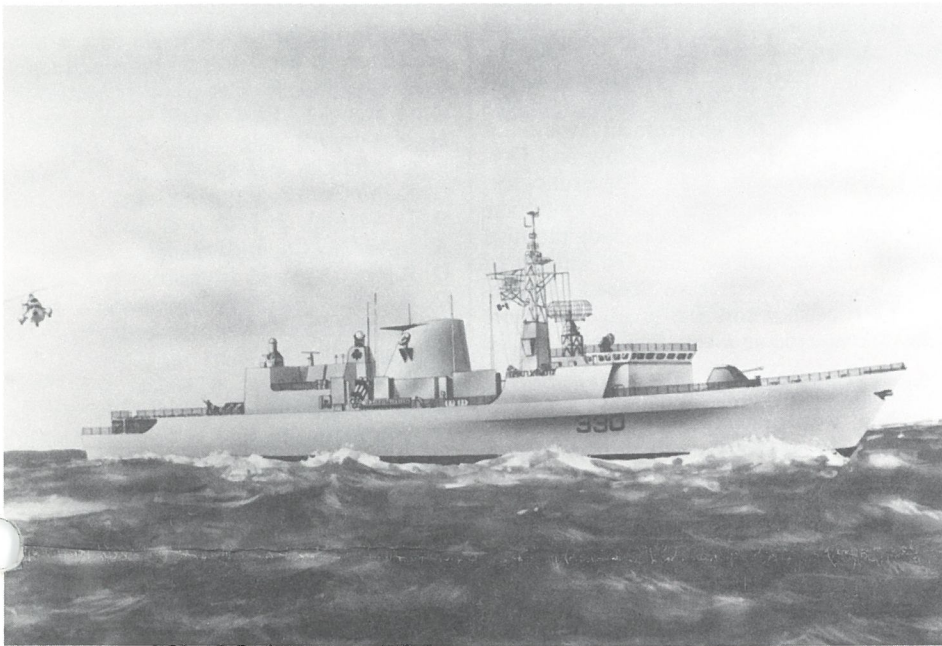


# Professional Engineer



April 1986



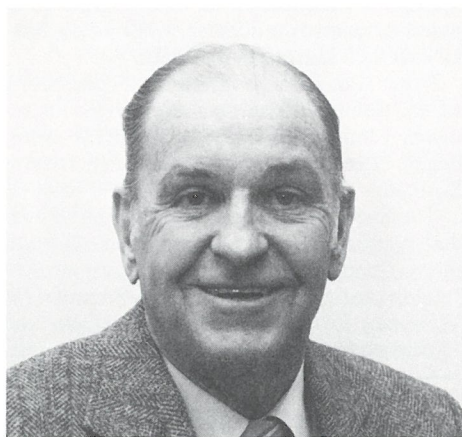
Sperry's Winnipeg facility is developing and manufacturing the heart of the combat and control system for the Canadian Patrol Frigate. (See story on page 2)

## Manitoba Professional Engineer Receives Order of Canada Medal

The appointment of Doug E. M. Allen, a Manitoba Professional Engineer, as the recipient of the Order of Canada Medal is of interest to his fellow professional engineers.

The presentation will take place in April, 1986 by Governor General Sauve in Ottawa. Mr. Allen is President of D.E.M. Allen & Associates Ltd., a broadcast consulting engineering firm and a member of the Association of Consulting Engineers of Manitoba and also the Association of Consulting Engineers of Canada.

Doug has devoted a significant amount of time to serve the disabled. Since the 1950's he has had a great interest in skiing. He has participated in the sport's administration at the local, provincial and national level. He brought his love for skiing together with his concern for the disabled in 1974 when he organized the Disabled Skiing Association of Manitoba. He also became a member of the Board of Directors of the Canadian Association for Disabled Skiing, later becoming their President. In 1984 at the World Winter Games for the Disabled, he was the Chef de Mission for the Canadian Disabled Ski team



Doug E.M. Allen, P. Eng.

which competed at Innsbruck. Through his involvement in disabled skiing, he represents disabled skiers by acting as Chairman of the Canadian Federation of Sports Organizations for the Disabled. It is most fitting that Doug be recognized with this outstanding award for a lifetime of service to the disabled. □

## Use of the Seal Topic of 1st PD Breakfast Mtg.

*"Why aren't you using your engineering seal?"*

This provocative and timely question is the title of the Professional Development Committee's first breakfast meeting being held on Tuesday, April 29th at the Viscount Gort Inn beginning at 7:30 a.m.

Recently A.P.E.M. Council has responded to the apparent need for clarification and information regarding the engineering seal by establishing the *Ad Hoc Committee on the Ethical Use of the Engineering Seal*. The chairman of this committee, Bill Newton, will be the facilitator at the breakfast meeting. Bill's short opening presentation will no doubt stimulate discussion on a number of questions related to the use of the seal including:

- Should the engineering seal be used on general correspondence?
- Is there a difference between signing a drawing and affixing the seal?
- How do you put your seal on a computer-generated and stored design?
- Does the use of the seal affect the relationship between corporate and personal responsibility?

This breakfast meeting marks the Professional Development Committee's first foray into programming for the membership. However, the committee hopes to make such meetings a regular fixture on the A.P.E.M. calendar. These meetings are intended to enhance the awareness of the importance of professional development among the membership, and to provide information to members on topics of current concern.

The breakfast meeting format, which has been used successfully by various other professional groups, has been chosen because it does not require either a major organizational effort or expense. It also does not duplicate the offerings of technical societies and continuing education agencies.

The cost, including a full breakfast, of attending the April 29th meeting is a very reasonable \$4.00. All members of the A.P.E.M. are welcome. If you plan to attend, simply call the Association office at 942-6481. This will allow the hotel to make adequate preparations. □

# Largest Crown Project Ever Features Man. Engineers' Input

By Len Ganetsky, P. Eng.

The Canadian Patrol Frigate, or CPF, Project is the single, largest, most technically complex Crown project ever undertaken in Canada. It will span a decade and involve hundreds of government personnel as well as thousands of people in Canadian industry.

The CPF Project, which is to provide six new 4,500-tonne frigates to the navy, will cost \$3.85 billion (1983 dollars). The Defence Department is planning a phased replacement of existing destroyers and submarines,

lasting until at least 1997 and probably beyond.

The CPF Project is the first part of a long range plan by the government to replace the 20 steam powered destroyers built between 1955 and 1964.

The first six frigates, designated the Halifax class, will replace the oldest class of the ships currently in service, the St. Laurent class. These older ships were built in the 1950s and are now reaching the end of their useful lives.

In July, 1983 the government awarded a contract to St. John Shipbuilding and Drydock Company of St. John, New Brunswick, to be the prime contractor and to undertake the entire project. This will include the final design, the construction and the support of the frigates. A government Project Management Office monitors the project to ensure that the contractor meets its obligations, as set out in the contract.

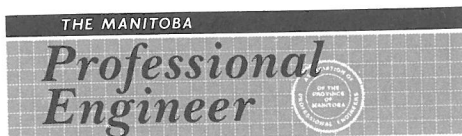
The prime subcontractor to St. John Shipbuilding, with responsibility for the design and delivery of the combat systems suite, is Paramax Electronics Inc., a new company wholly owned by Sperry Corporation. Sperry is committed to having Paramax become a Canadian controlled company by the end of the contract.

The heart of the combat and control system furnished by Paramax is the SHINPADS (Shipboard Integrated Processing and Display System) Serial Data Bus System. This project was developed by Sperry and is manufactured here in their Winnipeg facility.

This system integrates many different kinds of military electronics and computer equipment into a single system. It allows each system to function as an independent command or control processor, while being linked together sharing global data.

Other Canadian companies subcontracting to St. John Shipbuilding are Leigh Instruments Limited, SED Systems, SPAR Aerospace Limited, and CAE Electronics Limited.

The Sperry Winnipeg facility employs over 400 people, including more than 40 engineers. Sperry manufactures a variety of processing and communication equipment in Winnipeg for the Canadian, American and 13 other countries' Armed Forces. □



April 1986

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(204) 942-6481

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## OOOPS!

Our apologies to the WINNERS OF THE "B" and "C" EVENTS of the A.P.E.M. Bonspiel. The winners were incorrectly reported in the January/February issue of the publication. The winners were: "B" EVENT — Dave Evans, Rudy Isaak, Todd Smith, Ron Prychitko; "C" EVENT — Bob Friesen, Glenn Hermanson, Cy Howard, John Herman. □

## In Memorium

With deep regret the Association records the passing of:  
**MICHAEL DAVID MCKALL, P. Eng.**  
of Winnipeg

# The Professional Engineers' Code of Ethics — Our Most Important Document

*I have found that the greatest help in meeting any problem with decency and self-respect and whatever courage is demanded, is to know where you yourself stand. That is, to have in words what you believe and are acting from.*  
— William Faulkner

William Faulkner was not, of course, an engineer. Indeed, in many respects, he was not a role model that many professional engineers would accept.

We are all aware, or should be, of the extreme importance of communications. Listening is a vital, and often neglected, aspect of communications, and when listening, it is even more important to listen to what is being said than to consider who is saying it. Faulkner's message is an important one, which should not be overlooked.

As professional engineers, we are fortunate. Individually, we did not need to reach independently the realization that there is a need for ethics, integrity and moral disciplines in the practice of our profession. Instead, most of us were advised of this quite clearly at the onset of our engineering careers, during our engineering education and again when we received our iron rings at the Kipling Ritual, and we were further reminded when we joined our professional association.

Individually, we did not need to labour to summarize and set out our engineering ethical principles explicitly in words, as Faulkner implies one should do. Instead, the engineering profession, through its history and traditions and insightful analyses, has developed codes to which its practitioners subscribe.

Engineers are often uncomfortable with abstract matters. But there is nothing abstract about the Professional Engineers' Code of Ethics. It sets forth practical and worthwhile guidelines which can and should form the foundation and the framework for the conduct of each professional engineer.

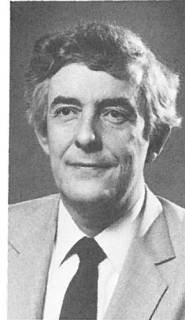
*"Some engineers may even have gone so far as to augment the Code by setting down additional principles to be followed."*

Familiarity with and adherence to the Code enables professional engineers to discharge their considerable and complex responsibilities with the integrity required and expected.

Many engineers are acutely conscious of the obligations and duties placed upon them — no, not placed upon them — assumed by them when subscribing to the principles set forth in our Code of Ethics. Some may even have gone so far as to augment the Code by

## President's Message

E.W.J. Clarke, P.Eng.



setting down additional principles to be followed (the introduction to the Code booklet refers to other duties equally important and not specifically mentioned in the Code).

But other engineers may be only generally

aware of, rather than familiar with, the Code, and may not have read or considered it for too long. They will find it worthwhile to find their copy (or to obtain a new copy from the Association office), and to study it, not just re-read it.

This is not a sermon. I am not trying, nor am I entitled, either to lecture or to warn the readers of this publication. I have no specific individuals or incidents in mind as I write. I am not implying that a widespread, or even significant, related problem exists.

But as part of our obligation to the public to maintain ongoing competence, we should each be conscious of the requirement not just to remain technically up to date, but also to refocus as often as necessary on certain fundamentals, including most emphatically our Professional Engineers' Code of Ethics. □

## Wanted: Distinguished Candidates for A.P.E.M. and C.C.P.E. Awards

Every year A.P.E.M. presents awards to distinguished members. Every year C.C.P.E. presents awards to distinguished Canadian engineers. Each organization has a committee set up to come up with recommendations on who should receive the awards. Such committees need input and suggestions on who should receive the awards.

The awards committee of A.P.E.M. is asking for nominations for awards to be received prior to May 31, 1986. Nominations should be for our "Merit Award" and our "Outstanding Service Award".

### GUIDELINES:

#### A.P.E.M. Merit Award:

1. A contribution to engineering literature showing scholarly achievement.
2. Magnitude of engineering works successfully completed.
3. The pioneering achievement in the field of engineering application.
4. Outstanding public service.

#### A.P.E.M. Outstanding Service Award:

The outstanding service award is intended to recognize outstanding service rendered to, or on behalf of, the Association of Professional Engineers of the Province of Manitoba by a member of the Association.

#### C.C.P.E. GOLD MEDAL AWARD

The Gold Medal Award is designed to bestow distinction on outstanding engineers in this country and to recognize exceptional achievements in their chosen fields, irrespective of any affiliation with a given society, institute or association. The presentation of this award is also designed to assist in the furtherance of public understanding of the role of the professional engineer in Canadian society.

### C.C.P.E. MERITORIOUS SERVICE AWARDS

The professional service award recognizes outstanding service and dedication to the Canadian engineering profession through Canadian professional, consulting or technical associations and societies, and to enhance the role of the associations and societies in the career of the professional engineer.

The community service award recognizes outstanding service and dedication to Canadian society through voluntary participation in community organizations, government sponsored activities, or humanitarian work.

The Young Achievers Award is designed to bestow distinction on young outstanding engineers in this country and to recognize exceptional achievements in their chosen fields, irrespective of any affiliation with a given society, institute or association. The presentation of this award is also designed to assist in the furtherance of public understanding of the role of the professional engineer in Canadian society.

Anyone wishing to nominate an engineer for an award should contact the Chairman of our Awards Committee, Bob Foster, P. Eng. □

## THIRD LAW FOR NAIVE ENGINEERS:

*In any formula, constants (especially those obtained from engineering handbooks) are to be treated as variables.*

# On Becoming an Engineer With Civic Responsibility

By Robert Howard

*Even at the Pinnacle of your career, your task is not done. New challenges await you as a citizen engineer.*

Everybody uses the products of engineering. The most ardent antitechnologists read printing, ride in vehicles, wear eyeglasses, wear running shoes, drink liquids, or occasionally determine the time. The typical citizen readily accepts automatic transmissions, television sets, portable cassette players, processed food, readily available energy and communications systems, and other technical artifacts of our civilization. On the extreme end of the scale, there are those who almost compulsively have to go out and buy the latest gadget or gizmo. As engineers, we are the principal source for these developments that affect so many people. As such, we have some additional obligations as citizen engineers. I comment on some important factors which make up our unique perspective as engineers and on our responsibility to communicate our insights to those in our society who lack technical training and understanding.

## Skepticism

Although advances in the technical world are sometimes astonishing, those in the pseudoscientific realm sometimes seem even more so. Whole industries are built on the sand of imagination and are supported by a foundation of poor experiments.

Proving that something *does* exist is much easier than proving that it *does not* exist. For example, a simple chemical test may reveal the existence of a 0.001 salt concentration in a certain solution. But if the test does not show the existence of salt, does that mean

*"Remember, though, that even if you can modify the odds of some occurrence, your lifetime probability of dying remains constant at unity."*

there is no salt? A more sensitive test might reveal that there is salt at the 0.000001 level. The point is, it is extremely difficult to prove that such pseudo-scientific phenomena as extrasensory perception, psychokinetics, remote viewing, palm reading, biorhythms, astrology, fortune telling, and the like are totally without validity. That they *can be* valid does not mean that they *are* valid. The combination of a few coincidences with some sloppy, nonrepeatable experiments cannot prove that they exist.

Look carefully at the physical laws involved. If well-known laws (laws established for 25 years or more) are violated, you can be reasonably safe in rejecting the theory. If no laws are obviously violated, but reasonable support for the theory is absent, examine the experiments. Reject experiments and the

theories they supposedly prove if obvious flaws exist in either the design of the experimentation or its verification. Anecdotes cannot replace the rigid application of the scientific method. Be a skeptic, but don't be so narrow-minded that you fail even to consider the data. Check them, evaluate them. But remember that coincidences and slipshod experimentation are scarcely sufficient to establish a new law of nature.

## Randomness

Most people like to think in absolute terms. Flying is dangerous. No carcinogens should be allowed. You are safe at home. Radiation is bad.

Actually everything is dangerous, differing only in degree depending on the circumstances.

Consider the fear of flying. A newspaper headline reads, "Pilot killed in crash." Was it a student pilot, drunk, flying at night in a storm? Was it an experienced pilot flying a commercial 747 to Hawaii? Both are flying. However, the former incident is probably a million times more dangerous than the latter.

We are talking about calculated risk. You should consider the risks of driving an automobile, taking a bath, smoking, living on an earthquake fault, and eating ice cream. Some risks you can eliminate, others you can only minimize. You may accept the full risk of eating ice cream, minimize the risk of driving by using seat belts, and eliminate the risk of smoking by stopping. It is foolish to smoke a pack a day, drive after drinking, and worry about the nuclear submarine docked 15 miles away.

Here are a few numbers for reference. There are 220 million Americans. Two million die every year. Half of these die of heart trouble. About 300,000 die from smoking cigarettes. Accidental deaths account for 100,000 other incidents, half by automobile, with 25,000 of those from drunk driving. About 25,000 murders and suicides occur each year. Falls account for 13,000 deaths. Drowning accounts for another 6,000, while all flying accidents kill about 2,000.

You can do little to prevent basic dangers, but you can prepare adequately for the possible consequences to minimize their impact on you and society. Remember, though, that even if you can modify the odds of some occurrence, your lifetime probability of dying remains constant at unity.

## Orders of Magnitude

Engineers have an opportunity to help the general public by pointing out the relative magnitude, or importance, of things and events. We all agree that radiation is bad. But consider: The radiation from a cosmic explosion is orders of magnitude greater than the radiation from the ongoing reaction in the sun, whose radiation is orders of magnitude greater than that of a nuclear reactor, whose radiation is orders of magnitude greater than that of the isotopes used in nondestructive testing, whose radia-

tion is orders of magnitude greater than that of the isotopes used in medicine, whose radiation is orders of magnitude greater than that of the radiation from natural granite.

Another illustration: Suppose that supporting a regal presidency would cost \$50 million a year. Offhand, most of us would consider that amount ridiculous. Yet \$50 million is only about one-ten thousandth of the United States budget; a good president must be worth that.

*"Civilization is a basically an ecological process; we interfere with the natural order for a perceived advantage, and sooner or later we pay the price. This process will continue, with engineers at the forefront."*

If we can help people put things into proper perspective by determining their proper mathematical relationships, we will perform a useful function as citizen engineers.

## Limits and Responsibilities

We humans tend to forget that we are tiny occupants of this planet. Our knowledge and power to affect nature are not great, though we appear to have at least a little talent for damaging nature as for improving it. (Those who see *only* damage from human manipulation should compare our food production capability today with that of only a few decades ago.)

We can pass and enforce all the laws we want to prevent air pollution, for example, and to punish the polluters, but no human law is going to stop a volcanic explosion like Mount St. Helens, which spewed a tremendous amount of filth into the atmosphere.

Though we may not like to admit it, we are not gods, and some things are simply beyond our control, or even our influence.

## Summary

As citizen engineers, we should above all attempt to practice intellectual honesty both inside and outside of engineering. We should present technical subjects as honestly as we can, and refrain from speaking as experts in fields about which we have mostly subjective feelings rather than hard, objective evidence. We should be advocates of truth, not just see it and can defend it.

Both for ourselves and for others, we should be properly skeptical, accept our limitations, understand the implications of random events in nature, properly keep in perspective the orders of magnitude, and remember the subtle relationship of human law to natural law.

Civilization, such as it is, is a human creation, and many of its creators have been engineers. Not all the results have been good. Yet a comparison of the lot of the American today with that of the

American 100 years ago certainly makes me glad that we have been able to exert a measure of influence on our environment. Civilization is a basically antiecolological process; we interfere with the natural order for our perceived advantage, and sometimes at our peril. This process will continue, with engineers in the forefront. We engineers have been the doers; in the future, we can have more say in what should be done.

#### About the Author

*Robert Howard has been an active engineer since 1953, and he has held technical and management positions at several corporations including Bell Telephone Laboratories and Aerojet Electro-Systems.*

*Since 1974 Dr. Howard has been a consulting engineer, both independently and as a founder of Stone, Howard, Nowill, and Kouwenhoven, Inc. Dr. Howard is an associate of the Southern California Advisory Group, a consulting organization made up of professionals from several disciplines. This article contains the essence of a talk, "Transition from the Classroom to the Real World," which he gave at a Student Professional Awareness Conference at California State University in Los Angeles last year.* □

## Canadian Geotechnical Society Short Course a Success. . . .

The February 5th, 1986 short course on "Living with Soil Movement" sponsored by the Winnipeg Branch of the Canadian Geotechnical Society was a success.

A total of 121 persons attended the short course and the organizing committee would like to extend their thanks to the attendees for their enthusiastic participation. □

## Goulter Wins Rh Institute Award

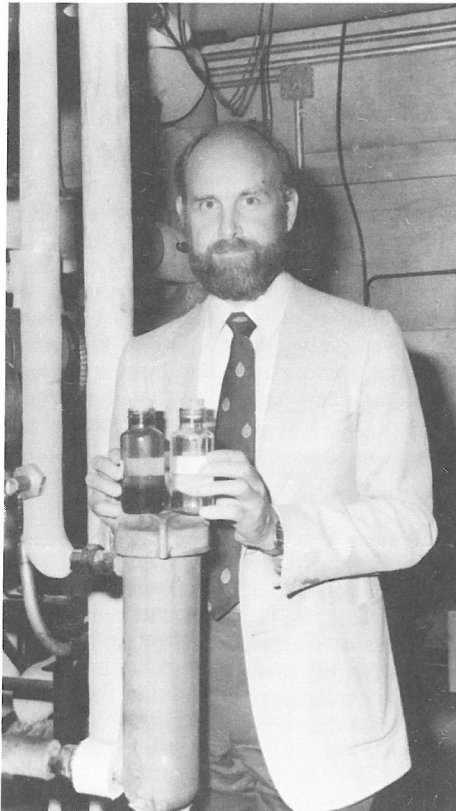
One of our Association members was among five researchers at the University of Manitoba who received the 1985 Rh Institute Awards, an annual series of awards established by the Winnipeg Rh Institute.

**Dr. Ian Goulter, P. Eng.**, a civil engineering professor in the Faculty of Engineering receives the award and \$3,000.00 to further research.

Dr. Goulter is best known for his application of systems analysis techniques to water resource planning and management. These techniques have not been used extensively in civil engineering and his work with them represent an innovative approach to problems that affect social and economic advancement in both developed and developing countries. One focus of his research is the development of mathematical tools for land-use planning in urban and rural watersheds with a view to reducing flood damage through non-structural rather than engineering interventions. □

# U of M Heating Modifications Cut Corrosion and Energy Consumption

The hot water heating systems at the University of Manitoba, like most similar systems, have been plagued by frequent failures of convertor coils. These corrosion-related failures, besides being disruptive to the academic and research activities on the campus, also tend to be costly, especially if new copper tube bundles are required.



*Robert McDowall, P. Eng., Director of Energy Management at the University of Manitoba, holds two samples of water from the hot water heating system. The samples illustrate quite graphically the reduction in corrosion due to the in-house modifications.*

Chemical treatment, although an available option, is not attractive given the sprawling layout of many campuses. (At the U of Manitoba, there are 50 hot water systems installed in buildings spread out over 150 acres.)

Confronted with a situation where funding levels permit the annual replacement of less than one percent of the physical plant, which unfortunately tends to expire in something less than 100 years, Director of Energy Management, Robert McDowall, P. Eng. and Horst Frank, Director of Trade Services & Powerhouse set out in 1982 to find some innovative solutions to their problems.

In a standard hot water heating system the steam/condensate loop and the hot water loop are separated, only coming into "contact" in the convertor where the steam gives off all of its latent heat as well as some of its sensible heat. In the modified system developed at the University of Manitoba, the condensate leaving the convertor passes through an existing steam trap and check valve into the hot water system pump supply line.

The consequent rise in hot water system pressure is controlled by a back pressure regulator installed in the hot water return line upstream of the convertor. The continuous flow of fresh condensate flushes out the hot water system (as the photo graphically illustrates) and greatly slows the rate of corrosion. In a 90-day test of some of the campus heating systems prior to modification corrosion coupons revealed a range of 4.8 to 16.5 mils of corrosive buildup. After the heating system conversion these figures ranged from 0.015 to 1.5 mils over a 90-day period.

Besides prolonging heating system life, the modified system also provides energy savings due to a reduction in condensate return water temperature. These savings ranged from 3.5 to 5.4% over two recent heating seasons. □

## What IS The Safety Committee?

*By W. B. Mackenzie, P. Eng., Registrar*

The primary mandate of A.P.E.M. is to protect the public from bad or unsafe engineering. Council has put a committee in place to help implement the safety aspect of this mandate. Appropriately, it is called "The Safety in Engineering Practice Committee" (the Safety Committee for short).

The Safety Committee is **not** a policing body! It is **not** a disciplinary body! It is an investigative body and will investigate specific incidents and industry procedures where it appears that unsafe engineering practices may be taking place.

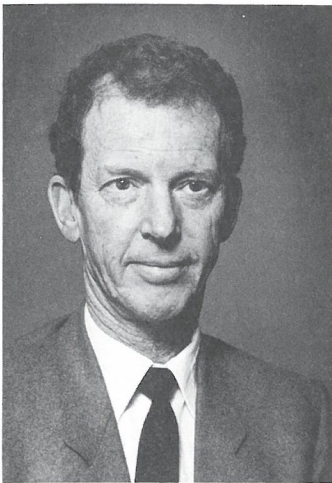
After investigation the committee will, where it considers it to be necessary, make

recommendations to Council on what action might be taken to prevent or eliminate unsafe practices in the future.

**The reason for the article** is to request information from the members relating to unsafe engineering practices of which they are aware in such fields as design, inspection, construction, etc. The sender's name in every case will be held in strict confidence.

**Every member** of our Association should be cognizant of the safety mandate of our Association. Every member can fulfil his or her professional obligations (as required in the Professional Engineers Code of Ethics) by sending pertinent information to the Safety Committee. □

# Lawyer, Dentist Join A.P.E.M.



**George Saunders, LL.B.**

Father, community worker, outdoorsman, lawyer, lay member of council, George W. Saunders is all of these.

First and foremost, George Saunders is, and always has been, a Manitoban — born here, raised here, educated in Winnipeg and now an exemplary citizen of Winnipeg. George spent his early years attending school in Winnipeg. After graduating from Kelvin High School he took law at the University of Manitoba, and was called to the Bar in 1948. George was an aircrew member of the R.C.A.F. during World War II.

George's lovely wife, Joyce, hails from Port Arthur. She and George are the proud parents of two sons. Son Tom is an upcoming young Winnipeg lawyer and son Jim is a professional engineer, presently practicing in Ontario. When the children were younger George was active in community activities, serving as a cubmaster and as a baseball and hockey coach. He was a

member of the vestry of St. Paul's Anglican Church.

The bumper of George's beloved Volvo might, in summer, have a sticker reading, "I'd Rather Be Sailing", and in winter, one reading "I'd Rather Be Skiing" — if he were prone to that sort of thing. Because George is, if nothing else, an avid outdoorsman. He is an active cross-country skier, an accomplished downhill skier, an expert sailor and an enthusiastic canoeist. Above all else, George Saunders is young at heart and his activities in these pursuits belie his years. He and Joyce have a lovely cottage on the Lake of the Woods where they intend to spend their retirement years.

In his business life, George has been a corporation lawyer for Canadian Premier Life, has been in private practice and is

presently Manitoba District Counsel for The Royal Bank of Canada. He is a member of the Canadian Bar Association. In that capacity, he chaired a committee that drafted personal property legislation for the Province of Manitoba. He has also been active in the Winnipeg Chamber of Commerce.

As a new member of Council he has been an active and responsive participant at Council meetings. He adds a new and refreshing perspective to the various matters being considered. The cross-fertilization of ideas and concepts that he provides is of significant benefit to our Association and to our profession.

George W. Saunders is a credit to his profession and an exemplary citizen of the Province of Manitoba. We are most fortunate in having him as a

## Council Reports

### January 13, 1986

**At which Council decides to set up a Scholarship Fund and then refers to legal counsel some apparently ambiguous by-laws concerning non-practicing memberships.**

*By Jerry Bogan, P. Eng.*

Council met on January 13, 1986 to discuss a number of items. The meeting began with approvals to the agenda, Minutes of the previous Council Meeting, licences, engineering graduates, transfers, registrations and reinstatements. The financial statement for the year-to-date and the submission for the 1986 University Liaison Committee were reviewed and approved. The Cooperative education program submission was discussed and accepted for information.

The majority of time at the meeting was spent discussing two issues. First, a recommendation from an Ad Hoc Committee regarding a proposed University of Manitoba Scholarship Fund was considered. The proposal suggested a \$200 yearly award to one student in each of the following engineering categories: Civil; Mechanical; Electrical; Computer/Industrial and Agricultural/Geological. The last two categories were combined to ensure an even distribution in the number of students considered. The chairman of the A.P.E.M. Awards Committee will be the designated Association representative on the University Faculty Awards Committee. Council decided that \$1,000 will be made available for this year's award from the contingency portion of the current budget. Next year, \$10,000 will be requested in the budget to contribute to the UM Award Fund to provide future funding of the yearly awards.

The second major issue involved a request for clarification by the Registrar regarding the interpretation of who may be considered eligible for Non-Practising Membership. A small number of members felt they were entitled to the reduced annual fee (currently \$30 compared to \$115) because in their view, they satisfied the requirements of the non-practising category while still residing in Manitoba. An unemployed member or one employed in financial

services are just two examples. The by-law was reviewed by Council and several opinions and interpretations were presented by different members. It was also pointed out that the wording of the notice mailed out to apply for retired or non-resident status did not exactly agree with the by-law. Further procedural difficulties arose in the meeting with the wording of the motion, an amendment and revisions to both. When the smoke cleared, the net result of the lengthy discussion was a motion to request an opinion from legal counsel regarding the issue.

The meeting was adjourned with motions, procedures and amendments whirling in the writer's mind. □

### February 10, 1986

**Where Council considers the establishment of a joint professional association centre, attempts to focus the Safety and Engineering Practice Committee's terms of reference, and wrestles with the state of being "retired".**

*By Kelly Hearson, P. Eng.*

President Ted Clarke and all Councillors, save Roger Kane and George DePauw began their February 10th Council Meeting promptly at 3:30 P.M. As usual, the agenda, the previous Council Meeting minutes, the licences, engineering graduates, transfers, reinstatements and registrations were quickly reviewed and approved.

During discussion of the financial statement, a question was raised as to the timeliness of the financial information. It was decided that the abundance of information now available to Council could not be provided more quickly.

Council has received a proposal by the College of Physicians and Surgeons to pursue the possibility of the establishment of a joint professional associations centre. The Executive Committee had reviewed the possibility at their January 20th meeting and it was now Council's turn to discuss the proposal. While advantages such as equity build-up, shared facilities, personnel and expenses, and

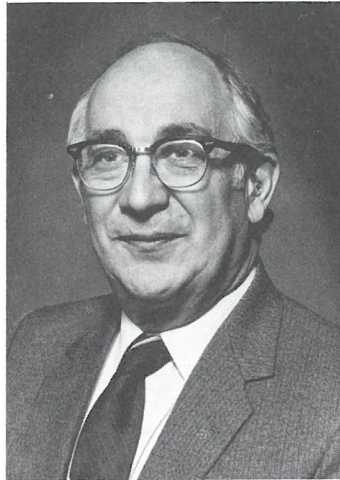
# Council as Lay Members

member of our Council. We hope he will consider serving another two years when his present term of office expires in 1987. □

## Dr. Arthur Schwartz

Dr. Arthur Schwartz, Dean of the Faculty of Dentistry at the University of Manitoba is a most welcome addition to the A.P.E.M. Council. The engineering profession is fortunate to have a person of such broad professional and academic background on Council.

Art Schwartz was born in Ashern, Manitoba and received his early schooling there and in Winnipeg. He went on to obtain a degree in dentistry at the Uni-



*Dr. Arthur Schwartz*

versity of Toronto in 1945. After serving for three years in the Dental Corps he entered private practice and practiced in Kenora and Winnipeg for a period of some twenty years. In 1978 Dr.

Schwartz was appointed the Dean of the Faculty of Dentistry at the University of Manitoba, a position which he now holds.

Art Schwartz is heavily involved in Dental Association activities. He is President of the Association of Canadian Faculties of Dentistry and Chairman of the Council on Education and Accreditation in the Canadian Dental Association. He is a member of the Board of Directors of the St. Boniface Hospital Research Foundation.

While Art was practising dentistry in Kenora he became involved with the Kenora Thistles who went on to a National Championship in 1953 and subsequently represented Canada internationally. Because of his involvement in the sport of hockey in Kenora he was inducted into the Northwestern Ontario Sports Hall of Fame in

September, 1985. Art is still a hockey buff and an outdoors enthusiast and plans to retire in the Kenora area.

Art's leisure time (if he has any) involves him in activities at the Wildewood Club, the Granite Curling Club and the Rotary Club of Winnipeg.

Despite Dr. Arthur Schwartz's heavy involvement at the local, national, and international level, he still finds time to be active in A.P.E.M. matters and his contribution to the affairs of our Council are already apparent. The engineering profession can consider itself very fortunate to have a person of Dr. Schwartz's capabilities, expertise and background serving as a member of our Council. □

"cross-fertilization" between various association councils and executives were cited, several councillors wondered out loud about the logistics of the proposal. Three separate motions were moved and carried on the issue: an Ad Hoc Committee was formed, the Ad Hoc Committee was instructed to assist the Executive Committee, and the Ad Hoc Committee was given authority to proceed with investigation on "shared accommodations". After this flurry of motions, Councillor Garland Laliberte suggested that perhaps Council was "all motioned out" on this particular issue.

Council then considered a request by the Safety in Engineering Practice Committee for guidance in the interpretation of their terms of reference. The committee had experienced difficulty in limiting the scope of their investigations. Council affirmed their terms of reference and then attempted to assist in the interpretation of these terms. Recognition was given to the significant legal ramifications of the Committee's findings.

The arrival of pizza interrupted Council's discussion. Dessert proved to be very interesting; a birthday cake was presented to Ted Clarke. When pressed by your curious bulletin reporter as to his exact age, President Clarke responded that he was "as old as his tongue and a little older than his teeth". Ted noted that he appeared to be developing an allergy to birthday cake, more so as the years go by.

In response to the Safety Committee's request for guidance, Council stated that the committee's activities should be focused on **engineering practice** which could have an impact on **public safety**. The committee should recognize the primary jurisdiction of other organizations in the formation of codes and standards and, while it may assist these organizations in fulfilling their roles, the committee should focus its activities on the use of these standards and codes in engineering practice where the public safety may be concerned. (This being an almost verbatim reiteration of the carried motion.)

The Safety in Engineering Practice Committee had recommended to Council that an announcement be made in our Association publication regarding a problem with an engineering material in common use in Manitoba. Again, Council wrestled with the legal consequences of such an announcement. A decision was made to publish the notice, but the Safety Committee was instructed to sub-

mit the wording to Council for their review and approval prior to publication.

Following Council's discussion Councillor Art Schwartz commented on the similarity of these types of problems compared to those faced by the Manitoba Dental Association, whereupon one clever councillor was heard to mutter something about "putting teeth in our by-laws".

The final item discussed by Council was a motion tabled from the January 13th meeting. One of the requirements for non-practicing members of our Association in Manitoba is that they be "retired". The Association's legal counsel provided a written opinion on the term. The tabled motion, which stated that "retired" meant "retired from the practice of engineering" and that there should be no age limit, was defeated. Also included in the defeated motion was the concept that a non-practicing member, who applies for full practicing status shall at the discretion of the Registrar, have his application referred to the Admissions Review Board for assessment. □

## CANADIAN CONFERENCE ON ENGINEERING EDUCATION

The Fifth Canadian Conference on Engineering Education will be held on May 12th/13th, 1986, in London, Ontario at the University of Western Ontario. This conference will address engineering education from a Canadian perspective, and will emphasize the various uses of computers in engineering education. Several universities will report on some of the effects of incorporating personal computers into their first-year programs. Presentations will be made on the experience of using various computer languages for engineering and of the relative merits of workstations against mainframes.

A highlight of the 1986 conference will be the Plenary Session dealing with "The Health and Future of Engineering Education in Canada". This session which will be chaired by Gordon Slemmon, Dean of Engineering, University of Toronto, brings together industrial, government, professional and academic leaders to discuss the state of engineering education as we head towards the 1990s.

For further information, please call Peter Rosati at (519) 679-2269.

# C.C.P.E. Celebrates Golden Anniversary

By Roger A. Kane, P. Eng.,  
A.P.E.M. Director to the Canadian  
Council of Professional Engineers

The year was 1936. The date — February 8th. Headlines in the Globe and Mail read: "Canada has 'Bow and Arrow' Army"; "U.S. Purchases from Canada up \$50,000,000"; "Immigration at new low in past year"; "Canada at Olympics".

It was on this day in Hamilton, Ontario, that a coordinating body of the provincial engineering licensing bodies was established and called the Dominion Council of the Association and Corporation of Professional Engineers of Canada. A draft constitution and budget were approved and Charles C. Kirby, P. Eng., of New Brunswick was elected as the Council's first president. Membership was 3,750 engineers.

Charter provinces in the original Council were Nova Scotia, New Brunswick, Ontario, Saskatchewan, Alberta and British Columbia. Quebec joined later in 1936, Manitoba in 1938, Newfoundland in 1953, Prince Edward Island and the Yukon Territory in 1955 and the Northwest Territories in 1980.

By 1958 the Dominion Council of the Association and Corporation of Professional Engineers of Canada had changed its name to the "Canadian Council of Professional Engineers". The appointment of a full time secretary-treasurer and the authorization for the opening of an office in Ottawa marked a new milestone in the activities of the Council.

The extent of the influence and support that A.P.E.M. has derived from C.C.P.E. is perhaps not clearly understood by our membership. I would like to try and explain its makeup and how we have been affected by the group.

Our Association of Professional Engineers of the Province of Manitoba is a self-governing association whose principal purpose is the administration and enforcement of the Engineering Profession Act. That our Registrar and the staff in the A.P.E.M. office, along with the network of Committees, are first rate by any measure is an acknowledged fact. In order for Association work to be completed in such a manner, many outside resources are called upon. There is, however, one resource which, more than any other, is

***"Even though C.C.P.E. has a Public Relations Director on staff, it maintains a very low profile, deflecting much of the praise it may well deserve to others..."***

utilized every day; the Canadian Council of Professional Engineers. Its influence on the profession across Canada as alluded to earlier is enormous. And even though it has this impact, its existence, work and modus operandi are sometimes misunderstood.

C.C.P.E. is a national body with ad-

ministrative headquarters located in Ottawa. Even though C.C.P.E. has a Public Relations Director on staff, it maintains a very low profile, deflecting much of the praise it may well deserve to others. This could not be demonstrated more than by its decision to do very little in the way of flag-waving and horn-blowing on this, its 50th Birthday, lest the impact of the Centennial of Engineering in Canada in 1987 be weakened. This selfless gesture underlines the thinking of the C.C.P.E. It is not self-serving but tries to raise the image and professionalism of our profession by contributing to the efforts of others.

The C.C.P.E. Executive is unique: each provincial association or order has one member on its board of directors. Each has an equal vote no matter whether that director comes from a large Association such as A.P.E.O. with 50,000 members, or from a small one such as A.P.P.E.I. with 150 members. This may seem somewhat unfair with respect to representation by population, but when one considers that C.C.P.E. sees itself as a national body, it is extremely important that small associations have a voice in decisions on a more or less equal footing with larger and more dominant bodies.



1936-1986

Arguably the most important function performed by C.C.P.E. is the work of one of its standing committees, the Canadian Accreditation Board or CAB. On a regular basis the CAB sends visiting teams to assess the academic standard of each engineering program being offered in Canada. The high regard that graduates from CAB — accredited programs enjoy anywhere in the world can be traced directly to the standards that are required to meet the CAB criteria. If the Canadian Council of Professional Engineers did not assess the standards of all Canadian engineering programs against a common set of guidelines, the significant responsibility of determining the academic credentials of applicants for registration would have to be done individually by each Provincial Association.

C.C.P.E. holds two meetings each year which are attended by provincial Association Directors, Registrars, and Presidents. The value of the cross fertilization of ideas and programs that flows from these meetings is immeasurable. One example specific to our Association is in the area of Act Enforcement. Over the last few years the A.P.E.M. Council has wrestled with the growing problem of non-engineers representing themselves to the public as engineers. During

discussions at the last meeting we were made aware of the efforts of other Associations regarding this significant problem. Information gleaned from other associations will substantially assist future developments by our Association in this area. Also the C.C.P.E. provides a valuable forum for Association intercommunication as the provincial Registrars meet regularly to dis-

***"C.C.P.E. has recently established a nationwide Engineering Manpower Inventory which is almost complete. Even in its unfinished format it is being utilized by government, universities, and employers..."***

cuss various in-house programs and projects they have developed. This eliminates duplication of effort in areas such as implementation of computer use, maintenance of records, etc.

C.C.P.E. has recently established a nationwide Engineering Manpower Inventory which is almost complete. Even in its unfinished format it is being utilized by government, universities, and employers to assist their efforts. When it is completed it is hoped that this tool may help students assess the worth of each of the disciplines of engineering. It would also identify engineering employers in each engineering discipline. This is not the sort of thing that gets great headlines but it does meet the mandate of C.C.P.E. to assist the engineering profession.

In addition to the many functions already discussed, C.C.P.E. on a regular basis recognizes the efforts of individual Professional Engineers. Every year at its semi-annual meeting a Gold Medal Award is presented to a Canadian Professional Engineer who has made major contributions to the profession and to activities outside the profession. Major John Leslie Charles, P. Eng. from Winnipeg received this prestigious award in 1980. At C.C.P.E.'s Annual Meeting held at various locations across the country, two awards are made for service. One will be awarded to a professional engineer who has made outstanding contributions to the profession directly and the other to a professional engineer who has contributed in the same manner to the community. C.C.P.E.'s awards program puts as much emphasis outside engineering as it does to engineering and this is a further indication of C.C.P.E.'s broad view.

The A.P.E.M. would like to wish the Canadian Council of Professional Engineers best wishes on their 50th Anniversary and looks forward to its continued involvement in these various spheres of activity in the years to come. □

## News from Other Associations

The A.P.E.O. has received notification from Ontario's Attorney General that he is prepared to request Cabinet delay the **implementation of compulsory professional liability insurance** until April 1, 1987. The Attorney General intends to appoint an independent, acknowledged expert in the insurance field who will examine the issue and make recommendations.

The Order des ingenieurs du Quebec conducted a survey to solicit views on the Ordre's purposes, objectives, priorities and services as well as **future orientation of the profession**. A notable 42% of the 27,000 members responded. Major priorities were enhancement of the engineering reputation, more activity in publications of social significance, and moving towards a higher public profile. As a result the Engineers Act is being revised. One product of the change in direction is the establishment of an accreditation system for consulting engineers and the formulation of standards of practice.

The A.P.E.N.S. has employed an Act Enforcement Officer. An **Act Enforcement Officer's** function is to educate the public, investigate breaches of the Act, and pursue prosecution. In most instances, problems have been resolved simply by pointing out the problem to the offender, however, at least two cases have been taken to court so far this year.

The A.P.E.B.C. has also identified **act enforcement** as a significant problem and has established a committee to study the issue.

Both the Associations in New Brunswick and Nova Scotia are preparing briefs to government on **free trade** and what effects its establishment might have on the engineering profession.

E. A. Portfors, P. Eng., President of A.P.E.B.C., tells his Association members that "**Expo**" will be the **best opportunity of this decade** to demonstrate what engineers do for society. Building on Expo and its related activities, the image of the engineer can be greatly enhanced.

The A.P.E.S. has concluded that a **1985 Salary Survey** should be carried out, as it is one of the more highly valued services of their Association.

In a situation very similar to that found in Winnipeg, the City of Edmonton is assembling a team of experts to critically assess Edmonton's water supply, in response to express-

ed **concerns about quality and safety**. Members of A.P.E.G.G.A. are encouraged to submit information or concerns they may have.

"The Pegg", published by A.P.E.G.G.A., has established a new column entitled "Marketing the Professional Engineer", in the hopes of assisting member firms in increasing their **marketing successes**.

On the lighter side, a Motion was moved and seconded at their Annual General Meeting to require all engineers registered with the A.P.E.B.C. to **submit at least one article** other than correspondence to the Association publication. The Motion was defeated. □

## An Open Letter to Recent Graduates of U. of M. Engineering Programs

### EDITOR'S NOTE:

*This letter was sent by our Association to all 1984 and 1985 graduates of engineering programs at the University of Manitoba. The necessity for these graduates to be given this information is self-evident. It is presented in our publication so that members who may be advising graduates be fully aware of the Association requirements regarding this issue.*

1. In order to practise engineering legally in the Province of Manitoba, a person must be a registered member of the Association of Professional Engineers of the Province of Manitoba or hold a temporary licence.
2. In order to become registered, applicants must be academically qualified (i.e. a graduate from a Canadian Accreditation Board accredited engineering program),

and must have had at least two years engineering work experience subsequent to graduation.

3. Normally, the work experience must be gained under the direct supervision of a professional engineer.
4. A.P.E.M. now has a procedure whereby graduates doing engineering work where no professional engineer is employed can still obtain the necessary work experience to qualify for registration. **Graduates in this position are urged to contact the A.P.E.M. office at the earliest possible time** in order to:
  - a) confirm that they are not practicing engineering illegally
  - b) obtain information on the procedures required to obtain the necessary credit for engineering work experience. □

## Letters to the Editor

I received my copy of the *Professional Engineer* today and I consider it to be a great improvement over the previous format. It is a pity that it has to be folded but I assume this has to do with envelope costs. In any event I like it.

T. Lamb, P. Eng.  
Calgary, Alberta

☆☆☆

Congratulations on the new format and new editorial emphasis of the Association's newsletter!

I think you have struck a nice balance between international news, national news, provincial news and Association news.

I am impressed that the Committee is willing to reprint articles from outside sources when such articles seem to have sufficient merit, as you did with 'Engineers Must Provide Leadership as We Move into the 21st Century.' In this regard I enclose an article

that I read last summer and was so impressed that I tore it out without knowing quite what I would do with it. Now I know: send it to the editor of *The Manitoba Professional Engineer* for consideration!

I hope you get lots of positive response to the new format and content — you certainly have my vote!

Glenn W. Swift, P. Eng.  
University of Manitoba

☆☆☆

A great improvement — the new *Manitoba Professional Engineer* is an excellent format. The size, print and non shiny paper make it a much more professional Bulletin.

Well done all those involved in the change and the material for the January/February issue.

Robert McDowall, P. Eng.  
Director of Energy Management  
University of Manitoba

☆☆☆

My congratulations on an excellent first issue of the *Professional Engineer* in its new format and content. It arrived in yesterday's mail and has since been read from cover to cover.

L. D. Keil, P. Eng.  
Keil & Associates Ltd.

☆☆☆

Having just read the January/February issue of *The Manitoba Professional Engineer*, I am writing to congratulate you and your committee on the new format and content of our publication. I have noticed the change in content during the past while and I very much appreciate the new features.

Regarding the new look and the new masthead, I think that they are both just great. You and your committee are doing a great job!

Glenn Morris, P. Eng.

# Vigilant Concern With Safety Important if Engineers to Retain Public Trust

By Christian Dagenais, Eng., CRI  
Syndic and Director of Juridical Affairs

Because of their involvement in both the design and the execution of projects, engineers are deeply concerned by the safety aspect of every engineering work, taken in its broadest sense.

This concern that engineers must demonstrate is clearly called for by the very first article of the Code of Ethics, as follows:

*In all aspects of his work, the engineer must respect his obligations to man and take into account the consequences of the performance of his work for the environment and on the life, health and property of every person.*

It is no accident that the words "all" and "every" appear at the beginning and the end of this article: its application is intended to be universal. This concern by the engineer must be present at every stage of his professional practice, as in all spheres of his activity and modes of practice.

Certain recent events, as well as opinions expressed by agencies concerned with public and worker safety, force us to take a closer look at this subject.

An engineer who wishes to be truly professional must be continually aware of the heavy responsibility that he has taken on. Otherwise, he may fail his prime obligation to ensure the safety of all, builders and users.

Why would an engineer not provide, even at the preliminary planning stage, all the

elements that would allow a builder and workers to fully assume their own obligations for the supply and use of the safety equipment required by the regulations in force?

Why wouldn't an engineer require the contractor to bring to the site the equipment and materials needed to protect the site against unexpected accidents as well as the carelessness of those who visit or work on the site?

Why would an engineer neglect to show an interest in all activities, when some of them, if inadequately supervised, could cause all sorts of disasters?

Why would an engineer sign off certificates of compliance hastily and without taking sufficient care?

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*"Why would an engineer neglect to show an interest in all activities, when some of them, if inadequately supervised, could cause all sorts of disasters?"*

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Why would an engineer with a supervisory mandate not be interested in the requirements that a contractor must satisfy and why would he allow the contractor to assume safety responsibilities under the contract clauses without taking care to make sure, at

the appropriate time, that the contractor has indeed satisfied his contractual obligations?

Why would an engineer complain of harassment by inspectors or site supervisors, when their role would be made easier — if not completely unnecessary — if all parties, particularly engineers, really took their moral obligations to heart?

Certainly engineers are not the only ones who are supposed to see to the safety and protection of the life and health of the community in which they work. But what should distinguish an engineer from others is his professionalism, at all times and in all circumstances.

As Jean-Paul Letourneau, Executive Vice President of the Chambre of Commerce of Quebec, wrote recently with reference to a number of bank failures: "Trust, like freedom and even democracy, is a big word whose fragility is often overlooked. Woe betide those who would contribute to its erosion!"

The engineering profession has no shield against loss of trust. Maintaining our image among the users of our services requires vigilance by all groups and enhanced individual awareness at all levels.

Our credibility and influence depend on this image, and it is up to us to take care of it. □

*Taken from the January/February 1986 issue of the "Plan", L'ordre des ingenieurs du Quebec.*

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## Attended Any Five Hour Meetings Lately?

By Jeff A.E. Belagus, P. Eng.

Sooner or later, someone is going to give you the responsibility of planning and conducting meetings. Knowing what to do before you have to do it will not only make you more effective, but will also make your meetings more effective. To ensure that your meetings meet high standards, it is important to understand ways of streamlining meetings, getting more accomplished, and winning the cooperation of those in attendance. Here are some tips to help you achieve that goal:

• **Know exactly why you're calling the meeting.** Meetings are held for various reasons: to focus on solving a problem, to solicit opinion, to recommend new studies, to put policies or procedures into perspective.

• **Determine who should be asked to attend.** Ask only the persons who can make solid contributions of value. "Shanahan's Law" says that the length of any meeting rises with the square of the number of people present. So people who have no business to contribute can be disruptive, slow things down, or go

away resentful because they've wasted their time.

• **Keep in mind that people understand and remember better when they can see ideas as well as hear them.** You may find it's helpful to outline major points on a chalkboard, a flip chart, or a screen.

• **Prepare your agenda carefully and thoroughly.** Be sure you distribute copies to everyone who will be attending the meeting in advance.

• **Start the meeting on time, even though everyone may not be present.** This will impress upon everyone your attitude towards promptness. You will find that as time goes on, your reputation for starting meetings on time will result in people getting to the meeting on time.

• **Take just enough control over the meeting to keep things on an even keel and progressing according to your agenda.** Give everyone a chance to speak up and feel that their remarks are worthy of being listened to.

• **Encourage shy people to speak up.** Some-

times the quietest people have the best ideas but are hesitant to speak up.

• **Don't allow any one individual to dominate the meeting.** Even if such a person does know what he's talking about, don't allow him to interrupt or make loud or long comments. You may have to interrupt by saying, "Well, let's see how others feel about this."

• **End on a high note and end on time.** Thank everyone for attending and express your appreciation for what has been accomplished.

• **After the meeting, send a written report (minutes) to the participants and anyone who should have been at the meeting but wasn't.** Keep a copy for your own records in case you need to refresh your memory or you're called upon later to defend some action that was taken.

Meetings are a necessary part of any business, corporation, club, or organization. They can be made effective by knowing how to do so. It's all up to you as the leader! □  
*Jeff Belagus is a Past President of the Empress Toastmasters Club.*

# Northern Chapter Wrestles With Issues. . .

Alex Murchie, P. Eng.  
Thompson's roving northern reporter

The long awaited message from the north has arrived. Mr. Ground Hog was only a shadow of himself this year. When he came out to check on the timing of spring he discovered a group of APEMer's plotting the regularity of their chapter meetings. The fact that they were planning a meeting, coincident with the coming of spring, must indeed be considered to be beyond the limits of their jurisdiction and certainly has Mr. Ground Hog concerned.

Two dozen of these bad eggs showed up at a chapter meeting at the Burntwood Hotel on January 17th. Dinner and cocktails preceded the meeting and members were in a hearty mood for discussion. The organizing committee consisted of Robert Cotterill, Alex Murchie, and Rodger Blunden. Robert chaired the meeting and set out the agenda which included the topic "Use of the Seal" to be addressed by John Fulton. John was guarded in his discussion of A.P.E.M. Seal Committee activities. His lips were practically sealed but enough was said to create an engrossing discussion on the problems in-

herent in stamping the use of a computer program.

Civil engineers present (Smiley Hallam, Greg Bowland, Don Smal, and Ray Prochera) debated whether an organized structure be established by the chapter. In view of recent heavy handed court rulings on liability it was decided to remain non structured and continue with a simple committee operation. Joining the simple committee were John Fulton, John Sagman, and Ron Orr.

John Swierstra was gracious to members in delivering Grace at the meal and not so gracious to non-members in his motion to limit attendance to card carrying members. The motion was carried by the carrying members.

Billy Bishop, not the war ace, brought the meeting down to earth by declaring under discussion on the seal that he sealed all his correspondence. Several members, namely Brian Maynard, Bob Lyons, Brent Campbell, and George Stewart weren't sure if they owned a stamp.

Milt Goble was on thick ice when he came to the defense of process engineering against charges of practicing without qualifications.

Northern representation on Council was debated from two sides (of the room): Smiley Hallam on one side holding that area representation might be undemocratic, Dave Nicholls on the other side holding that area representation might be more democratic. Arguments became unclear when the debaters lost sight of each other through the cigar smoke. Quiet support from Bill Candline, Robert Thom, Kevin Cassidy, and Peter Leinberger, was given to Alex Murchie's motion that the question of area representation be tabled for a future meeting when the smoke cleared.

Steve Samu submitted that chapter formation was overdue and that wildlife would now flourish with the reduction of 'the shooting of the bull' and 'the passing of the buck'.

Members are now contemplating an even livelier meeting sometime around April. With the consideration of combining the meeting with a fishing trip the readers may look forward to a tale of some scale. □

## U. of M. Engineering Yearbooks Available

Yearbooks from 1978-1984 (excluding 1981) are available through Laurie, The Dean's Office, Room 350 Engineering for \$15.00 during regular office hours.

If you would like to have your yearbook mailed out — send a cheque for \$20.00 — payable to U.M.E.S., to the attention of: Irene Miakawoz, Vice-Stick, University of Manitoba Engineering Society, Room 102, Engineering, Winnipeg, Manitoba R3T 2N2. Please include your full mailing address.

Further information available at 474-9807. □

## Engineering Graduate Members Registered in February/March 1986

P. J. Babulic  
D. D. Davidson  
W. D. Doherty  
A. Dreolini  
A. J. Flam  
E. W. G. Guest  
N. A. Kellington  
G. L. Slagerman  
M. A. Weekes

Congratulations to **Patrick John Babulic, Antonio Dreolini and Neil Allan Kellington** for achieving 100% on the Professional Practice Examination.

## A FABLE ABOUT PLANNING

# Are They Making Wolves Like They Used To?

Once upon a time there were two pigs (a third one had gone into marketing and disappeared) who were faced with the problem of protecting themselves from a wolf.

One pig was an old-timer in this wolf-fending business, and he saw the problem right away — just build a house strong enough to resist the huffing and puffing he had experienced before. So, the first pig built his wolf-resistant house right away out of genuine, reliable lath and plaster.

The second pig was green at this wolf business, but he was thoughtful. He decided that he would analyze the wolf problem a bit. He sat down and drew up a matrix (which, of course, is pig latin for a big blank sheet of paper) and listed the problem, analyzed the problem into components and possibilities of wolf strategies, listed the design objectives of his wolf-proof house, determined the functions that his fortress should perform, designed and built the house, and waited to see how well it worked. (He had to be an empiricist, for he had never been huffed and puffed at before.)

All this time, the old-timer pig was laughing at the planner pig and vehemently declined to enter into this kind of folly. He had built wolf-proof houses before, and he had lived and prospered, hadn't he? He said to the planner pig, "If you know what you are doing, you don't have to go through all of that jazz." And with this, he went fishing,

or rooting, or whatever it is that pigs do in their idle hours.

The second pig worked his system anyway, and designed for predicted contingencies.

One day the mean old wolf passed by the two houses (they both looked the same — after all, a house is just a house). He thought that a pig dinner was just what he wanted. He walked up to the first pig's house and uttered a warning to the old-timer, which was roundly rejected, as usual. With this, the wolf, instead of huffing and puffing, pulled out a sledge hammer, knocked the door down, and ate the old-timer for dinner.

Still not satiated, the wolf walked to the planner pig's house and repeated his act. Suddenly, a trap door in front of the house opened and the wolf dropped neatly into a deep, dark pit, never to be heard from again.

*Morals:* 1. They are not making wolves like they used to. 2. It's hard to teach old pigs new tricks. 3. If you want to keep the wolf away from your door, you'd better plan ahead. □

From the "BC Professional Engineer" Jan. 1986.

## We Are Looking, But Cannot Locate

Man-Lok Choi    B. N. Dick  
A. D. Round    M. Green  
T. Voutsinas

# Professional Development

## Professional Development What Is It?

By B. D. MacBride, P. Eng.

What is professional development? Would an accounting course be considered professional development for a registered engineer? How can professional development be measured? What is the minimum required for public protection? There are no black and white answers. Nevertheless, it is clearly a responsibility of all the members of this association to spend a significant proportion of time each year on professional development.

A number of possible definitions of professional development are as follows:

1. Professional development is the continual process by which a member of a profession maintains his or her competence relative to developments in the technological, economic, legal, political, social and ecological environments.
2. Professional development is fulfilling Clause 5.2 of the **Professional Engineers Code of Ethics** which reads: "He (or she) shall constantly strive to broaden his (or her) knowledge and experience by keeping abreast of new techniques in his (or her) field of endeavour and to maintain his (or her) reputation for skill and integrity."
3. Professional development is a process of improving, extending and/or maintaining the level of competence of the professional engineer with a view to optimal serving of the public need.
4. Professional development is the act of expanding or bringing out the potentials and capabilities of an engineer in preparation for and in connection with the practice of engineering.
5. Professional development is continuing education in engineering, related to increased levels of service to the public and protection of the public.
6. Professional development is on the job training: evaluating and using the latest engineering models to solve problems.

7. Professional development is formal courses, individual study, conference participation and reading relevant literature.

Only the last definition, although an over simplification, allows us to quantify professional development, at least in terms of hours spent. Unequivocal evaluation of the increase in competence achieved is not possible.

In 1982 Council established the Professional Development Committee to "develop and monitor a voluntary professional development program for members of the Association". This Committee has been at work developing and examining alternative approaches to fulfilling Council's instructions. A major input was the survey of the members as reported in a previous *Professional Engineer* issue of this publication. A major goal of the professional development committee, on behalf of Council, is to develop defensible techniques and guidelines to assist the members in evaluating their professional development activities. If you have some thoughts or experience that you think may assist the Committee, send them to the Association office, to the attention of John H. Bachmann, P. Eng., Chairman of the Professional Development Committee. □

## IEEE Database Eases PD Information Access

E.J. Klein, P. Eng.,  
Professional Development Committee

Professional engineering and the optimal performance of the associated duties are contingent on the engineer maintaining a program of professional development.

Such a program would utilize available sources of current knowledge in theory and application in the engineer's present work and in the development of his capabilities for future responsibilities.

Local sources for most engineering disciplines are limited to courses available in Engineering, Business Administration, and Continuing Education at the University of Manitoba. For those in the electrical engineering discipline possessing an ASCII ter-

minal or personal computer with a modem, an extensive additional source is available in a database provided by the Institute of Electrical and Electronic Engineers (IEEE).

The IEEE "Finding Your Way" is a database service designed to get the engineer started or prepared for a new assignment, be it in new work or a position of additional responsibility.

The Tutorial Database forms the core of "Finding Your Way" and provides the starting points on subjects that the engineer wants to learn more about. References include books, special issues, individual articles, courses, and conferences and symposia. Brief abstracts are included to help the engineer in his choice.

A second searchable database is a Catalog Section providing comprehensive information on standards, conference publications, IEEE periodicals, and position papers that can be obtained through on-line ordering.

A user of the IEEE database can gateway to a non-IEEE service called Videolog. Videolog provides instant access to data on more than 500,000 semiconductors, listings of alternate sources for products and services, key parameter searches, direct electronic mail with component manufacturers, electronic industry and product news, short form catalogs, selection guides, and component prices.

This article was written for two reasons. Firstly, to acquaint those electrical engineers who do not have the necessary association with the IEEE to utilize this educational resource, and secondly, to alert those in other engineering disciplines to the possible structuring of such databases for their professional requirements. To date we have not been able to determine whether such databases exist for other discipline associations or societies, eg. ASME. In the event that such information is available, it would be appreciated if it could be directed to your Professional Development Committee, A.P.E.M. office. Further information regarding the IEEE may be obtained through Paul Gordon, P. Eng., Chairman of the Winnipeg Chapter at 474-3074. □

### GEOMETRIC DESIGN STANDARDS FOR ROADS JUNE 4-5, 1986 — Winnipeg, Manitoba

The Roads and Transportation Association of Canada (RTAC) has organized a national series of intensive two-day technical courses in conjunction with the publication of a revised and expanded edition of its Manual of Geometric Design Standards for Canadian Roads.

RTAC's course is intended to familiarize road sector professionals with the major additions and revisions to the standards manual. These include new chapters on traffic barriers, low-volume roads, traffic noise and its mitigation.

For further information, contact G. A. Smith, Director, Transportation Division, UMA Engineering Ltd., Winnipeg or John E. Hill at RTAC, 1765 St. Laurent Blvd., Ottawa, K1G 3V4; tel: (613) 521-4052.

### CANADIAN SOCIETY FOR CIVIL ENGINEERING ANNUAL CONFERENCE MAY 14-16, 1986 — Toronto, Ontario

With the theme "Toward the 21st Century...An Integrated Approach", the conference will focus on the integration of all civil engineering disciplines in solving emerging problems.

The conference will feature a common theme-day for all CSCE divisions on the topic, Our Crumbling Cities — Will They Last into the 21st Century? Invited papers will demonstrate how the various divisions of civil engineering interact.

Submissions and inquiries should be addressed to Imants Hausmanis, P. Eng., c/o CSCE, 191 College Street, Toronto, Ontario M5T 1P9 (416) 252-5451.