students what they **don't** know, to the concept that the emphasis change from the teaching of content to the teaching of process.

Nothing was resolved that evening, but many minds had been stimulated, and everyone agreed that the periodicity of the event should be restored to annual. □



Sami Rizkalla leads discussion on industrial experience.



Bob Partridge, University Liason Committee Chairman.



Vish Gupta quotes Churchill.



Garland Laliberte, Dean of Engineering

The Professional Engineers' Wives Association

The Executive of the Professional Engineers' Wives Association for 1991 - 1992 is as follows:

President .....Mrs. Pat Miller	Membership .....Mrs. Mary Cameron 256-6488
First Vice Pres. .....Mrs. Linda McQuade	
Past President .....Mrs. Jane Stewart	Social Convener .....Mrs. Carol Klein
Secretary .....Mrs. Lynn Scott	Program Convener .....Mrs. Hannya Klimenko
Treasurer .....Mrs. Laraine Thio	Telephone Convener...Mrs. Mary-Ann Dickson
Assistant Treas. .....Mrs. Judy Beattie	Councillors .....Mrs. Rhitta Moulding Mrs. Nettie Malmgren

Program:

Jan. 28, 1992 - Luncheon - Century Dining Room, Museum of Man & Nature. Guided Tour of Oseredok - more than a museum. Ukrainian Cultural & Educational Centre (just a few steps from the Museum).

Feb. 25, 1992 - Luncheon - Winnipeg Winter Club, Speaker - Velvet Warrior, P. Eng. - Unisys, "My Experience as a Woman in a Male Dominated Profession."

Apr. 28, 1992 - Luncheon & Annual Meeting - Niakwa Country Club Bridge at 10:00 a.m.

Other social events include bridge games on alternate Wednesday afternoons and a mixed bridge group that meets on the fourth Friday evening of every month. The executive extend a sincere invitation to prospective members to join our association. Please phone an executive member for further information and a warm welcome.

Earning Our Image

Continued from page 1

Design of Experiments – Quality Improvement by Practical and Economic Statistics – Dr. Lai K. Chan

Dr. Chan, an internationally recognized expert on statistical process control, and an active member of the American Society of Quality Control, spoke on the subject of economical process improvements through the design of experiments. Quality cannot be inspected into a process; rather the process must be improved. The old (and tried) method of quality improvement – defect detection – has been replaced with defect prevention, an area where Statistical Process Control (SPC) is widely used. But now, a new system of Design of Experiments (DOE) proves to make process changes more economical and faster. Design of experiments is a combination of statistical and experimental analysis which reduces the effort required for process changes.

There are seven steps to managing DOEs. The major steps include identifying prime factors that affect the process, selecting an appropriate statistical model, preparing and conducting the experiment, and evaluating the results. Experiments can, in many cases, be relatively simple. Dr. Chan presented the example of a brick-firing oven that was producing defective bricks, supposedly due to uneven temperatures. Remedial costs to correct the evenness of temperature and produce consistent product were estimated at $250,000. Instead, experiments were designed using a combination of all 8 process variables. The oven was test fired and the results analyzed. The test showed that temperature evenness was not the most critical variable to improved quality – in fact, changes to the chemical make-up of the brick accomplished significant quality improvements without the expensive proposed furnace modifications.



Dr. Lai Chan, Professor and Head of the Department of Statistics, University of Manitoba

Dr. Chan expanded on the different types of experiments including Factorial and Fractional Factorial Experiments which modify all factors at a time and also fraction the combinations so that experimental data does not become excessive. In all situations of designing statistical experiments a clear understanding of, and experience with, the process is important.

Improving processes through the Design of Experiments can help companies to be more competitive without incurring excessive developmental costs.

Making It Work – A Case History – Lorne Ames, P. Eng.

Mr. Ames has been instrumental in the successful introduction of TQM in the Manitoba Division of INCO. He described some of the actions taken by INCO during the past five years to improve product and process quality. His experience confirms that TQM policies will help a company stay in business.



Lorne Ames, P.Eng., President of INCO Manitoba

INCO started the process by committing a new respect for its people. They adopted the customer focus and committed to becoming "better and better". They developed a senior management steering committee and indoctrinated both management and staff through quality seminars presented by outside consultants. Leadership at the early stages helped define the program vision and expectations. Training was provided in the field of statistical process control and process improvement teams were created. These teams comprised staff from all levels of the organization, including the equipment operators and maintenance personnel. The traditional leadership pyramid was turned upside down by directing the employees to satisfy the customer, and making management responsible for assisting the employees in that endeavour. Although staff were empowered like never before, there has been no loss of management control. And the reduction of one complete layer of management allowed for a better deployment of human resources.

Mr. Ames cited many examples where improvement teams identified process problems and developed solutions that reduced material and labour inputs, thereby making the Manitoba operation more efficient and profitable. One such exercise identified and rectified process bottlenecks that saved the company a $3 milli expansion. In another department, accounting processes were improved so much that staff worked themselves out of their jobs, and into more challenging and satisfying positions.

INCO also used SPC and flow charts extensively to reduce variation of process variables, and reduce or change process steps.

INCO now knows that quality works. Although improvements were slow to materialize after initial implementation of the program, improvement growth soon became almost exponential. Through the improvement process they also found that the cost of poor quality was always greater than expected.

Walter Harrison wrapped up the discussion with a pertinent summary of what TQM is – a people-oriented work concept; a family approach to management; a participation by all members of the corporate team; and a real working with the heart. □

Historical Plaques on Engineering Buildings - University of Manitoba Campus

Historical plaques have been installed on four buildings honouring individuals after whom the buildings have been named. Among these are two engineering buildings: the Fetherstonhaugh Building (Engineering 1) after Edward Phillips Fetherstonhaugh (Dean of Engineering and Architecture, 1921-1949); and the Macdonald Building (Engineering 2) after Albert Edward Macdonald (Dean of Engineering, 1949-1960). □

Attention Authors, Photographers and Others!

Do you have any information or photographs which you feel would be of interest to our readers?

Your Publication Committee would welcome articles of up to 1000 words, general in nature and of interest to engineers of all disciplines, for publication in the Manitoba Professional Engineer. Accompanying photographs, preferably black and white glossy, would also welcome.

All material for publication in a specific issue must be received six weeks before the first day of the publication month.

For further information please call Shirley Matile at 942-6481. □

News From Other Associations

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

Ontario

Two engineers have developed an ultrasound device that will allow doctors to see inside the eye as never before. Considered a major breakthrough by ophthalmologists, it is the world's first ultrasound device capable of producing images of the human eye at microscopic resolution.

Developed at Princess Margaret Hospital under the direction of Stewart Foster, Ph.D., the ultrasound biomicroscope is expected to aid in the early detection of eye tumors and to help in the treatment of glaucoma and other eye problems. It is the work of an imaging research team that included Michael Sherar, Ph.D., Kasia Harasiewicz, P. Eng. and Brian Starkoski, P. Eng.

When used in eye examinations, the device produces cross-sectional images of the anterior globe of the eye at microscopic resolution. It uses high-frequency polymer transducers that operate at 50 - 100 MHz, 10 to 20 times higher than frequencies used in conventional ultrasound scanners. The transducers provide resolution of 20 - 60 mm with a penetration depth of approximately 4 mm.

Alberta

\fter decades of talk, the electric vehicle is back ı the news. Early this year, the big three automakers announced a joint R&D program to overcome the chief difficulty: a reliable battery. The industry is being fueled by tough new laws in California that will require that ultra-clean cars account for 10% of sales by 2003, reports the Tulsa-based Power Engineering. "However it develops, an electric vehicle industry will create a huge demand for new generating facilities, a demand completely unaccounted for in all current forecasts," says editor Robert Smock. "It could change the face of our industry in the next century."



Australia

The Singaporean parliament is considering a bill that would endow graduate engineers with the title Er.

Under the bill, engineers would be entitled to use Er or Engr before their names, as in the practice with doctors. The move is an attempt to raise the status of engineers and to prevent the use of the title by non-graduates.

Further bills relating to engineers are before the same parliament. The bills, if passed, will require that any company undertaking architectural or engineering consultancy have two-thirds of its shares held by registered professionals in the discipline or applied discipline, a paid-up capital of $1 million (Sing.), and be insured against professional liability.

In addition, every director in the company's board must be either an architect, an engineer, or an applied science professional. □

A Message From Northern Manitoba

By: R. Cotterill, P.Eng.

Like all of the other APEM members, I found myself filling out my ballot for Council, but this year it was a surprise to see another one of our own vying for a position. I have worked with Cathy Stewart and her husband on our local executive for years. She is an excellent candidate and I am just disappointed that I couldn't have written an article about her before the ballots were sent out. Most notably, I remember the bowling party that she organized. She had us throwing balls in positions even the vner of the lanes had never seen before.

The Thompson Chapter held a successful golfing event just a few weeks ago. The Scramble format was a lot of fun and two groups happened to tie after nine holes. While most groups were inside the new Thompson Golf Club clubhouse keeping warm with a bowl of soup, the two groups played a chip-off and putting event to determine the winner. I missed most of the excitement, but I was able to see Dave Nicholls make a five-foot putt for the win.

While the winning threesome was extremely excited about their win, they were even more excited when they received their prizes. The winning prize was a yellow ball marker, in the shape of a bullet. Actually, I think almost everyone who played got the same prize. That still doesn't take away from the excellent prowess of Dave and his cross-handed swing. I have played with Dave many times and it amazes me that after swinging so hard and in such an unorthodox way he hits the ball so far and so straight. It must be that he's a Waterloo graduate!

All those in attendance really enjoyed the event, and were very impressed with the $400,000+ clubhouse.

Earlier in the spring the Thompson Chapter elected a new executive, and this year Wayne Stewart is our Chairperson. I should be able to recite the other executive members, but since I have failed to attend the last two meetings, I can't remember who was elected. Wayne, please call me and I will attend the next meeting! □

Engineers In The News

Professor **M. Chaturvedi, P.Eng.**, Associate Dean of Engineering, has been named the first Senior Administration Fellow. This new fellowship was created to introduce university faculty members to the central administration field of the university. Dr. Chaturvedi's nine-month fellowship period began on September, 1991. He will work in the field of research administration, holding the title of Associate Vice-President.

Easton I. Lexier, P.Eng., Chairman of the Associate Committee on the National Building Code has been appointed Chairman of the new Canadian Commission on Building and Fire Codes, as of November 1, 1991. □

Who is Sylvia?

By: B.A.K. Danielson, P.Eng.

Anyone visiting the APEM office will be greeted in a friendly manner by the Association office's newest staff member, Sylvia Reid. Sylvia has been the Association's full-time receptionist since August, 1991 after helping out around the office on a part-time basis since July, 1990.

Sylvia was among a group of nine friends and family who emigrated from Scotland in 1967. They came to Canada to take advantage of job opportunities and have lived in Winnipeg since their arrival (although Sylvia says the long, cold winters haven't become any easier to survive!) Sylvia has two children who are both married and live here in Winnipeg. She has a brother in Toronto and a sister in Scotland. Sylvia's hobbies and leisure activities include reading, knitting, walking, and swimming at the Pan-Am pool. Sylvia and her husband also like to travel; they have been to Las Vegas several times, and recently spent five weeks touring Great Britain.



Sylvia Reid, APEM's charming new receptionist.

In the APEM office, besides carrying out the duties of receptionist very competently, Sylvia types minutes, prepares correspondence and organizes meetings for several committees, including Public Relations, Professional Development, and University Liaison. Anyone having the good fortune of dealing with Sylvia on an Association matter will appreciate her good nature and friendliness. □

Calls for Papers

1992 International Congress on Noise Control Engineering

THEME OF CONGRESS - "NOISE CONTROL AND THE PUBLIC"
Abstracts due January 10, 1992.
Conference will be held in Toronto - July 20-22, 1992
For further information contact:
International Institute of Noise Control Engineering
P.O. Box 2469 Arlington Branch,
Poughkeepsie, NY 12603
Telephone: (914) 462-4006
Fax: (914) 473-9325

Saskatchewan Branch - Canadian Water Resources Association.

"EROSION: CAUSES TO CURES"
November 2-4, 1992, Regina, Saskatchewan
Solicitation - Abstracts - 500 Words by January 31, 1992
To: Russell Boals,
Environment Canada,
Room 300, Park Plaza,
2365 Albert Street,
Regina, Saskatchewan S4P 4K1
Telephone: (306) 780-5338
Fax: (306) 780-5311
For Information Contact:
Ray Pentland,
Water Resources Consultants Ltd.,
Regina, Saskatchewan
Telephone: (306) 949-8288

New Publications

"Advanced Composite Material with Application to Bridges"

A State of-the-Art Report.

The first international publication related to the use of advanced composite material in civil engineering applications.

Published by Canadian Society for Civil Engineering, May 1991. For orders or for further information contact Professor S. Rizkalla, P.Eng., University of Manitoba Engineering Chairman of Structures Division of CSCE, also co-author of Chapter 8.

Telephone: (204) 474-9221
Fax: (204) 261-9534

"Wood and Fire Safety"

A new publication on fire protective designs - cost $40.00 plus GST.

"Wood Reference Handbook"

A new publication on wood products and their application - cost $75.00 plus GST.

For information call D.L. Griffith, Director, Promotion - Canadian Wood Council, Ottawa.
Telephone: (613) 235-7221.

Coming Events

"DOWNSIZING CONFERENCE"
"MOVING FROM MAINFRAMES TO PC'S"
December 9-10, 1991,
Toronto, Ontario
For further information contact:
Digital Consulting Inc.,
Andover, MA 01810
Telephone: (508) 470-0526

"ENGINEERING INSTITUTE OF CANADA STUDENT DINNER"
Thursday, February 6, 1992
Hotel Fort Garry
Winnipeg, Manitoba

"ICE ENGINEERING FOR RIVERS AND LAKES"
February 17-19, 1992,
University of Wisconsin - Madison
For further information contact:
Professor C.A. Wortley
Department of Engineering
Professional Development
University of Wisconsin-Madison
Madison, WI 53706
Telephone: (800) 462-0876

"INTERNATIONAL SYMPOSIUM ON GRAIN ECOSYSTEMS"
June 7-10, 1992, Winnipeg, Manitoba
Sponsored by Dept. of Agricultural Engineering, University of Manitoba.
To assemble international exports in all fields of grain storage research.
For further information contact:
D.S. Jayas, P.Eng.
Agricultural Engineering,
University of Manitoba
Telephone: (204) 474-6292
Fax: (204) 275-0233

Can You Help?

Foreign-trained professionals arrive in Canada with their education certificates and credentials. In order to be recognized (and licensed) in Canada, these papers must be translated into English and notarized.

These professionals, Engineers, Architects etc. have already translated their papers into English but they must be verified by a second person before they can be notarized. This requires reading the original document, and the English translation, and signing a declaration that the translation is accurate.

The Language Bank is a department of the International Centre, a Winnipeg immigrant/refugee settlement agency. One of its services is the translation (or verification of translation) and notarization of educational documents from non-English speaking countries.

There is already a small core group of volunteers who provide translation/verification services. What we need are more volunteers, in order to ensure that only infrequent help is asked of each person.

If you require more information or if you can help, please contact Shirley Matile at the Association office (942-6481) or Mary Anne Gribben directly at the Language Bank (943-9158). Thank you.

Annual General Meeting Minutes

The minutes of the Association's 1991 Annual General Meeting are available upon request. Please call 942-6481 for your copy.

ROSTER UPDATE/CHANGE OF ADDRESS NOTIFICATION

Full Name _____

New Address _____

City _____ Province _____

Postal Code _____ Country _____

Employer _____

Position/Title _____

Bus. Tel. _____ Date Effective _____

Mail to: A.P.E.M., 530-330 St. Mary Ave. Winnipeg, Manitoba R3C 3Z5 or FAX (204) 942-3718