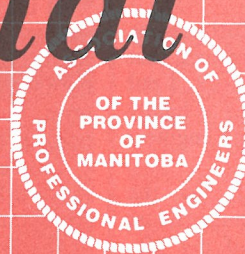


# Professional Engineer



June 1986



## Investors Plans Dramatic New Winnipeg Headquarters

Investors, a large multi-national corporation, is constructing a new corporate headquarters in Winnipeg. The building, to be known as One Canada Centre, will be located on the north side of Portage Avenue between Colony and Vaughan Streets.

It contains two parking levels, a ground floor, 17 office floors and two mechanical floors underneath the sloped roof. The building is clad in warm light-red coloured granite, with green-tinted glass, and forest green feature panels and window mullions. The entrance lobby projects as a tall wide bay towards Portage Avenue.

The structure consists of a reinforced concrete frame with large span flat slab floors. The HVAC system consists of a perimeter heating system and an interior ceiling heating/air conditioning distribution system. The perimeter heating system is by hot water radiation, utilizing natural gas fired boilers. Each floor has its own interior air handling unit. The exterior cladding utilizes energy conserving thermopane glazing with exterior heat absorbing glass. The heating system recovers rejected heat from the cooling system, with all heating and cooling systems managed by a direct digital control system to maximize energy conservation. A sprinkler system for further protection is found throughout the building.

Design architects on the project are Webb Zerafa Menkes Cousden Partnership of Toronto, and associate architects are Number Ten Architectural Group of Winnipeg. Structural consultants are Crosier Kilgour and Partners Ltd.; mechanical engineering is provided by K & D Engineering; while electrical engineering is provided by AEB Engineering Group, all located in Winnipeg. PCL Constructors Western Ltd. have been appointed the general contractor for the project. □

## Walkway Engineers Lose Licences

The two St. Louis structural engineers who designed the Kansas City Hyatt Regency walkways were stripped of their Missouri professional engineering licences.

The eight-member Missouri Board for Architects, Professional Engineers and Land Surveyors voted unanimously to revoke the licences of Jack D. Gillum and Daniel M. Duncan permanently and to revoke the certificates of authority of their firm, GCE International Inc.

The action came two months after Missouri administrative law Judge James B. Deutsch ruled that Gillum, Duncan and the firm were responsible under state licensing law for allowing a design error in the suspended hotel walkways to escape detection. The 1981 collapse of the walkways killed 114 persons.

During a two-hour hearing, the two engineers read emotional statements. Then the board met behind closed doors for five hours before emerging with its unanimous decision. Board members declined to comment following the announcement.

In his statement, Duncan said, "There are things on the Hyatt that I could have done differently. Maybe those could have averted the tragedy. I have asked myself why I did not go into greater detail in

*(continued on page 2)*

## Iceberg Destruction Subject of Chilling Research

An A.P.E.M. member and University of Manitoba civil engineering professor wants to make icebergs as harmless as ice cubes — and about the same size.

To accomplish this, Don Shields is studying methods of blowing up the gigantic slabs of floating ice. It's all part of a \$20,000 research project in Newfoundland aimed at protecting offshore drilling platforms from the icepack menace.

Northern glaciers produce about 2,500 icebergs per year and about 1,000 reach the northern tip of Labrador. Of these, about 400 get as far as the Grand Banks. These icebergs pose a serious threat to drilling platforms which, unlike ships, are anchored and cannot simply move out of the way. At present, most icebergs are handled by towing them out of the way. However, this costly procedure is dangerous and unreliable. Additionally, many icebergs are too heavy to tow.

Professor Shields and his team will study the feasibility of getting rid of the bergs by blowing them up, a process he refers to as "fragmentation."

"You want to fragment the thing in such a way that you don't end up with five 400,000-tonners out of a two-million-tonner and multiply your problem," he said.

His study, to start at the end of April, will involve conducting stress and density tests at a site near St. John's, Newfoundland. Professor Shields and a graduate student will work closely with engineering specialists from Memorial University of Newfoundland and with experts in the Centre for Cold Ocean Resources Engineering. □

# Hyatt Walkway Engineers Lose Licences in Missouri

(continued from page 1)

checking the shop drawings. Unfortunately, the demands of our profession are such that no one person can check all the work. I put trust in the engineering ability of a highly qualified, registered, professional engineer working for the fabricator."

Gillum added, "The tragedy of the skywalk collapse with its devastation and loss of life will haunt me the rest of my life. Because of these hearings, my company is in liquidation, and the stockholders, which include myself, have lost in excess of a million dollars, with over \$200,000 in unpaid legal bills still remaining. All of the fixed assets have been sold, and the employees are now with another company."



June 1986

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Sharon Watson

Opinions expressed are not necessarily those held by the A.P.E.M. or the Council of the A.P.E.M.

"I have resigned as a director of the company ... and, as an employee, have no engineering responsibility," he said. "I have been publicly denounced and chastised by the press, but, most of all, my reputation ... has been destroyed."

Gillum also asked the board to appeal to the legislature for a law clarifying that the structural engineer has a legal responsibility as the design team leader.

Attorney Lawrence Grebel said the question of vicarious responsibility — a sharing of the responsibility regardless of who prepared the flawed shop drawings — is the central issue on which an appeal would be based if his clients agree. The engineers have 30 days to file an appeal in the state courts.

*"The tragedy of the skywalk collapse with its devastation and loss of life will haunt me the rest of my life."*

Havens Steel Co., Kansas City, Mo., the walkway fabricator, has acknowledged it played a key role in the design, but Havens engineers insist that their shop drawings were subject to final approval by GCE. Judge Deutsch agreed with the fabricator's reasoning. "Shop drawings review allows the engineer to provide the final unreviewable determination and verification of strength for the protection of the public," he said.

## Follow-up Forum Discusses Industry Problems

In a follow-up forum intended to seek action on problems in the construction industry tragically demonstrated by the Hyatt Walkway collapse, industry leaders met in Kansas City, Missouri. They pressed for peer review, better communication and clear lines of authority as measures that could improve safety and quality in buildings and other construction projects.

Invited by American Society of Civil Engineers President Robert D. Bay, the group included presidents — past, present and future — of 10 national societies and trade associations. Architects, engineers, contractors, construction managers, material suppliers, insurers and owners represented their particular interests.

The group also received the report of an ad hoc industry committee that began working in Kansas City in 1982 to define roles and responsibilities in the construction project.

With the fatal 1981 Kansas City Hyatt walkway collapse as background, both groups concentrated on ways to improve construction's present systems.

James B. Deutsch, the administrative law judge who decided the case against the Hyatt's structural engineers, launched the roundtable discussion with a presentation of the logic behind his decision, which is now being appealed. His and the few other prepared talks came down hard on the way things now get designed and built.

Speakers blamed unstructured responsibility, an erosion of professionalism, the poor control of paraprofessionals and the curse of substitutions as deterrents to quality and safety in projects. They asked how protection of the public meshes with the profit motive and called for a synthesis of ethical standards and real-world needs.

"The system encourages a repetition of the Kansas City collapse," said Charles H. Thornton of Lev Zetlin Associates, New York City. Clarity gets lost in the "middle range" of a project as the construction manager starts buying things that require design and shop-drawing changes. There are "unbelievable pressures" put on designers to get those changes made, in turnarounds as short as three days, he said.

Thornton was as hard on materials suppliers for "withholding negative information on materials" and on architects for having "ignored failures in buildings."

Prof. John E. Breen, until recently the director of Ferguson Structural Engineering Laboratory at the University of Texas at Austin, spoke against a "retreat" from the jobsite and "weasel words" in contracts. He called for restoring "hard words, such as approval" and for a required checking of complex projects.

One key recommendation made following roundtable and task-group discussions was that an intersociety task force should immediately draft criteria to define a threshold of size or complexity beyond which projects should be subject to peer review. Arnold L. Windman, president of the American Consulting Engineers Council, suggested as a goal excluding from membership any firms that won't submit their organizations to periodic peer review. He raised the possibility of restraint of trade, but another participant labeled it a "red herring."

Windman also pressed the group hard on higher fees for design firms. "Get stuck with a low fee," said another consulting engineer in the group, "and you either must give the contractor less information (a less completely detailed design) or give the owner an over-designed project."

The resulting statement from the roundtable: "Appropriate compensation is essential to provide the professional services to fully protect public safety — ... Competitive bidding for professional services severely impairs the ability of professionals to fulfill their vital responsibilities."

The group also stressed the use by architects and engineers of the same selection basis for engaging consultants over which they have control.

Fast-track construction also came in for criticism. "I'm up to here with fast-track," said Walter P. Moore Jr., a practicing structural engineer in Houston. "It adds risk, and all the risk is taken by the structural engineer." Moore also touted a Florida "threshold law" requiring that a registered

(continued on page 3)

# Are You a Type O Engineer?

According to a recent whimsical article in the A.P.E.O. magazine, personnel recruiters today are using an arsenal of unorthodox techniques, including morphopsychology, astrology, and chiology, and even graphology, which apparently is used for employee selection or evaluation by 70% of the enterprises in France.

In Japan, a method of categorizing engineers by their blood types has been devised. Those with Type O blood are believed to be pretentious, eloquent, and peremptory. Type A's are hardworking, cold, finicky, and courteous. Type B's are non-conformists and creative, while Type AB engineers are pragmatic and sociable!

We may be intrigued by or sceptical about these far-out theories, and interested in the personality characteristics that they supposedly unveil. We may, on the other hand, be totally indifferent and disinterested (though it has proven risky to ignore Japanese methods!).

Whatever our reaction to the above, from time to time we should focus on the kind of engineers that we actually are, and should be, rather than on the conclusions that a placement agency might draw after its quick and dirty analysis (whether based on the "latest H" theory or on more relevant analytical methods and information).

Engineering has been defined as the application of scientific and mathematical principles to useful endeavours. The essential fundamental attributes of professional engineering lie in four areas:

- the application of specialized skills and knowledge, advanced analytical methods, and informed and reasoned judgement, in order effectively and efficiently to solve problems, carry out designs, manage projects, and perform other complex technical functions which make up the practice of engineering;
- a commitment to serve the profession by contributing to the advancement of professional knowledge, ideals, and standards of practice;

## Hyatt Walkway

(continued from page 2)

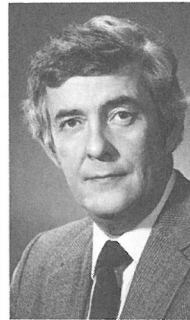
structural engineer on projects over a certain size stay with the job through construction to assure that work is done according to plan.

The group also backed the active participation of all parties in the industry toward a speedy completion of the "Manual of Professional Practice for Quality in the Constructed Project". This manual, intended by sponsor, ASCE, to become a standard, should result in a consensus on the roles and responsibilities of all involved in the construction process.

This article was condensed from the *Engineering New Record*, January 30 and March 13 issues. □

## President's Message

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



- an adherence to high standards of achievement and to ethical principles, as set forth in the Professional Engineers' Code of Ethics and as embodied in a sound personal/professional philosophy; and

- a recognition and acceptance of the professional obligation to serve society and to consider as paramount the protection of the safety and welfare of the public.

Our professional Association has a role with respect to each of these areas. However, we ourselves, as individual professional engineers, must determine our competence and adequacy within these areas. Professionalism in these respects is neither attained nor maintained through pressure or control by the Association. Such professionalism is not established or even effectively detected by the headhunters' methods and parameters, whether orthodox or unorthodox!

An ongoing and active commitment to practice competently, ethically, and with paramount concern for the public welfare is our professional responsibility. □

## Manitoba's HVDC Expertise Used in Quebec-Vermont Link

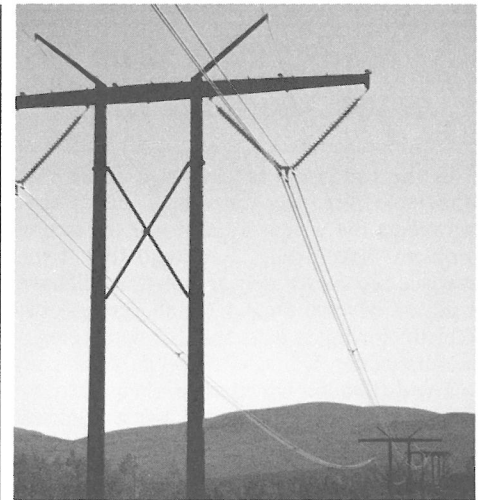
Manitoba engineers had a vital role in the implementation of a Quebec/Vermont  $\pm 450$  kV HVDC transmission line. The line will initially deliver 690 MW into the New England system and in its final stage will deliver 2000 MW of power from the hydroelectric plants in northern Quebec to the U.S. North East.

Teshmont Consultants Inc. of Winnipeg in association with Rist Frost Associates P.C., a consulting engineering group from upper New York State, have been working on the project since August of 1981. Teshmont have been involved in the preliminary studies, public hearing and state permit process, design, procurement and construction supervision.

In 1982, two states, Vermont and New Hampshire initiated their state process for approval of a route for the transmission line. The dual process was considered necessary since it was expected that the shorter route through Vermont would encounter stiff opposition during the public hearings. In fact, the opposite occurred, and the Vermont approval to proceed with the line was granted without any major hold up.

The utility, Vermont Electric Power Company Ltd., paid a premium to utilize H-frame structures similar in appearance to those in use on other high voltage (345 kV) ac lines in the state. Consideration was given initially to the use of wood poles, however, the magnitude of the final design loads for the structures eventually ruled out their use. The structures selected are tubular steel H-frames utilizing self-weathering steel which in appearance are very similar to wood poles and blend in well with the Vermont landscape.

The line through Vermont is 52 miles long and has 313 structures, with 274 of them being tangent suspension structures as illustrated in the photograph. These tangent



Typical tubular steel H-frame tower on Quebec-Vermont line.

structures range in height from 105 feet (ground level to peak) to 85 feet with the tallest weighing 24,000 pounds and the shortest weighing 20,000 pounds. The cross-arm on the structure is 70 feet long and weighs 5,700 pounds. At locations where the line changes direction, guyed structures were selected based on an economic comparison between the total installed cost of guyed and free standing structures and their foundations. The guyed structures were some 75% of the cost of the free standing structures.

Foundations for these tangent structures are typically steel shells, 4 feet diameter, of varying length (from 15 feet embedment to 21 feet embedment) to suit differing foundation conditions. The structure is supported inside this shell near the top and after levelling, is grouted in place.

The on-power date for the project is scheduled for July of this year. □

# What's Wrong With Whistle Blowing?

By George Sinclair, P.Eng.

In recent years in the United States, a phenomenon known as "whistleblowing" has attracted a good deal of attention and discussion at engineering conferences. It relates to the problem of what is the appropriate action for a professional engineer to take when an employer has been observed doing things which the professional believes will have adverse impacts on members of the public. Proponents of whistleblowing claim it is a legitimate action for a professional to take when the employer refuses to adopt appropriate remedies.

When professionals engage in whistleblowing, i.e., making use of the public news media to draw attention to a potentially hazardous situation, they are taking risks with their careers. This had led to professional organizations being pressured into promoting new legislation to minimize these risks. Several states in the U.S. have already put legislation into place. The provincial engineering associations are beginning to look at similar legislation for Canada.

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***"...whistle blowing represents the wrong solution for the wrong problem."***

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In the following article I will argue that whistleblowing, as currently conceived, represents the wrong solution for the wrong problem. Specifically, I contend that if the practice becomes widely accepted, it will have a major adverse impact on all professions. Whistleblowing is incompatible with being a professional.

The difficulties which arise when a professional engineer engages in whistleblowing tactics are related to two canons of ethics which are somewhat conflicting. These canons have to do with the relationship of the engineer to the public and to the client. Consider the APEO Code of Ethics. One section deals with the Duty of the Engineer to the Public.

*"2. A practitioner shall, (i). regard his duty to public welfare as paramount."*

The other canon is contained in the section on Duty of the Professional Engineer to an Employer, where it states:

*"3. A practitioner shall act in professional engineering matters for each employer as a faithful agent or trustee and shall regard as confidential any information obtained by him as to the business affairs, technical methods or processes of an employer and avoid or disclose any conflict of interest which might influence his actions or judgment."*

This canon clearly prohibits the professional from engaging in whistleblowing.

The proponents of whistleblowing argue that it is a legitimate activity in a professional

engineer whenever there exists a potentially hazardous situation capable of adversely affecting the health, welfare or safety of society. This follows from the previous canon which claims that the duty of a professional engineer to the public welfare is paramount, implying that it takes precedence over all other canons.

Engineers are generally unaware that most codes of ethics suffer from the fact that there does not exist any useful theory of professionalism that would provide guidelines for dealing with such problems. Without a theory of professionalism there is no basis for separating the obligations of professionals to clients from those to the public.

What is at issue is the failure to answer an obvious question, namely, why does society need the services of professionals? In other words, what services do professionals provide for clients that cannot be supplied equally as well by non-professional experts such as paraprofessionals, technologists, scientists, etc? I do not believe you can find a good answer to this question in current literature.

In a private communication, Dr. Peter Korda, a consulting engineer with Korda Engineering Inc., in Columbus, Ohio, suggested an answer. He provided the following definition.

*"A professional is a person who possesses the competence, when the client cooperates, to acquire more knowledge of the personal affairs of the client in a particular field, than the client possesses."*

This is clearly the situation when a patient engages the services of a medical professional. It also applies to most consulting engineering practices.

A number of corollaries follow from this principle.

**Corollary 1.** The standards of performance to be achieved by professionals can only be established by professionals and not by clients.

This is why it has been traditional for society to grant to professionals the right to manage their own profession.

**Corollary 2.** In order that clients will cooperate willingly with professionals, it is absolutely essential that they have complete faith in the competence, honesty and integrity of the professional. In particular, since the professional may acquire more knowledge of the personal affairs of the client than the client possesses, the client must be assured that the information will be treated as confidential.

Stated in another way, the interests of the client must be treated as paramount. This was stated very clearly in the Hippocratic Oath, which was the first code of professional ethics:

*"I will use treatment to help the sick according to my ability and judgment, but never with a view to injury and wrong-doing. Neither will I administer a poison to anybody when asked to do so, nor will I suggest such a*

*course. Similarly, I will not give to a woman a pessary to cause abortion. But I will keep pure and holy both my life and my art. I will not use the knife, not even, verily, on sufferers from stone, but I will give place to such craftsmen therein. Into whatsoever houses I enter, I will enter to help the sick, and I will abstain from all intentional wrong-doing and harm, especially from abusing the bodies of man or woman, bond or free. And whatsoever I shall see or hear in my intercourse with men, if it be what should not be published abroad, I will never divulge, holding such things to be holy secrets."*

Whistleblowing is clearly not compatible with professionalism.

The obligation of a professional to protect the public interest is explained in the following.

**Corollary 3.** In return for granting to the profession the privilege of managing its own affairs, there is an implicit obligation imposed on the profession (as a group of professionals acting collectively) namely, to promote appropriate legislation, standards, building codes, regulations, etc., designed to protect the health, welfare and safety of members of the public.

This means that the obligation imposed on each individual professional is to the profession, and not directly to the public. This is done by means of the Code of Ethics. It is the profession that imposes and implements the Code of Ethics, not the public.

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***"It is now clear what should be done in a perceived whistle blowing situation."***

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When a potential whistleblowing situation appears, it represents a failure of the profession to put in place the measures needed to protect the public interest. It is an obligation of the profession to protect and not an obligation imposed on an individual professional. The codes of ethics of engineers are wrong in stating that the individual engineer shall hold the public interest paramount. The proper statement is:

The professional engineer has a clear obligation to participate with other members of the profession in promoting legislative and other measures to protect the public interest in matters arising from their professional practice.

Whistleblowing is the wrong solution for the wrong problem.

The individual professional has some further obligations to fulfill.

**Corollary 4.** Each professional has an obligation to the profession to protect and enhance the public image of the profession, in order that clients will have the maximum confidence in the quality of the services provided to them.

**Corollary 5.** It follows from Corollary 4 (continued on page 5)

## New Production Manager



Sharon Watson

With this issue, the Publication Committee welcomes Ms. Sharon Watson as our new production manager.

Ms. Lynne Smith, our former production manager, has resigned her A.P.E.M. position and has accepted the Executive Director position with the Manitoba Bar Association.

Sharon joined the A.P.E.M. office in August of 1985, after completing a one year secretarial course at Red River Community College. Sharon's home town is Elm Creek, Manitoba; there is seldom a weekend when she doesn't make it home for some part of the two days.

As well as taking over the production duties for our publication, Sharon has also taken over the in-house accounting duties of the A.P.E.M. office.

We wish Lynne Smith the best of luck in her new position with the Bar Association, and look forward to working with Sharon in the future. □

# Safety Committee Focuses on Problems With Glulam Structures

The following article prepared by the Safety in Engineering Practice Committee has been approved by Council for publication in *The Manitoba Professional Engineer*.

Glulam structures have been successfully used since the Second World War in Canada, in the United States and in Europe. However, in the last decade there were a number of failures of glulam structures.

The Safety Committee of A.P.E.M. has undertaken to study a number of reports on these failures which occurred due to different causes. The most significant causes were the following:

1. Delaminations due to the now abandoned hot press glulam method.
2. Use of ureaformaldehyde glue for glulam members exposed to moisture or high temperature from light fixtures etc.
3. Use of casein glue for glulam members exposed to moisture during construction, rain or high humidity during service.
4. Use of interior grade glue in glulam members, exposed to unexpected water infiltration.
5. Lack of periodical maintenance replacing worn-off protective stain or lacquer finish of the glulam members.
6. Failure of glulam rivets (Griplam nails) due to corrosion under wet conditions and exposed to Douglas Fir extracts.

While the above mentioned problems occurred in numerous glulam structures, thousands of other glulam structures have successfully withstood loads and elements

throughout many years of service. The above problems were unknown to both the design profession and the manufacturers when these glulam structures were designed and constructed. Most of the structures which were found to be faulty have been strengthened or replaced since. However, it might be advisable for engineers to check their records, regarding their design of potentially dangerous glulam structures, and inspect the present condition of the structures themselves.

Regarding designs of new glulam structures, it is recommended that exterior service grade glue should be specified for all glulam structures. It is also recommended that only manufacturers approved by the Laminated Timber Institute of Canada should be allowed to supply glulam structures. Owners of buildings should also be made aware of the necessity of periodical inspections by qualified structural engineers experienced in glulam design and of routine maintenance of glulam structures. □

## We Are Looking, But Cannot Locate

B. N. Dick  
V. Kumar  
R. C. McCombe  
E. B. McGowan  
A. D. Round  
T. Voustinas

## Whistleblowing

(continued from page 4)

that each professional must have the freedom and independence to accept or reject any specific assignment that might have an adverse impact on the image of the profession.

If the professional has any reason to doubt the integrity of a prospective client, the assignment should be refused. If a professional blows the whistle on an employer, it would be quite improper for the professional to continue serving that client.

It is now clear what should be done in a perceived whistleblowing situation. The obligation of the individual professional is to report the matter to colleagues in the profession. It is up to the profession to take appropriate action. If the existing laws, standards, regulations, etc., are inadequate for dealing with a specific situation, then new remedies must be devised.

It is possible for the situation to occur that the concerned professional may fail to obtain satisfaction from either the employer or the profession. The professional then faces a dilemma. If the professional engages in whistleblowing there is a clear violation of

the canon relating to confidentiality of the client-professional relationship. If the professional does nothing, then there could be adverse consequences for both the profession and the public, as well as for the professional's own conscience. Unfortunately, in such situations there are no guidelines as to what is to be done, except the professional's own conscience. The professional must take personal responsibility for whatever consequences ensue.

The above comments represent the beginnings of a useful theory of professionalism. What has hampered the development of such a theory up to now has been the mistaken idea of academics that it is possible to produce a meaningful definition of a complex concept in a single sentence. Complicated activities like science, engineering, technology, profession, ethics, etc., cannot possibly be compressed into a one-sentence description that is of any use for practical purposes.

What is needed is to replace the one-sentence definition with a whole volume describing the vast range of concepts encompassed by the term being defined. The subject matter of such a volume would be a philosophy of professionalism, for example. The only useful philosophy that presently exists is

the philosophy of science. The philosophy of technology is an accepted academic discipline but it suffers from the failure of the philosophers to achieve a proper comprehension of what would constitute a philosophy of professionalism.

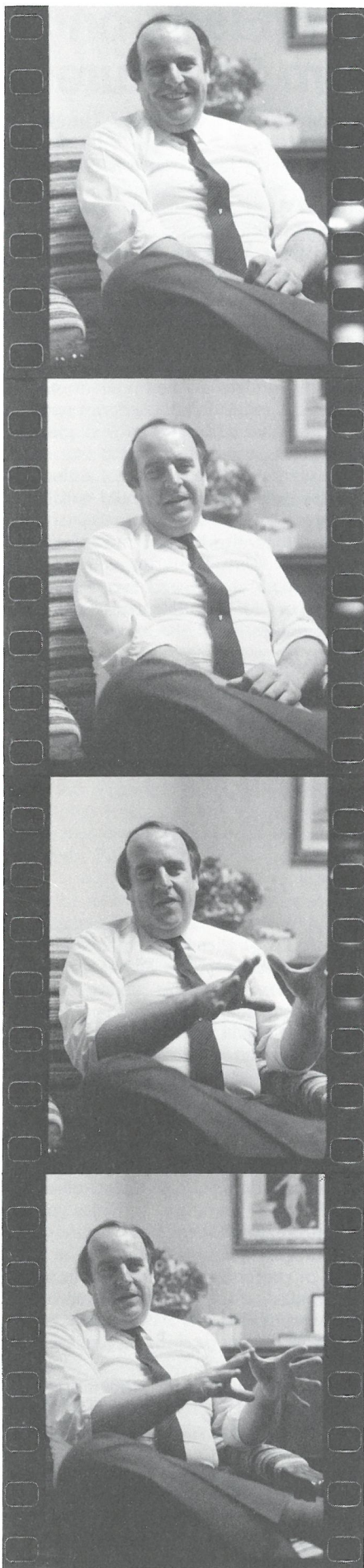
The way to develop a proper philosophy of professionalism is to consider the answers to second-order questions about the professions. First-order questions are answered by studies of the characteristics of recognized professionals obtained by direct observations. Existing literature provides much useful information.

Second-order questions deal with the relationship of professionals to society, to other professionals, etc. Typical second-order questions would be:

1. Why does society need the services of professionals?
2. Why are there no child prodigies in the practising professions?
3. Why should professionals subscribe to a strict code of ethics?
4. Why should engineering be considered to be one of the professions?
5. Why should education be a profession?

Answers to such questions will not be found in the existing literature. □

# Engineer Politicians Bring Perspective



*In the past two issues The Manitoba Professional Engineer has included a number of articles highlighting the role of the engineer as citizen. In this issue the MPE features two Manitoba engineers who have pursued their concern with civic responsibility to the extent that they have sought and attained political office.*

*Gary Filmon is currently leader of the Progressive Conservative Party of Manitoba and Leader of the Opposition in the provincial legislature. Gary first gained public office when he was elected to Winnipeg City Council in 1975. Two years later he became an M.L.A. and in 1983 was elected party leader.*

*George Minaker is the Progressive Conservative member of Parliament representing the constituency of St. James. George has previously held office municipally and provincially starting in 1967. He entered the Manitoba legislature in 1973 and worked for eight years in both opposition and government. George went to Ottawa in the Mulroney sweep of 1984.*

☆ ☆ ☆

**Manitoba Professional Engineer:** Lawyers are heavily represented in the House of Commons. Engineers tend not to be as well represented. Why do you think this is so?

**George Minaker:** I wouldn't have been involved in politics except for the fact that somewhere in my professional life I came in contact with the political arena. It was when I was Assistant City Engineer for St. James. I would make presentations to City Council and got to see first hand part of the political operations of a community.

I think that lawyers have more contact with various political levels such as City Council when they're trying to get something reasoned or they're dealing with properties. So they're more likely to become acquainted with the political process than an engineer is.

**Gary Filmon:** Most engineers are working in one way or another for government. Even those in the private sector working for consulting engineering firms are doing the majority of their work for governments. Most companies would prefer employees not to be involved politically even though there is no written rule.

The tendency is for engineering employees to remain apolitical. Members of the civil service in Manitoba can participate in politics, but this may not be a good thing because it tends to polarize the civil service, which is not necessarily in everyone's best interests. Federal employees cannot participate actively in partisan politics.

**Manitoba Professional Engineer:** How did you get involved in politics? Who helped you get started?

**Gary Filmon:** During university, I was class president, University of Manitoba Students Union representative and on UMSU council. I was not a member of a political party until later in my career. A personal friend in Brandon ran for a party nomination and in order to support him and help canvass I took out a party membership. At the time, it was a personal commitment, not one to the party. I was 26 at the time. About five or six years later, I was no longer in engineering. I was in business when there were several items which I felt were not given the proper consideration by the current provincial NDP and federal Liberal parties. In the 1972 federal campaign, I canvassed in the local area for Sterling Lyon, who was running in the constituency. This was the first conscious commitment to the PC party.

In 1975, I was heavily involved in my personal business as well as several community organizations. A vacancy appeared in City Council for two years of a three year term because Warren Steen was running for the legislature. When I contacted a friend who would be running in the area and who could support, I was asked if I would be interested. At that time I had no political experience or time due to other commitments, but discussed the decision with my wife. I decided to run and called upon friends and neighbours to help canvass. I won the election and that was my start in politics.

**George Minaker:** I made a comment one day that if I was on St. James Council I wouldn't do [something] that way. Somebody said why didn't you put up or shut up and run for Council! I went home and thought about it and talked it over with Rae. She said, "Well if you're interested in it...."

There were two openings on Council that year. So I ran and got elected and kept getting elected as we amalgamated — first as the City of St. James, then St. James-Assiniboia and then the City of Winnipeg. And one of the reasons that I ran provincially was because I felt that the amalgamation of the City of Winnipeg was done incorrectly.

When I first ran for Council my neighbour, Tom Killbery, helped me immensely. He took an interest in me and thought an engineer on Council would be a good idea. He, at that time, was the President of the St. James Chamber of Commerce. He phoned his friends and had a bunch of people over to meet me.

I also took a lesson from Bill Norrie who was on the school board — he didn't know me from Adam. I asked him "How did you get elected?" And he said, "Well, I sent out these endorsement cards."

So I printed up about 2,000 endorsement

# ng Different ectives to Political Arena

cards and Tom Killbery helped hand them out at this meeting.

**Manitoba Professional Engineer:** Do you think that being an engineer permits you to view events in the political arena from a different perspective?

**George Minaker:** Yes. I think we're trained to sort out the garbage and look at the actual factual problems related to an issue. So quite often when I listen to a debate I'll look at it from a different angle than somebody else who might be a lawyer or an arts graduate. But sometimes that can be our downfall too. We might not necessarily see the humanitarian side of the problem. We might be more concerned that we can't physically afford this or that.

**Gary Filmon:** Engineers have a great deal to offer because of their training and background; their ability to make decisions; their ability to look at broad perspectives and to weigh advantages and disadvantages. An engineering background allows a unique perspective in the political arena. It also allows an understanding of the technical side of the decision making process.

Engineers are managers of financial and physical resources, equipment, time, and people. All of these are important in government decisions.

**Manitoba Professional Engineer:** Is there any significance in the fact that the two politician-members of the A.P.E.M. are both members of the PC Party?

**Gary Filmon:** Engineers are basically taught small "c" conservative decision making. The PC party, in my opinion is the most attractive for engineers as well as accountants who are concerned with deficit spending. There are of course, engineers who support other parties.

**George Minaker:** No. I don't think so. There might be a tendency in our university training to be "sure", particularly if you're a mechanical or civil engineer — they always put in what I call the "bugger factor" to make sure that things are safe. That very training to be "conservative" in design could flow over. The other thing is that engineers are practical and quite often it's hard to imagine an engineer saying some of the things that are said — if you were an engineer you wouldn't say them because that's against your ethics, because you know things are being exaggerated.

**Manitoba Professional Engineer:** What have you found most demanding about your political career?

**George Minaker:** Your time commitment to the public. This becomes more demanding as you gain more responsibility. What happens is that you find you're not home that often

even on weekends. I usually only spend Sunday at home. This puts pressure on the family. I'm lucky. My children are all grown up. It would be very trying for people with a young family.

**Gary Filmon:** The stress that politics places on a family is most demanding. A substantial time commitment is required and the entire family is open to scrutiny. A politician must attempt to separate public and private life. A politician must be able to converse and be knowledgeable about a broad range of issues and must read large amounts of information. He must always be aware of a wide range of issues and be prepared to carry them into a public forum.

**Manitoba Professional Engineer:** What have you found most frustrating?

**Gary Filmon:** The length of time it takes to get a decision made by government can be frustrating. At times, legislation may take two years.

**George Minaker:** You'll work and work at something that is a good cause. You work to see it become fact. But it doesn't because of circumstances. For example, I think if we had run a better campaign in 1981 and got elected, we would have seen an Alcan plant here. You become more aware of the reasons why things move more slowly than you would like as you understand politics better.

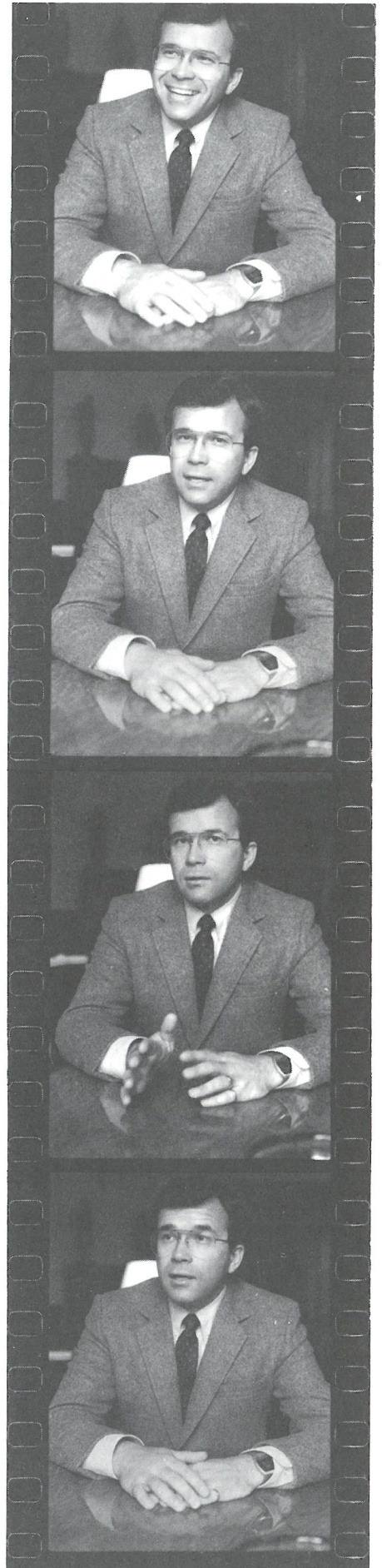
**Manitoba Professional Engineer:** What personal and intellectual skills do you need to succeed in politics? Do engineers usually have these skills?

**George Minaker:** Public speaking is very important to engineers in my opinion. When I was on Council I found that some of the best engineers, and these could also have been the best administrators, were not selected as the Commissioner of Works and Operations because I, as Chairman of Works and Operations, felt more comfortable with somebody who could stand up before the public on my behalf without mumbling or being shy.

Also, you've got to like people. By this I mean being around people and seeing their problems and trying to help them out.

**Gary Filmon:** There should be more opportunities for engineers to become involved. As a rule, engineers tend to be introverted. Emotions are usually removed from the decision making process and decisions are based on facts and technical information. Engineers tend to freeze out relationships with people other than peers or supervisors and even then, it is on a technical level. Engineers are seldom called upon to sell his or her ideas to the public. There is an inhibition on the part of engineers to communicate with others.

(continued on page 8)



# By's Canal Endures as Engineering Monument

Next year we Canadian engineers will celebrate a centennial — 100 years of engineering as an organized profession. Historically, however, engineering in Canada goes back much further than 100 years. In Canada in the early 1800's most engineers in Canada were military engineers. As such they played a vital role in times of war and peace designing and building roads and bridges, constructing tunnels and canals and harbours; all done to facilitate the movement of goods and personnel.

In those early 1800's while The Iron Duke and The Little Corporal (Duke of Wellington and Napoleon Bonaparte) were having at each other in Europe, one James Madison, 4th president of the United States, decided to and managed to stir up another war with Britain. We call it the war of 1812. Fortunately, our side won the war. (Otherwise, Canada might very well have been part of the U.S.A.). The war was won largely because

Britain was able to keep the very vulnerable St. Lawrence River supply line open between Montreal and points west. After the war, the same Iron Duke convinced the British Government to send a team of three military engineers to Canada. They were to find a safer, less vulnerable supply route.

These engineers, after five months of extensive travelling and investigation, put together a report and sent it back to Britain. Acting on the recommendations in the report, the government sent a retired military engineer, Colonel John By, to Canada. His commission was to build what we now call the Rideau Canal. In five short years, working in the virgin wilderness, without the use of any modern facilities and with virtually no construction equipment, John By designed and built the canal. It terminated at Kingston and at the small village of Hull on the Ottawa River, a distance of some 123 miles. It included 47 locks and 4 masonry dams which are still functioning today. This magnificent facility was, at the time, one of the greatest civil engineering projects in North America.

Now, 160 years later, the Rideau Canal stands as a monument to a great engineer. It exemplifies the best aspects of the engineer-

ing profession. In our Centennial year, we can all remember and be proud that we belong to the same profession as did John By, civil engineer.

*Epilogue:* After completing this project on schedule, John By returned to England. He was taken to task for exceeding the original budget for the project. He received virtually no public recognition and he died shortly afterwards. Although the town that grew up at the Ottawa River end of the canal was named Bytown, even that recognition was taken away shortly thereafter when it was renamed Ottawa. □

## Engineer Politicians

(continued from page 7)

Such communication is part of a development process.

The limitations in communicating is a result of our training. The profession is now adopting a much more public stance. Many engineers are now involved in Toastmasters or other such organizations and learning to better communicate with the public. Previously, an engineer was judged by his technical ability rather than managerial skills. The engineer is now more widely looked upon as a resources manager and in effect, raises his or her standing.

**Manitoba Professional Engineer:** What advice have you got for engineers thinking of seeking political office?

**Gary Filmon:** They must recognize how politics would affect their relationships with clients or employers. Engineers are well qualified to offer their talents and experience to the decision making process.

Involvement begins by people participating in politics at a local level. In the mid sixties, few engineers were willing to be visible in their support of a political party. Don Craik, who was elected to the legislature in 1966, was a pioneer in this respect. Today, it is widely accepted that all professions should be involved in the political process to support what they believe in.

**George Minaker:** First, that they'll make money being an engineer! For that reason you have to have interest in your community, your country and your neighbours. If you genuinely have that and feel that you can contribute, then go for it....

For the municipal level get involved in the neighbourhood — the Chamber of Commerce, community club work — and get people to support you.

At the provincial or federal level you've got to get involved in a political party. □

## New Members Registered at April and May, 1986 Council Meetings

H. W. Armstrong, P. Eng.  
 M. F. J. Clarke, P. Eng.  
 J. J. M. Croteau, P. Eng.  
 H. S. Dalkie, P. Eng.  
 T. Duff, P. Eng.  
 D. M. Evans, P. Eng.  
 J. K. Filo, P. Eng.  
 E. J. Gaines, P. Eng.  
 S. N. Gautam, P. Eng.  
 D. H. Grant, P. Eng.  
 G. R. Hilliard, P. Eng.  
 G. N. Islielson, P. Eng.  
 N. J. Kelly, P. Eng.  
 S. K. W. Keung, P. Eng.  
 G. D. Koroscil, P. Eng.  
 R. S. Lopez, P. Eng.  
 W. G. L. MacKenzie, P. Eng.  
 E. R. Manchur, P. Eng.  
 F. C. Mazur, P. Eng.  
 J. McEwan, P. Eng.  
 H. V. Paul, P. Eng.  
 D. D. Peacock, P. Eng.  
 K. A. Pelser, P. Eng.  
 D. Singh, P. Eng.  
 G. R. Stunden, P. Eng.  
 T. Tajima, P. Eng.  
 E. J. J. Ugrin, P. Eng.  
 B. J. Ulrich, P. Eng.  
 J. VanEe, P. Eng.  
 J. A. Wilson, P. Eng.

Congratulations to **Rodney William Ambrosic**, **Howard William Armstrong** and **Grant Robert Hilliard** for achieving 100% on the Professional Practice Examination. □

## Seen Your Name in Print?

As readers have hopefully noticed, *The Manitoba Professional Engineer* has changed its format. The Publication Committee has attempted to change its content and direction as well. A broader participation by Association members in our publication would be desired.

In this issue, the article describing the HVDC line from Quebec to Vermont was submitted by an Association member; it provides an interesting feature on the input of Manitoba engineering on the international scene. The Committee obviously welcomes input from all Association members. □

## Licences Issued at the April and May Council Meetings

D. P. Allison, P. Eng. (Ont.)  
 R. A. Baynit, P. Eng. (Ont.)  
 J. P. Bramley, P. Eng. (B.C.)  
 R. C. Bremer, P. Eng. (Michigan)  
 P. J. Cruickshank, P. Eng. (Ont.)  
 N. M. Engelman, P. Eng. (Que.)  
 S. H. Gebler, P. Eng. (Illinois)  
 K. K. Ghosh, P. Eng. (Ont.)  
 D. A. Houston, P. Eng. (Alta.)  
 C. J. Kemp, P. Eng. (B.C.)  
 G. R. Lavoie, P. Eng. (Que.)  
 D. B. C. Lee, P. Eng. (Ont.)  
 R. R. Lefebvre, P. Eng. (Sask.)  
 N. L. Leipziger, P. Eng. (Ont.)  
 S. G. MacDonald, P. Eng. (Que.)  
 R. V. J. Massinon, P. Eng. (Alta.)  
 W. L. Miller, P. Eng. (Alta.)  
 J. A. Patra, P. Eng. (Alta.)  
 R. E. Pelkey, P. Eng. (Alta.)  
 A. Salumets, P. Eng. (Ont.)  
 L. M. Sargent, P. Eng. (Iowa)  
 T. Shen, P. Eng. (Ont.)  
 T. W. Smith, P. Eng. (Alta.)  
 T. J. Varkony, P. Eng. (Ont.)  
 E. F. Vickers, P. Eng. (Ont.)  
 A. Wasnea, P. Eng. (Alta.)  
 R. L. Wills, P. Eng. (B.C.)

## ANNUAL FEES

Please pay your membership fee by June 30th so that your name will not be removed from the register.

## Council Reports

### March 10, 1986

**Where Council agrees with a C.C.P.E. report recommendation that only holders of a bachelor's degree in engineering can apply for entry into the profession.**

*By Bob Brown, P. Eng.*

Attending the Council meeting were the following councillors: Ted Clarke, presiding; Bill Newton; George DePauw; Ted Speers; Bud Christie; Garland Laliberte; George Saunders; Ken Buhr; Ostap Hawaleshka and Roger Kane.

Council reviewed the minutes of the February 10th Council meeting and the financial statements. Both items were accepted. The licences, engineering graduates, transfers, registrations and reinstatements were reviewed and approved in a blanket motion.

The Ad Hoc Committee on Act Enforcement had prepared a report and presented it to Council. It expressed a concern regarding individuals practising engineering without being registered in the province. Although the committee was aware that many individuals were in violation of the Act, the exact number could not be determined. Council asked the Ad Hoc Committee to investigate methods of eliminating this problem, and report back.

The Safety Committee had requested that the problem identified with a building material in common use in Manitoba be addressed by Council. As the information had not yet been assembled by the committee, the topic was left to a future meeting.

Council next addressed the Revised Terms of Reference set out for the Admissions Review Board. The revisions put forward were designed to allow more flexibility in the decisions made by the Board when reviewing an admissions application. The recommendations were favourably reviewed.

Attention then turned to the Engineering Professions' Centennial. Mr. Bob Foster has the responsibility of obtaining funding for the Manitoba projects. Council will approach Mr. Foster to get an update on his progress with our Province's projects and available funding.

An important issue addressed was a C.C.P.E. report on Entry to the Profession by Examination. Council is generally in agreement with the recommendations in the report. The major recommendation of the report is that only holders of a bachelors degree in engineering will be eligible to apply for entry into the profession. This would become effective after an interim period.

The final topic for the evening was the new Science Place Canada structure in Winnipeg. As this building is still a very political issue, Council feels that the Association should not get involved by offering its support for this project.

The meeting adjourned at 8:10 p.m. □

### April 14, 1986

**At which Council discusses the merits of hiring an Act Enforcement Officer and wrestles over dissemination of safety information.**

*By Don Spangelo, P. Eng.*

With President Ted Clarke presiding, the April 14th Council meeting started promptly after everyone's pizza order was taken. With all councillors and three committee representatives present, it was a full house.

The agenda, previous Council meeting minutes, etc. were quickly reviewed and approved. A resolution was passed authorizing Bill Mackenzie, General Manager and Registrar, and Joan McKinley, Administrative Officer, to control access to the Association's safe deposit box.

Council approved a revised Terms of Reference set out for Committee. The Committee is now responsible for all matters relating to awards of the Association and recommendations for C.C.P.E.

awards.

The next item on the agenda was to approve the new members of the Admissions Review Board.

Ted Speers asked to be replaced as the A.P.E.M. representative on the Selection Committee for the Premier's Awards for Design Excellence. It was pointed out that the A.P.E.M. supports the design award with a \$300 donation annually. One Councillor, Garland Laliberte, was quick to point out the significance of this award in increasing the public's awareness of the engineering profession. He was therefore quickly appointed as a replacement for Mr. Speers on the Selection Committee.

Mr. R. R. McKibbin was appointed by Council as Chairman of the Annual General Meeting Committee.

A report on meeting rules of order provoked much discussion. It was pointed out that "Bourinot's Rules of Order", which Council has been following up until now, were not appropriate and were more applicable to parliamentary proceedings. The report recommended that "Robert's Rules of Order" would be more appropriate. Council decided to review "Robert's Rules of Order" and continue the discussion at the next meeting.

Bob Foster, Chairman of the Manitoba Engineering Centennial Committee, gave an update to Council on the Centennial Project. He reported that the planning of the exhibit, to be displayed at the Museum of Man and Nature, was progressing well and that he is presently concentrating on fund raising for the project.

#### Engineer should be hired as an Act Enforcement Officer

A report from the Ad Hoc Committee on the Enforcement of the Engineering Profession Act was the next item. The discussion started out slowly but rapidly gained momentum. It was reported that hundreds of individuals are violating the Act and that the A.P.E.M. should develop a means of controlling this. The Committee recommended that a senior, experienced engineer should be hired as an Act Enforcement Officer on a part-time basis for a term period and that this person later be replaced by a deputy Registrar who could continue as an Act Enforcement Officer.

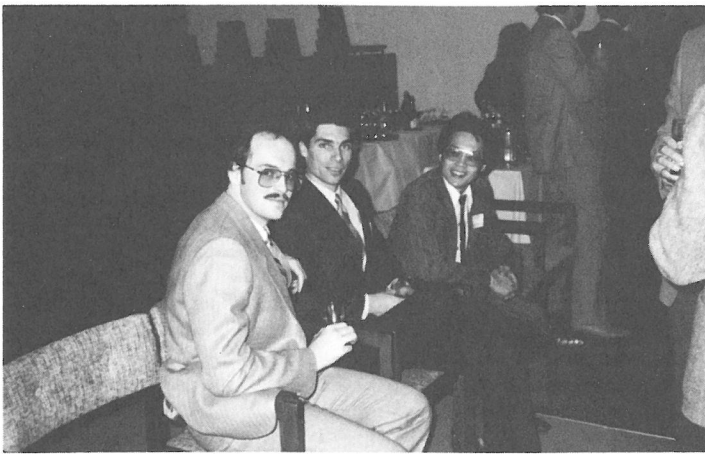
The main concerns expressed by Council were:

- 1) The type of individual to act as an enforcement officer (i.e. Professional Engineer or ex-law enforcement officer)
- 2) The cost of hiring additional staff.
- 3) The method of identifying violators of the Act.

This matter was referred to the Executive Committee for further development and analysis.

The last item and by far the one discussed in the most depth, carried the meeting beyond 8:30. The item was a report from the Safety Committee on their concerns relating to glued laminated wood beams. The discussions developed into something beyond concerns of just glu-lam beams. The dissemination of any safety information to the public was discussed. A motion was finally tabled to alter the Safety Committee's report and subsequently submit it for publication. Following a tie vote by Council, the motion was defeated by the President's deciding vote. It was then agreed to send the report back to the Safety Committee for review, taking into consideration Council's concerns. Obviously, Council has not yet finished with this topic. □

A doctor, an engineer, and a politician were arguing about which was the oldest of their three professions (they had excluded another profession which traditionally enjoys that distinction). The doctor said, "Since Eve was made from Adam's rib, surgery was involved, so the medical profession is the oldest." The engineer went one better; "Before Adam, the Bible tells us order was created out of chaos, so engineering must be the oldest." But the politician got the best of both of them by asking, "Who do you think created the chaos?"



## 45 New Members Welcomed at Reception

By Len Ganetsky, P. Eng.

The Association of Professional Engineers held its annual spring reception to welcome its new members. This successful event took place on May 1, 1986 at the Wildewood Club in Fort Garry.

Many new faces, as well as plenty of familiar faces, were in attendance. The event was a good opportunity for classmates to meet again and discuss times gone by. It was also a chance for the new crop of engineers to meet and speak with some of the more experienced people in the field. President Ted Clarke greeted the new members and encouraged them to take an active role in their association by perhaps joining one of its committees.

Everybody there enjoyed the terrific refreshments and delicious appetizers. □



## Engineers Exchange Programs

Exchange programs have been available in a variety of forms for many years and have proved to be a rewarding experience both personally and professionally. Many professions and professional associations already have an existing internal exchange program and are well aware of the tremendous value of an exchange. A professional exchange offers a unique travel opportunity and an interesting method of improving one's professional ability and competence. "There is no more efficient way of learning other professional methods and theories than actually living and working with them."

We can appreciate the indomitable effort within your association to promote a high quality of professionalism and we are confident that some of your membership will participate in a temporary exchange program with other engineers around the world. An exchange will enable a unique travel opportunity for the whole family and a chance for further education both personally and professionally.

Through promoting programs in other areas we have received numerous requests from engineers in Australia, the United States, Canada and Britain, expressing an enthusiastic interest in a professional exchange program. This response has inspired us to contact associations for engineers world wide requesting them to communicate to their members the tremendous opportunity available via our professional exchange program.

We will supply a member with other compatible members: names, addresses, and detailed information within the segregated program, and provide a guideline on how to proceed with an exchange program. It is the responsibility of the members however, to arrange all logistics necessary to consummate an exchange.

At this time we are asking the co-operation of your association to communicate to your members the availability of this unique opportunity. Many associations for engineers worldwide are assisting us in the promotion of an exchange program by outlining a synopsis of

our organization in their newsletter and relaying the following message:

**EXCHANGE PROGRAMS WORLDWIDE FOR ENGINEERS**  
For a FREE pamphlet on our Professional Exchange Program and our Accommodation exchange (while on vacation), mail your name, address and indicate your profession to:

**Cultural Lifestyle Exchange International**  
Box 6800, Agincourt Post Station  
Scarborough, Ontario, Canada M1S 3C6 □

## Domaschuk Investigates Deterioration of Aggregates

The premature deterioration of concrete pavements constitutes a significant cost to Manitoba taxpayers.

With funding from Transport Canada and the Transport Institute at the University of Manitoba, civil engineer and A.P.E.M. member Dr. Len Domaschuk has been researching the extent of this cracking and factors that influence its occurrence.

"D-Cracking" is a deterioration process that is associated with fracturing of the concrete aggregates. There are up to twelve factors which influence this process, the three most influential being the composition of the concrete aggregates; moisture and drainage conditions; and climate.

In his research, Dr. Domaschuk found that the extent and severity of D-Cracking of concrete pavements in Manitoba was quite prevalent, with some pavements beginning to deteriorate after 10 years. Normal life span is about 35 years.

Using computer image analysis techniques, Dr. Domaschuk is now attempting to identify those types of concrete aggregates that render the concrete susceptible to deterioration.

As well, he hopes to address the problem of what can be done to extend the life of pavement that shows early signs of deterioration. □

## News from Other Associations

President of British Columbia's Association, Dr. E. Portfors, P. Eng., sees his prime responsibility is to act as his Association's senior spokesman to the media. In that capacity, he has found that in dealing with reporters who make their living informing the public, **engineers have an amazing "non-image"**. This was reinforced recently when he was introduced by a radio station reporter as a Professor of English, or P. Eng. for short.

In the wake of the establishment of the **Charter of Rights**, and following the Ontario Association's lead, the British Columbia Association Council has prepared changes in their legislation which would allow residents from any province or territory in Canada to apply for membership. No longer would applicants be required to be residents of British Columbia. In addition, there would be no minimum age stipulation.

Judging from the Annual Meeting issue of New Brunswick's Association, their **membership is extremely active**. From the total membership of 1,850, 280 attended their annual meeting. Five branches are established and active, seventeen Councillors as well as a second Vice-President, first Vice-President and President serve on Council, and no less than 25 Association committees, task forces, and boards presented reports for the Annual Meeting issue. Each branch has a local press contact, and an office computer system has recently been commissioned.

After lengthy discussion, the revised Engineering Profession Act for the Association of Professional Engineers of New Brunswick will not include provisions for the existence and operation of that province's Society of Civil Engineering Technicians and Technologists, who plan to petition Government to have its own Act. This is in contrast to the engineers' Association in Alberta, or A.P.E.G.G.A., where after 20 years of combined effort, **Registered Engineering Technologists are recognized** under A.P.E.G.G.A.'s Engineering Profession Act. R.E.T.'s will have their own stamp, to be accompanied by a professional engineer's stamp on documents. The design of the R.E.T. stamp drew considerable debate as Council expressed concern at the close resemblance of the stamp to the P. Eng. stamp.

Alberta's Association has approved a temporary measure allowing unemployed members to **defer payment** of their annual dues.

Even though the Ordre des Ingenieurs du Quebec has **increased annual dues** to \$130, they are still budgeting a shortfall of \$150,000.00. They are expanding their services to members, and have instigated numerous changes after months of research, review, study, analysis, and planning.

The Newfoundland Association is anticipating their revised Act will be tabled in the Legislature early in 1987. When it is passed, **geoscientists** will be brought into their Association. Their new name will be the Association of Professional Engineers and Geoscientists of Newfoundland, or A.P.E.G.N.

In a practise becoming fairly common, the Newfoundland Association intends to hire an **Act Enforcement Officer**. They intend to pursue a more active enforcement policy in light of the increasing number of incidents of engineers and companies failing to maintain published standards of practise.

Centennial committees across the country are planning provincial celebrations to coincide with the national celebration detailed in our February issue.

Nova Scotia's Association has purchased a display booth, a **show piece of the engineering profession**, which carries the gray and blue colours of their Association. The display will be used at science fairs, career days, exhibitions, and so on, to create growing awareness and interest in engineering.

In an advertisement in "The B.C. Professional Engineer", a **new car purchase plan** promises to save engineers money. B.C.'s engineers have had such a group plan since 1973.

In their annual brief to the Provincial Government, New Brunswick's Association expressed concern about the **steadily decreasing amount of government work** procured by New Brunswick engineers. Though the government recently indicated that they fully support New Brunswick engineers, the Association is becoming increasingly dismayed that their actions indicate a moving away from support of New Brunswick engineers.

The Association in Ontario has expressed their desire to **standardize membership admission practises**. Past president Nick Mon-sour, P. Eng., feels that most professional engineers and their provincial associations would like to see a universal procedure for mobility and inter-provincial transfer based on uniformly high standards.

British Columbia's revised Engineers Act waiting to be passed by their Provincial Legislature include **substantial increases in penalties for Act contraventions**, as well as revised discipline and investigation procedures.

In a seminar sponsored by the Practise Standards Committee of Alberta's Association, differing views were expressed on **professional responsibility**. The two sides of the debate were entitled "Play it Right — Take Responsibility" and "Play it Safe — Avoid Responsibility". It was observed that the majority of questions were addressed to the speaker promoting avoidance of responsibility. The audience generally did not seem ready to address, as they put it, the strange new concept of taking responsibility.

Under the auspices of Newfoundland's Employee Engineers' Committee, engineers employed by the Newfoundland Provincial Government have requested that they be removed from the **compulsory union** which they now belong to. The union they belong to are presently threatening the government with "job action".

The Association in British Columbia is pondering the advisability of giving the City of Vancouver a list of engineers who could **assist in an emergency** such as an earthquake. It is proposed to combine economic, energy, and environmental concerns in a new committee embracing all three. □

## C.C.P.E. Recommends Bachelor's Degree Necessary for Entry to Profession

A C.C.P.E. Committee is recommending that the current examination route to the profession, based on self-study, be phased out. This will eventually bar non-degreeed people from becoming professional engineers.

The Committee on Entry to the Profession by Examination has concluded its two-year study of the matter and will present its report to the annual meeting of C.C.P.E. in May. The committee suggests that a bachelor's degree in engineering should be a prerequisite for entry to the profession. It concluded that the present exam system, established in the 1920's, has deficiencies and its content cannot meet the standard set by accredited engineering degree programs.

The Committee on Entry is recommending that a new system be devised that will permit

graduates of non-accredited engineering programs to establish their academic credentials by writing a comprehensive set of exams. One exam would cover fundamentals and it would be supplemented by five others covering different subjects in each professional discipline. Three of the professional subject areas would be determined by the local board of examiners.

The committee is also recommending that entry to the exam system be restricted, for an interim period, to those with at least three years of post-secondary engineering, science or technology education relevant to the discipline.

Ultimately, only those with a bachelor's degree in engineering would be allowed entry to the exam system. □

## Professional Development

# First Breakfast Meeting Very Successful

By Paul Gordon, P. Eng.

On Tuesday, April 29th, 85 engineers met at 7:30 a.m. at the Viscount Gort Inn for the Professional Development Committee's first breakfast meeting to attempt to answer the question "Why aren't you using your engineering seal?"

John Bachmann, P. Eng., Chairman of the Professional Development Committee, opened the meeting with a promise of additional meetings based on the excellent attendance of this meeting. John then introduced Bill Newton, Chairman of the Ad Hoc Committee on the Ethical Use of the Engineering Seal to make a presentation on the issues discussed by his committee and to facilitate a discussion on the subject.

The Ad Hoc Committee was set up after the Practice and Ethics Committee received a legal opinion that an engineer's seal had no legal significance in court proceedings. The committee has determined that, despite the legal opinion, the seal should be used as required by the Code of Ethics as a demonstration that the engineer is licenced and accepts responsibility.

Some committee viewpoints on the use of the seal were presented. The seal should not be used frivolously or in an arbitrary or casual manner as this detracts from its importance. The seal should be used on letters containing technical information, stand-alone specifications, final maps, final drawings, final reports, notes that leave the possession of the engineer, and on shop drawings prepared under the direction of the engineer. The seal should not be used on preliminary maps or sketches, preliminary drawings or preliminary reports. The seal need not be used on specifications that are part and



Top: Some of the 85 engineers who turned out to the first PD Breakfast Meeting.

Right: PD Committee Vice-Chairman Ernie Klein with Meeting Facilitator Bill Newton.

parcel of stamped drawings and for notes. Computer data can be treated as notes and CAD output as drawings.

The use of multiple seals on drawings seems unavoidable but, if possible, it should be avoided or limited to one seal per discipline. The committee is just writing its guidelines in this regard. This may result in changes to the By-Laws or possibly to a modification to the seal to show the discipline. It is unethical to add a disclaimer to the stamp but if different disciplines are involved this could be considered "identifying" and not qualifying or limiting liability.

There were several questions raised which indicate that our present situation is no longer as simple as when the rules for the seal were first introduced in 1924. The question of revisions to drawings was raised as this is very prevalent today. "Standard specifications" or "national specifications" prepared by many engineers are now in use. The committee recognizes these problems but does not have all the answers yet.

Ted Glass, P. Eng., thanked the speaker and the members of the Professional Development Committee. Ted said Bill



Newton may be retired but he is not retiring and he is sure the Council will be hearing more about this issue. Ted was delighted with the turnout which contained a good cross-section of the membership. □

## Engineering Graduates Members Registered in April and May 1986

R. W. Ambrosic  
D. E. Ans  
J. A. Bekavac  
P. R. Bohonos  
K. Gartly  
J. W. H. Lee

A. R. McDermot  
D. G. McKibbin  
K. G. Miller  
W. G. Roberts  
A. H. Rossen  
R. C. Suzuki

### LAND INFORMATION SYSTEMS — ACQUIRING DIGITAL TECHNOLOGY JUNE 23-26th, November 3-6th, 1986 — Halifax, NB

This four day course will be presented by Land Registration and Information Service (LRIS). The objective is to prepare participants to evaluate, select and implement equipment for acquiring and/or manipulating land based information.

The course will be offered as a four-day seminar including tours of several digital facilities located in Halifax and Dartmouth. The cost is \$750 (Canadian) which includes all course materials, lunch for four days and an evening dinner.

For further information contact the Staff Training and Development Officer, 985 College Hill Road, P.O. Box 6000, Fredericton, NB. (1-506-453-2112).

### ALBERTA DAM SAFETY SEMINAR SEPTEMBER 17, 18, 19th, 1986 — Edmonton, Alta.

This seminar, sponsored by Alberta Environment, will be of in-

terest to engineers and administrators involved in the dam safety field. It will be a unique opportunity to meet provincial officials involved in, or setting up, dam safety programs and staff of hydro-electric companies, cities, municipalities, irrigation districts and consulting firms involved in this work. The current status of dam safety across the country will be discussed along with the design criteria presently in use. Case studies will be presented of structures which have been rehabilitated as a result of dam safety programs.

An exhibition featuring instrument suppliers, underwater inspection services, filter fabric suppliers, etc. will be held during the seminar.

A registration fee of \$125.00 per person for the seminar will include breakfast and lunch for the three days, coffee, tea, and proceedings.

For further information and details, please call or write to: Barry Hurdall, P. Eng., Dam Safety Branch, Alberta Environment, 3rd Floor, Oxbridge Place, 9820-106 Street, Edmonton, Alberta, T5K 2J6, Phone: (403) 422-1356.