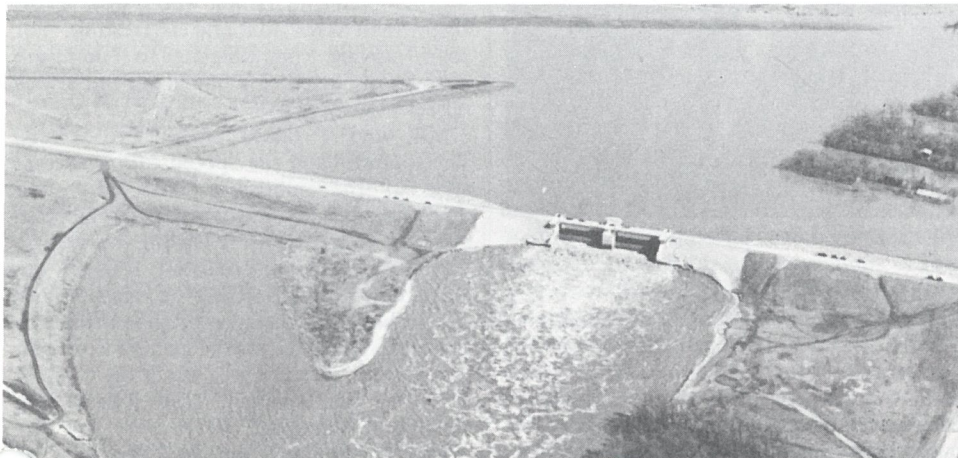


Professional Engineer



December, 1987

Engineering of Provincial Flood Protection System Honoured



A Flood — Water is diverted from the Red River at the floodway inlet structure, St. Norbert, bypassing Winnipeg.

As part of the nation-wide celebration of engineering as an organized profession in Canada, the Engineering Centennial Board, through a jury of peers, selected ten of what are considered to be the most exceptional and most representative feats in Canadian engineering in the past 100 years. These are covered in this and previous issues of the Manitoba Professional Engineer.

Taking a leaf from the book of the national body the Council of the Association of Professional Engineers of the Province of Manitoba decided to select the one engineer-

ing project, feat or system deemed to have the same relative position and importance in history of the development of Manitoba in the past 100 years. As a means of recognizing such an engineering activity and as part of the Association's activities in celebrating the Centennial, the Council approved the establishment of the Centennial Achievement Award.

The Award was designated as a one time only award to be made at the 1987 Annual General Meeting of the Association and to recognize that engineering work or under-

taking which is deemed to epitomize the place of the profession in the development of the province. The Provincial Flood Control and Protection System was chosen as the recipient of the Award.

The Citation reads as follows:

"On the occasion of the Centennial of the Engineering Profession in Canada and to recognize the Profession's service to the citizens of the Province and its contribution to the development of the Province, the Association of Professional Engineers of Manitoba has chosen to honour the engineering undertaking which exemplifies that contribution over the past 100 years.

This honour is bestowed on the Flood Control and Protection System in the Province which has been in place and is maintained by Manitoba Professional Engineers and which continues to exemplify the Association's mandate to protect the public in the field of engineering.

The Award was dedicated by his honor, Dr. George Johnson, Lieutenant Governor of the Province of Manitoba during the Awards Luncheon at the 1987 Annual General Meeting on October 19th. The Award is to be permanently affixed to a wall in the Engineering Building just outside the library. It is hoped that in this location it will be visible to all who pass by and be an inspiration to the up-and-coming young engineers and an ever present reminder, not only of past achievements of the profession, but also of the obligation they will be required to accept to guard the safety and serve the well-being of the public in the practice of their chosen profession.

The Award is comprised of a 12" x 18" silver metal plaque mounted in a 24" x 36" blue (blueprint blue) background supported in a metal frame covered in mar proof glass. The actual citation is inscribed on the silver metal plaque along with the seal of the association and the province. To indicate the comprehensive and many faceted elements of

(continued on page 4)

Researchers Study Natural Acid Rain in Canadian Arctic

Spontaneously burning bituminous shales, found in the Cape Bathurst area of the Northwest Territories, are giving researchers from the University of Toronto unique insights into the long term effects of industrial acid rain in Canada.

Known as the Smoking Hills, the burns emit clouds of smoke which contain sulphur dioxide, sulphuric acid and steam and have been active for several thousand years. Since 1975, Magda Havas and Tom Hutchinson of the university's Institute for Environmental Studies have been studying the chemistry of the local tundra pools and the effects on the surrounding ecosystem.

"This research will lead to a better

understanding of industrially-induced acid rain in Canada and elsewhere in the world," Ms. Havas said. "It is also scientifically intriguing."

Despite their seeming longevity, the burns will eventually be destroyed by the constant erosion of waves and sea ice. Similar formations in Alberta have already become extinct.

The research is supported by the Natural Sciences and Engineering Research Council and the federal Department of Indian Affairs and Northern Affairs. The findings from the Smoking Hills have been invaluable to the study of acid rain at the University of Toronto, which is at the forefront of such research in Canada. □

THE MANITOBA

Professional Engineer



December, 1987

Published by the Association of Professional Engineers of the Province of Manitoba
530 - 330 St. Mary Avenue
Winnipeg, Manitoba R3C 3Z5
(204) 942-6481

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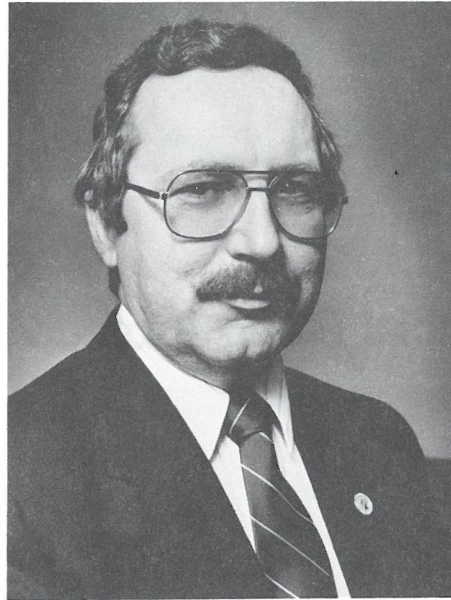
Annual Fees Important Reminder

Fee invoices have been mailed to all members. Members are again reminded that fees are, according to the By-Laws, payable by January 1st. Members are also reminded that the receipt of fees in the Association office after February 29th will incur a late payment fee of \$35.00. It should be noted that even if fees are mailed prior to March 1st, if they are received on or after March 1st, the late payment fee, as required by the By-Laws, will apply.

Also, be reminded that if all fees owing are not received in the Association Office before July 1st, 1988 the member's name will be removed from the Register and that person is then prohibited by law from practicing engineering in Manitoba.

Members are urged to comply with the Association By-Laws and pay their fees prior to January 1st.

New Council Member from the North



Milton Goble, P.Eng.

by V.L. Dutton, P. Eng.

Milt Goble is my kind of man! Small-town origins—family of store-keepers—Queen's University—climbing the ladder with INCO—much concerned about the isolation experienced by engineers outside the city. He might almost have come from Birtle.

The Gobles were store-keepers in Lyons, Ontario, which is a small town about five miles north of Aylmer. Baptized Milton

Lorne, the lad ultimately took his high schooling in Aylmer, graduating from Elgin High in 1965.

Studied in Metallurgical Engineering followed at Queen's where, in addition to obtaining his B.Sc. in 1965, he found his wife, Joan. Milt joined INCO upon graduation, moving to the Manitoba Division at Thompson. Working his way up the professional ladder, Milt is currently Mill Superintendent.

While Milt's growth in his company has been advancing steadily, Joan, too, has been hard at work. She teaches Grade 12 English at the R.D. Parker Collegiate. I'm sure that their adopted son, James, who is now seven, keeps their lives full and interesting. For Joan, moving from Kingston to Thompson was almost like coming home; her father was raised in Moosomin.

Milt and I talked about Professional Development and the special problems that arise in the minds of men who find themselves isolated in the small mining communities "north of 54". Having motored to Thompson on one occasion, I could appreciate our new councillor's concerns about the problems of distance as they affect the Thompson Chapter for the members living in Flin Flon, to attend a meeting of the Chapter would be like driving in from Russell to a meeting in Winnipeg.

I feel certain that, with such concerns, you will see Milt Goble being re-responsible in more "northern transitions" during his term of office.

The Association Cannot Locate:

R.W. Ambrosie	L.V.V. Oman
A.J. Ament	R. Rampaul
W.B. Ashby	G.W. Robson
C.P. Derooy	T.R. Sabzwari
D.A. Doucette	J.E.A. Sagman
S.K.W. Keung	P. Schober
V. Kumar	P.J. Stewart-Hay
R.D. McLatchy	B.J. Thompson
G.E. McLure	W.A. Trott
K.B. Mirza	D.L. Trueman
C.D. Nelson	K.J. Van Loon

If you know the where abouts of these members, please contact the association office.

Licences Issued in October and November '87

G.A. Aldworth (Ont.)	G.D. Grand (Alta.)
H. Balodis (Ont.)	T.F. Hoffman (B.C.)
M. Berezowski (Sask.)	G.A. Kroening (Alta.)
J.P. Bertens (Alta.)	R.E. McCallum (Alta.)
N.A. Brais (Que.)	J.R. Morris (Ont.)
B.L. Coates (Alta.)	H.J. Neumann (B.C.)
J.I. Daniels (Sask.)	M.J. O'Connor (Alta.)
B.R. Emery (Ont.)	D.C. Pollock (Ont.)
E.C.H. Fok (Ont.)	G.G. Powell (Ont.)
A.A. Friedman (Ont.)	J.R. Scarlett (Alta.)
R. Frehlich (Alta.)	D.W. Short (Ont.)
A.C.W. Fung (Alta.)	P. Szana (Que.)
F. Galvin (Ont.)	G.W.R. Wark (Alta.)

New Members Registered in October and November '87

R.B. Band	K.J. McRae
R.L. Chaisson	A. Nagy
B.J. Christie	T.W. Nichol
D.D. Davidson	S.D.O. Rajpal
A.C. Eisses	R.S. Read
S.E. Harnish	W.G. Tipper
M.R. Hawrysh	R.I. Thomson
I.E. James	R.A. Van Wynsberghe
R.M. Jones	M.A. Wagemakers
T.E. Linklater	D.G. Younger-Lewis
C.W. Loeb	K.A. Wyczlik

Congratulations to **Andrew Nagy** for achieving 100% on the Professional Practice Examination.

Engineering Graduate Members Registered in October and November '87

J.P. Butler	R.J. Mucz
T.J. Cook	B.D. Novak
J.A. Geib	M.G. Stoner
T.K. Landra	R.J. Van Ginkel
P.L. Wilson	

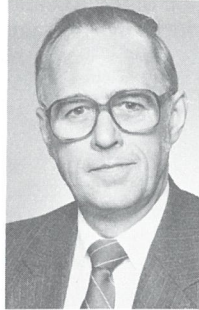
Transfers Not Keeping Manitoba Membership

M.A.J. Desharmais	A. Morris
D.W. Heath	R.K. Wedel
A.W. Barnhill	K.S. Rezkallah
M. Eggleston	

VISIONS OF THE "FUTURE OF ENGINEERING"

President's Message

W.D. Christie, P.Eng.



Our Association, along with each of the other provincial and territorial associations, is a member of the Canadian Council of Professional Engineers (CCPE). CCPE was formed in 1936 as a national body to represent the engineering profession in Canada. It allows for an excellent forum in which common concerns of the various constituent associations can be discussed. CCPE also represents the engineering profession at international conferences and can deal with our Federal Government on matters affecting the engineering profession in Canada.

Each of the associations nominates a director to serve on the Council of CCPE. Our director, for last year and this, is E.W.J. Clarke, P.Eng. He represents APEM at each of CCPE's meetings (normally two per year) provides our association with reports on the deliberations at these meetings.

It was my pleasure, as one of my first duties as your president, to attend the fall meeting of CCPE held in Ottawa on October 29 and 30, 1987. The activities at this meeting were: October 29 - Workshop - "Future of Engineering"; National Awards Banquet. October 30 - CCPE Board of Directors Meeting; Canadian Engineering Manpower Board Meeting.

The part of the agenda which I found most interesting was the workshop which consisted

of a number of full-day workshops held simultaneously on Thursday, October 29. The theme of the workshops was the "Future of Engineering". Prior to the workshop sessions, CCPE (in conjunction with the Canadian Employment and Immigration Commission CEIC - under an Industrial Adjustment Agreement) had commissioned a country-wide survey of senior executives regarding their views on the engineering profession. Though the survey has not been completed, the executives' responses obtained to date, organized by CCPE's survey consultants, formed the basis of the discussion material used at the workshops. Participants in each workshop addressed a series of questions framed by the consultants. Five workshops were held, with the following topic areas: * The Engineer's Role in the Workplace: The Engineer as Technical Specialist; * The Engineer's Role in the Workplace: The Engineer as Manager; * The Engineer's Role in Society: The importance and relevance of engineering standards and regulations; * The Engineer's Role in Society: The importance and relevance of standards and policies for ethics and morality in engineering; * The Engineer's Role in Society: The importance and relevance of public participation.

In addition to the separate concurrent workshops on these five themes, the day included two plenary sessions bringing together all participants to compare notes and emerging conclusions. At the plenary sessions, the chairmen of the separate workshops summarized the discussions at the sessions they had chaired; it was apparent from their remarks that the issues being debated at the separate workshops had more in common than the five reasonably distinct themes might lead one to expect.

Although many conclusions were drawn in the individual workshops, the central themes emerging appeared to be: * Ethical standards

and a code of ethics will continue to be important in our profession. A suggestion was made that perhaps greater emphasis should be placed on this subject in undergraduate courses at universities. * Continuing competence will be of increasing importance to our profession in the future. The themes of continuing education and lifelong learning requirements emerged from many of the sessions. * Engineers and our associations will have to give greater recognition to the management stream within our profession (as opposed to the technical stream). It was suggested that we may have to recognize management experience as qualifying experience for entrance to the profession. * Management and communication skills are expected to be of great importance to the future well-being of the profession. * If our profession is to flourish in the future, the public must be made aware of the important role that engineers play in our society. This can only be done by each of us projecting a better image of the profession. * Engineers must influence the direction our society is taking by assuming leadership roles.

As the overall workshop chairman stressed in his closing remarks, the workshops were not intended to draw final conclusions, only to provide additional input to the process of evaluating the future of the profession. CCPE intends to prepare an action plan for consideration in planning and influencing the profession's future direction.

It was a most stimulating experience to participate in these CCPE meetings, I would appreciate receiving the views of any member on how he or she perceives the "Future of Engineering". I believe it is a subject worthy of serious thought and perhaps critical to the survival of our profession in the 21st century.

In conclusion, may I wish each of you a joyous Christmas and a healthy and prosperous New Year. □

President's Reception Changes Venue.....

by W.B. Mackenzie, P. Eng.

Every year, on the evening before the Annual General Meeting, a delightful event takes place—The President's Reception. But not even the President calls it that; it is the Annual Wine & Cheese Party. This year, this premier social event on the Association calendar took place on Sunday evening, October 17th, at the University of Manitoba. To be precise, it took place in the Beausejour Room of the University Centre.

The event was hosted by President Ted Speers and his charming wife Jean.

Everyone who has served on a committee or on Council, nominees for Council, Past-Presidents and Association Award winners are invited to this affair. Joining the APEM Members were guests from Nova Scotia, Ontario, Saskatchewan, Alberta and B.C. CCPE President Phil Lapp and Dr. Norman

Ball, Author of The Engineering Centennial Book "Professional Engineering in Canada, 1887 to 1987", were guests of honour. All these people with wives, husbands, etc. enjoyed a relaxed and pleasant evening renewing old acquaintances, making new acquaintances and partaking of an interesting variety of wines and cheeses.

The highlight of the evening was a presentation to Jean Speers by Vice-President Bud Christie on behalf of the Association. Bud thanked Jean for the large amounts of Ted's time which he had been unable to share with her while he was attending to Association business.

The convivial proceedings terminated shortly after the closing of the bar at 10:30 p.m. □

Bud Christie presents gift to Jean Speers, wife of Past President, Ted Speers.



Flood Protection System Honoured

(continued from page 1)

the system, a text in white on the blue background gives a written description of each of these elements;

That text is as follows:

The Manitoba Flood Control and Protection System

Manitoba lies in a gigantic drainage basin which extends east to Ontario, west to Alberta and south to the headwaters to the Mississippi River. This huge area is drained by several major rivers including the Red, Assiniboine, Winnipeg and Saskatchewan which flow through Manitoba, into Lake Winnipeg and eventually into Hudson Bay. In the spring, run off from melting snow frequently causes flooding of the lands bordering these rivers and their tributaries. These floodwaters can inundate large areas of land. For example, the Red River flood of 1950 inundated approximately 1295 km² (500 square miles) of land.

In response to this flood threat comprehensive flood warning and flood control and protection systems have been put in place which greatly reduce the socio-economic impacts of flooding. Over the last 20 years it has been estimated that this system has reduced flood damages by more than \$1 billion as well as improving the quality of life for countless Manitobans.

The major components of the Manitoba flood control and protection system are briefly described as follows:

Red River Floodway

The Red River Floodway, Manitoba's largest flood protection project, was completed in 1969 at a cost of \$62.7 million to protect the City of Winnipeg from the damaging effects of Red River floods. The Floodway allows all the water in the Red River to flow through Winnipeg during normal summer, fall and winter months. But in the spring when the discharge is greater than 850m³/s (30 000 cfs) the water flow divides between the Red River and the Floodway. The amount of water diverted into the Floodway is regulated by a control structure near St. Norbert. This structure maintains the Red River's natural level upstream of the Floodway, but allows up to 1699m³/s (60 000 cfs) to enter the Floodway and bypass the City of Winnipeg.

Shellmouth Dam

The Shellmouth Dam, which was constructed at the junction of the Shell and Assiniboine Rivers in 1972, is a multi-purpose facility which controls flows along the Assiniboine River, protecting rural areas along the Assiniboine Valley as well as urban centres such as Brandon. The Shellmouth Dam, which is 21 m (70 feet) high and 1280 m (4200 feet) long, creates a reservoir with a storage capacity of 481000 dam³ (390000 acre-feet) which extends upstream for 56 km (35 miles)

Assiniboine River Diversion

Overbank flows on the Assiniboine River between Portage la Prairie can result in widespread flooding because the surrounding

land slopes away from the river channel. To alleviate this situation and to reduce flooding in Winnipeg, the Assiniboine River Diversion was constructed in 1970 at a cost of \$20.5 million. The Diversion conveys excess Assiniboine River flows from a point upstream of Portage la Prairie 29 km (18 miles) due north to Lake Manitoba. Diversion of water into the channel is accomplished by two control structures: a dam and spillway on the Assiniboine River and a gated structure at the inlet to the diversion channel. The Assiniboine River Diversion has a capacity of 708m³/s (25000 cfs).

Seine River Diversion

The first major floodwater diversion constructed in Manitoba, the Seine River Diversion, diverts excess Seine River flows of up to 121m³/s (4270 cfs) from a point upstream of Ste. Anne to the Red River near St. Adolphe. The Diversion was constructed in 1962 at a cost of \$1.8 million to provide flood control along the Seine River through and below Ste. Anne.

Fairford Control Works

Located at the outlet of Lake Manitoba on the Fairford River, the Fairford Control Works, together with downstream channel improvements, were constructed in 1961 to control Lake Manitoba levels within a much narrower range than that which occurred historically. Since that time, these works have reduced flood damages to agricultural land and to recreational lakeshore properties adjacent to Lake Manitoba.

Dyking Systems

Dykes have been constructed in many areas of the province to prevent inundation by flood waters. In the City of Winnipeg, dykes have been constructed along both sides of the Assiniboine and Red Rivers to a level of 1.22 m (4 feet) below that which occurred in 1950. These dykes are complemented by pumping stations which convey storm water from the dyked area to the rivers. This dyking system is now a vital and integral part of the flood control works which protect Winnipeg.

Between Winnipeg and Portage la Prairie many miles of dykes have been constructed to contain Assiniboine River flows. Further upstream in Brandon, 23 km (14 miles) of dykes have been constructed following the 1955 Flood.

Large areas in the Red River Valley are subject to periodic flooding, but it is not practicable to provide complete protection by dyking along the Red River. Instead, protec-

tion to the 100-year flood level has been provided by the construction of ring dykes around the communities of Emerson, Letellier, Dominion City, Morris, Rosenort, St. Adolphe and Brunkhild.

Flood Forecasting

Flood forecasting is an essential element of the flood control and protection system in the Province of Manitoba. Accurate long-range forecasting identifies areas at risk and ensures that preparations are made to deal with flooding situations before they reach a critical stage. Shorter-range flow and water level forecasts enable flood fighters and control works operators to make informed decisions regarding emergency dyking, closures, flood control works, operation, and possible evacuation from flood risk areas.

Flood Response

Flood warning and emergency response mechanisms are in place throughout the populated areas of Manitoba. These are constantly being updated in light of changing circumstances. These mechanisms cover the gamut from flood warnings to flood fighting to emergency evacuations in critical situations.

The foregoing summarizes the major components of the Manitoba Flood Control and Protection System now in place. Today, Professional Engineers monitor and assess flood damage reduction requirements to ensure the continuing protection of the people of Manitoba—the major mandate of The Association of Professional Engineers of The Province of Manitoba.

As in any determination of who should receive an award or what project or function should be honored, there can be arguments about the final selection. It can, however, be reasonably accepted that because flooding is an ever present threat to many areas of the province, the Flood Control and Protection System can readily be recognized by the people of the province as an engineering work of direct and continuing benefit. It can also be accepted that because of the comprehensive nature of the system and the innovative approach to the resolution of some of the problems, it can be accepted as representative of the skill, dedication and ingenuity which typify our profession. It is the feeling of the Association that the planning and work of the engineers that has gone into the system and which is necessary to its continual operation and management engenders the theme of our Centennial - "Mind, Heart & Vision". □

With Deep Regret, the Association
Records the Passing of:

F.M. ARNASON

J.H. DICK

M.V. KLEIN

P.P. GAJERSKI

Interview with APEM President W.D. (Bud) Christie

J. W. Bogan, P.Eng.



W.D. (Bud) Christie.

1) What are your objectives for the upcoming term?

We have not yet had a proper planning meeting, but I have met with the Association staff and discussed the outstanding issues and those which will likely come to our attention in the next year. The list established is probably longer than what is possible to resolve, but at least its a good starting point. I propose to take the list to a meeting of the Executive Committee to establish priorities. Hopefully, this can be accomplished within course of the one year term.

Because of the nature of the Association with its small permanent staff, much is done by its committees and in turn, by Council. It tends to take a long time to get many things done. It's typical of most Presidents that they have grand plans when they come into office and have a lot of things they hope to accomplish. Because of the inertia of the Association you don't get as much done as you would like to.

Some of the issues to be examined in the coming year include professional development and continuing competence. The Engineering Institute of Canada (EIC) has proposed to the Canadian Council of Professional Engineers (CCPE) to run continuing education units similar to a U.S. program. We will see if there is some contribution that the APEM can make to such a national program. A committee is also reviewing and upgrading our Code of Ethics.

2) What long term issues or objectives should be addressed?

The issue of the future of engineering, which I have discussed in my first President's Message, must be addressed. It behooves all engineers to give serious thought to where engineering will go as a profession into the twenty-first century. It's a changing profession; there are things happening around us which are going to impact on the profession. We need to determine our position in the community for the long term. Preserving the profession and its integrity are important. Also, there is the whole perception of the engineer. We don't seem to have a very high profile in the community. Some claim we're

the lost profession and are not very visible. Engineers as a whole have a lot to contribute to our society and we should be pursuing the improvement of our image in the public's eyes.

3) The Association was very visible in public eye in 1987 because of the Engineering Centennial. Do you have any ideas to make our position more visible?

It's difficult to give specific programs. It depends on the involvement of individual engineers and the role each of us has to play. Engineers are often people who tend not to promote themselves; they tend to be quiet and unassuming people, not often in the forefront or expressing strong opinions. Because they are retiring people, they don't tend to be as visible to the public as they could be. There isn't a specific program that you can implement to change the public's attitude. It's a long process of proving you have a contribution to make. Engineers should play a more active role in public affairs and to let people know that the profession is here and we do good work. Often, people are surprised by the significant contributions engineering has made to society. It's a learning and teaching process.

4) What measures can be taken to increase the membership's participation in the Association?

Participation is related to committee participation. Our prime function is to protect the public in areas related to engineering. We are not a self-interest group; we do not promote ourselves. On the whole, the Association has done an excellent job in this regard. There are a number of committees which are necessary for public safety and there are peripheral committees to enhance social activities and communications. These committees are not necessary for the prime mandate. The Professional Development Committee and its breakfast meetings have done an excellent job in making more engineers aware of the Association. Anyone wishing to contribute to a committee should check with the Association's permanent staff and are encouraged to serve where required.

The lack of response is related to the necessary but not exciting function of a licensing body. It's difficult to generate excitement. It's not like a social club. Yet, most would agree the Association is necessary to protect the public.

5) How will you and Council attempt to increase involvement for members outside of Winnipeg?

The Nominating Committee brings forward nominations for Council and this past election, Milt Goble from Thompson will serve. By having representation by members outside of Winnipeg, we can raise the profile of the Association in those communities. In addition, Council travels to locations with significant members of engineers and hold meetings with them; for example - Brandon, Pinawa, Thompson and Flin Flon. This gives these members the opportunity to question

Council and discuss priorities. Of course, any member can bring matters at any time to the Association for consideration by Council or the appropriate Committee.

6) An Act Administration Officer has recently been appointed. What difference has this made to practice in the province?

This is a recent appointment and the total effect of his presence cannot be closely measured at the moment. Specific duties will be reviewed shortly with problems and successes of enforcing the Engineering Act. We have tried to steer away from the term "Enforcement Officer." We don't see ourselves as a police force trying to bring perpetrators to justice. We called him an Act Administration Officer very specifically. We believe most of the people contravening the Engineering Act do so out of ignorance and the Administration Officer's approach should be low-keyed. We have already had success with bringing a company's attention to the Act and to comply with the Act's requirements. In the long term, the Act Administration Officer's activities will be very valuable to the Association.

7) There are presently a number of engineers not registered with the Association. For example, those with federal or crown corporations. Will the Association attempt to increase membership in that area and if so, how?

We have been concerned over the years that people in service with the federal government are practising without being registered. The federal government disagrees with the Association over the need for registration. This has also occurred in other provinces. The profession is regulated by provincial statutes and the federal government approach has been the same in all provinces. Recently, through our association with the CCPE, we are working with the federal government on a program to register engineers with some degree of success. We are making progress and it's a national issue which may take a long time to resolve.

8) Will the APEM continue to participate in national organizations and to what extent?

We will continue to be committed to the CCPE. There is a role for a national organization to play. For example, dealing with federal government departments. We can speak with a national voice. Also, qualifications for registering must be uniform across Canada. Engineering institutions must be accredited by the Canadian Engineering Accreditation Board which is part of the CCPE. They should have a consistent set of requirements for courses so engineers can pass through an accredited program. Engineers will then have an opportunity to enter the profession without any problems. If accreditation was done on a provincial basis, engineers would have problems registering in different provinces. I see no reason for the APEM to move away from our position to continue to belong.

(continued on page 11)

Annual General Meeting and Awards Luncheon— October 19, 1987

by L. Ganetsky, P.Eng.

GENERAL MEETING

President Ted Speers opened the 68th Annual General Meeting of the Association at 9:30 a.m. in the Senate Chamber in the Engineering Building at the University of Manitoba.

This year the meeting was held at the University. Dean Kuffel had invited the Association to hold the meeting at the University for two reasons. Firstly it was the 80th Anniversary of the Faculty of Engineering and secondly there was to be a ceremony naming three wings of the engineering complex after three former Deans.

Ted Speers confirmed that a quorum was present and Registrar Bill Mackenzie read the notice of the meeting. Following this, Ted introduced the head table and distinguished guests from other provincial associations and from CCPE. A moment of silence was observed for the members that had passed on during the past year. The minutes of the last Annual General Meeting were adopted as read.

Ted Speers read the scrutineers report and announced that W.R. Newton, K.A. Buhr, O. Hawaleshka, and M.L. Goble had been elected for two year terms on Council. It was noted that six hundred and thirteen ballots had been returned from a total of three thousand and forty-five sent out. This represented a 20% response, down from previous years. Seventeen ballots were spoiled. Ted Speers also advised the meeting that John R. McDougall had been appointed for a two year terms as a lay member of Council.

The auditors Report was received and the meeting appointed Sill, Strueber, Fiske & Company as Auditors for the coming year. Nominations for members of the Nominating Committee were made and B.W. Prentice, R.R. Foster and J.V. Weizsmann were appointed. The 1987/88 budget was received. Committee and other reports published in the Manitoba Professional Engineer were accepted.

Dr. Phil Lapp, President of the Canadian Council of Professional Engineers, brought greetings from Ottawa and commented on the very large number of significant things that had happened during the Engineering Centennial Year.

Other association visitors brought greetings from their respective associations. One item of interest, mentioned by Bill Royds, President of A.P.E.B.C., was that the British Columbia Association had been successful in having the B.C. Engineering Act amended so that the fine for practising engineering in the Province without being registered was increased from \$25.00 to \$10,000.00.

The meeting adjourned for coffee at 10:35 a.m. and reconvened at 10:50 a.m.

The formal part of the meeting having been concluded, Mr. Speers introduced Dr.

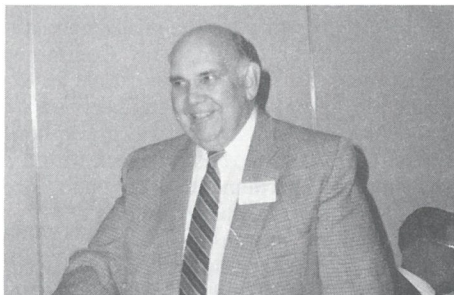
Norman Ball, a visiting archivist from Ottawa and author of the Centennial Book entitled "Professional Engineering in Canada, 1887 - 1987". Dr. Ball spoke to the meeting on a number of the major engineering accomplishments in Canada. His presentation was absolutely topnotch in every respect and was very well received by those present. Mr. Speers then introduced Mr. Harvey Werstiuk, the Technical Manager of the Space Station Program of the National Research Council. Mr. Werstiuk spoke on "The Canadian Space Station Program". Mr. Werstiuk outlined the Canadian contributions to the joint efforts space station with the United States. Again the presentation was excellent and it was regretted that time constraints did not allow Mr. Werstiuk more time.

The meeting adjourned at 12:10 p.m. and all those present headed over to the University Centre for the Awards Luncheon.

AWARDS LUNCHEON

After lunch, the awards portion of the meeting began. Dr. Arnold Naimark brought greetings from the University and extended an invitation to all those present to attend the unveiling ceremony which was to take place later in the afternoon. James S. Hicks, received the Merit Award as well as an Honorary Life Membership in recognition of his contributions to the Association and his outstanding career. Association awards for outstanding service were made to George A. DePauw and Robert R. Foster. Freddie A. Jost was awarded an Honorary Life Membership.

The Canada Northlands Development Award was given to Allan Hein, an engineer-



J.S. Hicks, P.Eng. receives Merit Award and Honorary Life Membership.



G.A. DePauw, P.Eng. receives Outstanding Service Award.



R.R. Foster, P.Eng. receives Outstanding Service Award.



F.A. Jost, P.Eng. receives Honorary Life Membership.

ing student in fourth year engineering. Mr. Hein had met all criteria for the award relating to working in Canada's Northland and displaying qualities of initiative and leadership during his university career.

Seven Association Scholarships were given. Five were awarded to students who exhibited academic excellence along with active participation in student affairs in the Faculty of Engineering. These were awarded to Scott D. Koetke in Civil Engineering, Perry M. Kotello, Mechanical Engineering, Michael E.C. Carley, Electrical Engineering, Randall R. Fransoo, Industrial Engineering and Ronald A. Cawston, Geological Engineering. Other APEM Scholarships were awarded to Trevor Pizzey for obtaining the highest standing in first year engineering and Charles Rosner for obtaining the highest standing in second year engineering.

Following the awards luncheon many of those present participated in a tour of the engineering building conducted by engineering students. The various tours were split up by discipline and were eye-opening for this writer.

The last and probably the most enjoyable event of the day was the unveiling of three plaques naming each of the three wings of the engineering complex after former Deans.

The original engineering building wing was named after Dean Fetherstonhaugh who served as Dean from 1921 to 1949, the 1950 wing was named after Dean MacDonald who was Dean from 1949 to 1963 and the 1968 wing was named after Dean Hoogstraten, Dean from 1964 to 1974. The ceremony was very nice, with members of the families of each of the Deans on hand to unveil the plaques.

Between association functions and faculty ceremonies I can advise that I spent the entire day on campus and can't remember when I spent a more enjoyable day. □

Major J.L. Charles, P.Eng., Manitoba's Senior Engineer

E.A. Speers, P.Eng.

This has been a busy year for Major Charles. Now nearing his 95th Birthday in December, our most senior member and Past-President has been recently honoured by the granting to him of an honorary Doctorate Degree from the Technical University of Nova Scotia (October 1987). This degree was part of the Engineering Centennial Program of Nova Scotia.

Major Charles was honoured at the opening of our museum Exhibit Northern Transitions Engineering and Development of Northern Manitoba, the centennial project of the Association of Professional Engineers of Manitoba. His engineering of the design and construction of the rail line to Churchill and later the extension of the railway to Lynn Lake from Sherridon is the major focal point of this exhibit.

His career of railway engineering has been truly outstanding. Immigrating from England in 1910 he joined the CNR, serving for 55 years. He interrupted this career for two world wars; during the first serving with the Royal Engineers and more directly as the Battalion Chief Engineer of the 7th Canadian Railway Troops. During the Second World War he was again associated with the Royal Canadian Engineers as well as special duty



Opening of Exhibit: Pres. Ted Speers, Major Charles, and daughter Barbara Friesen.

with the U.S. Army engineers in the Canada-Alaska region.

His very extensive experience in transportation has associated him with the Great Slave Lake Railway, studies of railways in Zambia—Tanzania, also Liberia, West

Africa. He was also on a major thirteen month assignment in Brazil on a consulting basis from Canac. He has participated in studies with the Canadian Institute of Guided Ground Transport on the alternate use of rail for pipeline.

Governments and professions have honoured him on many occasions. He received the Companion of Distinguished Service for his military service and is an officer of the Order of Canada. The University of Manitoba granted him an honorary degree of Doctor of Laws; the Engineering Institute of Canada, their highest award the Julian C. Smith Award; and the Canadian Council of the Professional Engineers, their highest award, Canadian Engineering Gold Medal Award.

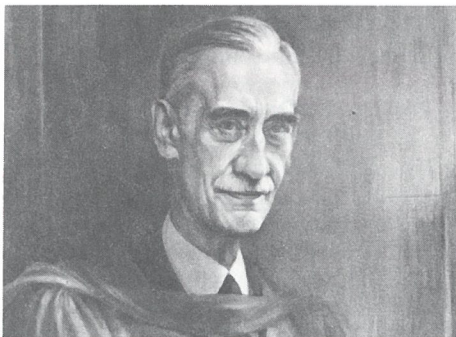
His membership with our Association commenced in 1921. He was President in 1953, is now an Honorary Life Member and in 1976 received the Merit Award.

Major Charles has recognized his profession through the establishment of the "Canada Northland Development Award", an Engineering student award presented jointly with the APEM. He has made an excellent contribution to engineering history through his autobiography—"Go Westward Young Man".

Truly a great engineer. □

Engineering Deans Honored

by G.A. Morris, P.Eng.



Dean E.P. Featherstonhaugh

To commemorate 80 years of engineering education in Manitoba, the University of Manitoba Faculty of Engineering recently honored three of its former deans. In a dedication ceremony on October 19, 1987, the three wings of the Engineering complex were named in honor of Dr. Edward P. Featherstonhaugh, Dr. Albert E. Macdonald, and Dr. Jacob Hoogstraten. Mrs. May Macdonald and Mrs. Margaret Hoogstraten unveiled bronze plaques signifying building wings in honor of their husbands. The Featherstonhaugh plaque was unveiled by Prof. Jack McMath, Head of Electrical Engineering, from 1955 to 1973.

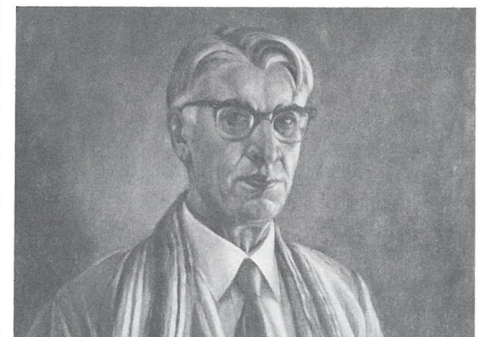
Dr. Featherstonhaugh worked with the Westinghouse Company and with McGill University before joining the University of Manitoba in 1909. Civil Engineering instruc-



Dean A.E. Macdonald

tion under Professor E.E. Brydon Jack had commenced in 1907 and Featherstonhaugh, as the first professor of Electrical Engineering, became responsible for all instruction in the discipline. When the Faculty of Engineering and Architecture was formed in 1921, Dr. Featherstonhaugh became its first dean. He occupied the positions of Dean of Engineering and Head of Electrical Engineering until his retirement in 1949.

Albert Edward Macdonald received Engineering degrees from the Nova Scotia Technical College and McGill University before joining the University of Alberta as a lecturer in 1922. The following year, he joined the Civil Engineering Department at the University of Manitoba. He became Head of Civil Engineering in 1936 and dean of the Faculty in 1949. A specialist in structural



Dean J. Hoogstraten

engineering, Dr. Macdonald made a significant contribution to the war effort in 1939 to 1945, reporting directly to the federal Minister of Supply C.D. Howe. Following Dr. Macdonald's death in 1963, Professor William F. Riddell served as Acting Dean for a year.

Then in 1964, Jacob (Jack) Hoogstraten became dean. A Winnipeg native, he received his engineering education at the University of Manitoba and the University of Michigan. Hoogstraten served the Civil Engineering Department from 1936 to 1957, when he accepted the position of President of the Nova Scotia Technical College. Returning to the University of Manitoba as Vice-President (Planning) in 1962, he served as Dean of

(continued on page 10)

Sixth Decade of the A.P.E.M. — 1970-1980

by D. Spangelo, P.Eng.

The decade between 1970 and 1980 is one which even our youngest engineers may recall. Some historical notes of that decade might be of interest to the general membership.

The controversy of the flooding of South Indian lake, a highly volatile political issue, was the topic of a special general meeting called during 1970. Nearly 400 members attended this meeting to hear about the various view points connected with this controversial matter which is still in the news today. This event took place during John Adam's tenure as president.

A special meeting of Council was held in 1971 to address the question of the rights of employee-engineering groups to bargain collectively in connection with their working conditions and salaries. The president of APEM in 1971, Russell Hood was on record as having said "we (APEM) have made considerable progress in moving our profession from the 'comfortable pew' to which we have become accustomed". Russ Hood was elected president of CCPE in 1973. He was the third Manitoban to hold this office. Previously P. Burke-Gaffney and W.L. Wardrop had been presidents of CCPE.

During 1974, when George DePauw was

president, an ongoing issue was metric conversion. Professional liability was also an issue during George's tenure as president and a special open meeting of the Association was held to discuss the matter.

When Doug Grimes was president in 1975 a general questionnaire was sent to the membership relating to whether or not the APEM should be a self-interest group. Only 30% of our members replied and of those who did reply only a few favoured the idea. The Annual General Meeting was not well attended in 1975—only 52 members were there. This may have been partly due to a six week postal strike preceding the General Meeting and difficulties in notifying the membership of the details.

1976 was the year of the Montreal Olympics and that year Charlie Bouskill was president of the Association. In 1977 the Association donated \$10,000.00 to the Engineering Faculty at the University. This related to the University of Manitoba Centennial.

In 1978, when A.W. Gilliland was president, Council endorsed a CCPE resolution that would require each Provincial Association to adopt a policy whereby complaints against members which originated outside their provincial boundaries would be accepted on the same basis as those originating within the provincial jurisdiction.

During 1979, when R.A. Johnson was president, a prominent issue addressed by the Association was a concern about the level of funding to the Faculty of Engineering at the University of Manitoba. The Association responded to the universities request for help and support in this troubled period. □

Professional Development Breakfasts Professional Liability

by V.L. Dutton, P.Eng.

This winter's series of Professional Development Breakfasts was appropriately launched, in this centennial year, by 100 members congregating at the Viscount Gort for a very interesting talk by our Association's solicitor, Mr. Wells Peever. Mr. Peever has specialized in the law as it relates to the construction industry; his talk left no doubts concerning his familiarity with the subject of his talk.

Ever alert to items concerning the clan, my ears perked up when the case of Mrs. Dutton versus the Borough of Bognor Regis was presented. Her case, of course, has set precedents.

Two other precedent-setting cases - the ones that were printed in the last issue of this publication - were also discussed at length. It seems inevitable that we will be hearing more about these two cases in the months to come.

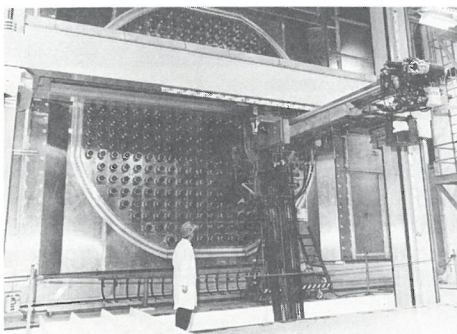
The variety and depth of questions following the talk, was a gauge of the interest this subject has for the practising engineer. After each question was posed, Mr. Peever repeated it, using his microphone, so that everyone in the audience know exactly what was being asked. Would that every speaker was as considerate of his audience! □

The Ten Most Exceptional Feats of Canadian Engineering's First Century

This issue completes our series of engineering feats.

The Canadian Nuclear Power System

By the early 1950's, a significant scientific and development base for heavy-water-moderated, natural uranium nuclear reactors existed at Atomic Energy of Canada Limited laboratories at Chalk River, Ontario. The combination of this base and the need of an economical alternative source of electricity in Ontario led the Government of Canada to enunciate a policy assigning AECL to take the lead in developing nuclear power on a co-operative basis with interested electrical utilities. The 25 megawatt Nuclear Power Demonstration (NPD) at Rolphton, Ontario, jointly constructed by AECL, Ontario Hydro and Canadian General Electric Company Limited, established the concept. The CANDU reactor, an acronym for Canada-Deuterium-Uranium, is a uniquely Canadian nuclear power system. Its outstanding success attests to the insight, courage and ability of the Canadian nuclear technology pioneers and the faith the people of Canada had in them.



The CANDU Reactor, Uniquely Canadian.

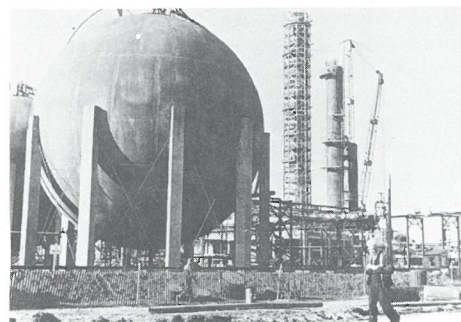
The Industrial Installations of Polysar Limited in Sarnia, Ontario

Polysar Limited, a company that pioneered the use and marketing of synthetic rubber technology, demonstrated the effectiveness of people working toward a common goal in time of war. What started out as a critical need in 1942 became a reality by 1944: the

production of synthetic rubber. More than 5,000 people and 2,000 companies took part in the construction of this immense complex of plants, warehouses, workshops, offices, laboratories and storage tanks. And research went ahead to acquire the tools and the know-how necessary for the invention of marketable products. Necessity was very much the mother of invention.

Synthetic rubber is made from several petrochemicals derived from oil and natural gas. It was the successful production of synthetic rubber that was a determining factor in the Allied victory in World War II. Since then, Polysar has grown into the world's largest producer of synthetic rubber and rubber latex. As well, it is now a major international manufacturer of basic petrochemicals, fuels and related products, including plastics and rubber compounds, with annual sales of over \$2 billion.

Since its formation in 1942 in Sarnia, the company has expanded its operations to almost every corner of the world. And while Polysar still has its World Headquarters and main manufacturing complexes in the Sarnia area, it has plants and offices in 15 countries and sells its products in almost 100 countries. It employs more than 6,000 people worldwide: some 3,000 in Canada, 1,000 in the United States and 2,500 in Europe and elsewhere. Moreover, secondary industries in countries using Polysar products provide thousands of other jobs. □



The Polysar Plant at Sarnia. World's Largest Producer of Synthetic Rubber.

L'Ordre des Ingenieurs du Quebec Annual Report

V.L. Dutton, P.Eng.

Annual reports tend not to make exciting reading. However, having undertaken to report to you on the doings of the Order, their Rapport Annual for the past year provides interesting insights into the operations and problems of our associates in Quebec.

The Order has 28,729 members of whom 3,633 live outside Quebec. A table attempts to tell the reader how these members are distributed according to age, sex, and language. I would like to be able to give you this information but I have been unable to interpret the table in any meaningful way. Another table does tell us that 84.9% of the women members and 72.9% of the men are Francophones. Of the Francophones, 79.6% live in Quebec while 71.0% of the Anglophones live outside the province.

The table of remuneration-figures lacks meaning since there is no indication as to living costs in Quebec. For what they are worth, then, the average salaries are, for 1986:

Average over all members	\$49,151.00
Public and semi-public sector	49,130.00
Private sector	48,781.00
Working in engineering	46,226.00
Working outside of engineering	55,934.00

Some reader might like to write an article, for this publication, on the significance of the latter two figures. It would appear, at least in Quebec, that an engineering degree makes a good spring-board to success in non-engineering activities.

“Act Enforcement in Quebec includes surveillance of professional activities — 552 visits were made to 2088 engineers.”

What we call the “Association offices” is termed The Bureau in Quebec. The Bureau has a staff of fifty-one of which nine are professional engineers. Six of these nine serve in the department called the Professional Inspection Service - comparable to our Dave Ennis. This Service supports the Committee of Professional Inspection with five members and three substitutes, or assistant members, all eight being engineers. If effect, there are fourteen professional engineers concerned with the technical competence of their fellow members.

We call it Act Enforcement; in Quebec it is called Professional Surveillance. This surveillance is divided into three distinct activities, or functions.

1) Visits of general surveillance.

2) Special interventions and investigations of competence.

3) Interventions of a general nature.

In carrying out the first function last year, 552 visits were made to 2,088 engineers. From this it appears that the Committee carries out this aspect of its work with groups of

engineers. Each member so visited receives a copy of the report prepared by the Committee. Such reports “contain a number of recommendations and interpretations of the laws and regulations concerning the practice of engineering.” It appears that these visits perform an important educational role.

Twelve charges of incompetence were investigated. Only one of these led to a formal inquiry, which is still in progress.

The general-interventions aspect of the Committee of Professional Inspections deals with governmental departments and private employers. The 1985 collapse of the bridge over the Sainte-Marguerite river has led to recommendations being made to the Ministry of Transport, for example. The Order has recommended to the Federal Government that all engineers, recruited for the Civil Service, be registered in their province of residence.

The report details other activities of this busy committee.

Professional Development is “one of the major preoccupations of the Order”. Thirteen regional sections play an important role in P.D., of course, as do the several universities through the province. Subject areas of major interest to Quebec’s engineers are:

- 1) Informatics (l’informatique) - which I take to mean computer related material.
- 2) Management of personnel.
- 3) Management of projects.
- 4) Quality control.
- 5) Mining techniques.

Technical conferences and colloquia are

held throughout the regions.

A survey, made in 1984 to establish the needs of their members vis-a-vis professional development, has been followed by a survey amongst 350 employers to attempt to establish their perceptions as to what their professional employees require in the field of continuing education. PLAN the O.I.Q. publication, should be carrying the results of this survey presently.

Last year, because of desires expressed in a survey in 1984, the Order organized then educational courses at significantly reduced costs as compared to similar courses run by the universities. “Several” of these courses had to be cancelled because of insufficient numbers of applicants. Our own P.D. Committee may wish to consider the implications of this experience.

PLAN carries announcements of courses which will permit members in the Order to improve their knowledge in “technical materials, in management, in computer-related material (informatics), in finances, and in personal development.” The regional Branches are working diligently to promote continuing professional-development amongst their members but the Committee hopes that “next year will permit a better definition of the parameters of action in this domain.” These parameters will be of interest to the members of our P.D. Committee, especially as they attempt to use the P.D. Survey sheets to evaluate the situation in Manitoba. Incidentally, have you submitted your 1987 P.D. sheet yet? □

Concerns Over Building Inspections

by D.A. Ennis, P.Eng.

The City of Winnipeg Building By-Law requires that the Professional Engineer responsible for the inspection of any aspect of the construction of a building project must submit a certificate confirming that the building has been constructed in accordance with the drawings and specifications accepted by the Plan Examination Section of the Department of Environmental Planning before a certificate of Occupancy can be issued.

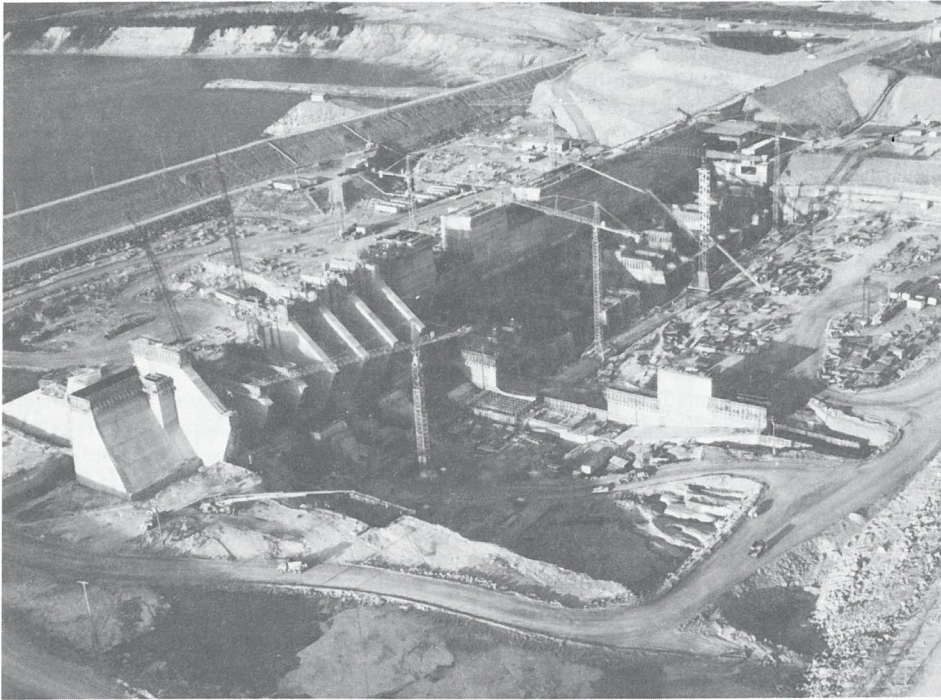
F.L. Nicholson, P.Eng., Supervisor of Building Inspections of the City of Winnipeg reports that while in most cases the certification truly reflects the condition of the building inspected, there are instances where obvious and in some cases serious deficiencies have not been addressed. When these cases are brought to the attention of the engineer involved, it usually results in prompt action to remedy the problem.

However, there have been situations where the engineer complies only under duress, and/or where there are deficiencies of such frequency and nature as to indicate conduct in the practice of engineering by that engineer which is detrimental to the public safety.

Such conduct is quite naturally a concern of the Practice and Ethics Committee. The committee has, with the cooperation of the Superintendent of Building Inspections, recently established procedures whereby such conduct can be brought to its attention: If in the opinion of the committee, there is an indication that an investigation is warranted, the matter will be dealt with in accordance with the By-Law.

Another aspect of the City of Winnipeg Building By-Law that has come to the attention of the Association is the requirement that inspections be carried out in accordance with professional standards. The difficulty is that the Association does not have published guidelines for use by engineers in the inspection of construction. As a first step in rectifying this situation the Associations in other provinces have been contacted to obtain any information on whatever guidelines they may have. At the time of writing replies have been received from six of the nine provinces and two of these have or are in the process of establishing guidelines. It is expected that with the aid of this information a set of guidelines can be developed for Manitoba engineers. □

Limestone Construction Winds Down...



Construction activity has virtually concluded for the 1987 season at the site of the Limestone Generating Station. After the second full season of construction, the project is on schedule and the concrete work on the major structures of the station, such as the powerhouse and spillway, is largely complete.

As of October 17, 1987, some 313 000 m³ (cubic metres) of concrete has been placed during the year, bringing the total placement of concrete to 490 000 m³, about 75% of the total requirement for the project.

To reinforce the concrete, 16 000 t (tonnes)

of reinforcing steel were installed this season. This brought the total quantity installed to 24 000 t or 80% of the total project quantity.

The north dam, joining the main structures of the generating station to the north bank of the Nelson River, has reached its finished height of 88 m above sea level. The adjoining service bay has had the structural steel, decking and cladding installed to enclose the two powerhouse cranes which were also installed during the season. On the upstream side of the powerhouse, the intake section has the concrete completed to the deck level in seven of the 10 units. The distinctive concrete

piers of the spillway section are all noticeable, with four of the seven completed.

Most of the remaining concrete will be placed next year while other major activities for 1988 include a start to the installation of the embedded parts for the turbines (steel parts embedded in the concrete for the purpose of supporting the turbine units), along with the installation of intake and spillway gates.

Employment at Limestone peaked at about 1 650 earlier this summer and this number was gradually reduced as the workload declined. Over the winter, about 300 Manitoba Hydro and contractor's staff will remain at the site. Construction activity will pick up again in March or April of 1988 and employment is expected to reach a peak of 1 400 in early summer. □

Deans Honored

(continued from page 7)

Engineering from 1964 to 1974. Perhaps his proudest achievement during that period was to serve as the Project Director for the Canadian International Development Agency project to assist in the establishment of Khon Kaen University in Thailand. In recognition of his achievement, the King of Thailand conferred an honorary doctorate on Ja Hoogstraten.

Many have contributed to the proud tradition of the professional engineering community in Manitoba. Few have contributed more than Edward Featherstonhaugh, Albert Macdonald and Jack Hoogstraten. Among them, they dedicated more than 110 years to the cause of excellence in engineering education in Manitoba and Canada. □

Council Reports

SEPTEMBER 14, 1987 by A. Kusiak, P.Eng.

At which Council continues to consider a Brief to the Government of Manitoba

E.A. Speers presided with Councillors K.A. Buhr, W.D. Christie, O. Hawaleshka, K.J.T. Kjartanson, G.E. Laliberte and General Manager and Registrar W.B. Mackenzie & D.A. Ennis in attendance.

APEM Project Achievement Award: Council considered a memo from Mr. Mackenzie dated September 8th, 1987 on an APPEM project achievement award. Mr. Kjartanson advised Council on the background of the recommendation from the Ad Hoc Centennial Committee and the reasons for the request. The matter was referred for investigation and report to the Awards Committee.

Attendance at Provincial Association Annual Meetings: The attendance at Provincial Association Annual Meetings by representatives of APPEM was discussed. The matter was referred to the Executive Committee for further investigation.

Funds Retained for Continuation of Operations: It was approved that an amount of \$134,000.00 be retained for continuation of operations until December 31st, 1987.

Engineering Centennial Convocation—Technical University of Nova Scotia: Council considered a letter from the Technical University of Nova Scotia addressed to Mr. E.A. Speers regarding the Engineering Centennial. It was decided that the Technical University of Nova Scotia be thanked for their invitation to attend the upcoming Convocation and to advise them that APPEM would not be sending any representatives to the Convocation Ceremony.

Brief to Government: Council considered a revised draft of a Brief to the Government of Manitoba provided by Mr. Speers. It was agreed, that at the upcoming meeting with Mr. Mackling, the APPEM representatives would ask Mr. Mackling what was the proper method of presenting the Association Brief to the Government. No agreement was reached on the final content of the Brief.

APPEM Scholarships: Council considered a letter dated August 17th, 1987 to the Association from the Financial Aid and Awards Department of the University of Manitoba relating to the Association of Professional Engineers of Manitoba Scholarships. The matter was referred to the Executive Committee for action which will consider and review the original arrangements made with the University in connection with the Scholarships. □

University of Manitoba Engineers Receive United States Patent

Professors M. Nabil Bassim, P.Eng. and Kris Tangri, P.Eng. of the University of Manitoba's department of mechanical engineering, have received a United States patent for their research in acoustic emission.

Titled "Apparatus for Continuous Long-Term Monitoring of Acoustic Emission," the invention's present capability puts it at the forefront of technology worldwide and breaks new ground in the field.

Comprising a series of detector—analyzer units coupled to a central control unit through a communications link, the apparatus is designed to be especially effective for the continuous, long-term monitoring of acoustic emissions from large structures, such as pipelines, thermal power plants and nuclear reactors.

Acoustic emission testing detects and analyses stress waves generated in a material as a result of such factors as fatigue, plastic deformation, cracking and corrosion.

Most acoustic emission testing systems require that a source of stress be applied to the structure in order to detect material failure. This type of equipment is also geared to periodic testing and is limited since it is unable to monitor the structure during operating conditions. Those systems that do provide a minimal capacity for on-line monitoring are prohibitively expensive for use in a structure such as a pipeline. Professors Bassim and Tangri have addressed both limitations with their invention which combines long-term and on-line surveillance with economy.

Prof. Bassim has been actively researching acoustic emission since 1973. Early on in his work he realized the need for a different approach to testing stress waves than existed

previously. A grant from the University of Manitoba's academic development fund in 1980 started the research that culminated this patent.

Petro Canada recognized the value of the research and provided the inventors with a \$150,000 contract to continue their work. The Natural Sciences and Engineering Research Council (NSERC) provided a further \$220,000 over three years. Viatec, a Calgary company, signed a \$30,000 contract to use the invention to test off-shore rigs to determine their stability.

A further application to NSERC for \$200,000 is pending. Prof. Bassim indicated that, if approved, the funds will be used to improve and extend the capabilities of the new system and increase reliability.

For further information, contact Dr. Bassim, Department of Mechanical Engineering, The University of Manitoba, 474-8524. □

Interview (continued from page 5)

9) Which areas of the Association's responsibilities and activities presently require greater attention?

I see a central role for the Association in the protection of the public. I think we've done and continue to do a good job in this regard. Consequently, the peripheral issues require attention.

10) Are you prepared to comment on where the Association stands with the Manitoba Society of Certified Engineering Technicians and Technologists (MANSCETT)?

It's been some time since we've had any interface with MANSCETT. Last year, MANSCETT approached the Association and indicated they would request their own legislation which would give them a "right-

to-title." Shortly after the initial meeting, they provided us with the New Brunswick Technologists and Technicians Act as a model. We reviewed it and discussed it with them. We wanted to ensure that there was no disruption in the engineering team that has developed between engineers and technologists. The technologists have provided a valuable service and we do not want any discord. We met in the spring and discussed the various aspects of our legislation and their concern. MANSCETT agreed to provide us with a draft of their legislation when they decide to go ahead. We are not sure if we can support the legislation at present. Council will decide once it sees the draft.

MANSCETT has decided that the status quo is not acceptable. The right-to-title can be gained through legislation as MANSCETT has proposed or through a modification to the Engineering Profession Act. In other provinces, technologists have carved out a part of engineering design for themselves. I personally have trouble with this. Where do you define the line where such a split can be made and still ensure the public is protected? In fairness, MANSCETT has advised they have no intention to proceed with the "right-to-practise." The issue should be amicably settled by the Association and MANSCETT.

11) Are there any other items which you want to mention at this time?

I hope the membership will be open with me and the Association in the next year. They should approach us if there are any issues of concern. That's why the Association is here, to try to solve these issues. Open communication is required. We know what our job is but you often wonder if the membership is listening. We would appreciate it if the members gave us some of their ideas to work with. Matters of concern can be referred to the proper committee and answered as promptly as possible.

OCTOBER 13, 1987 by D. Cross, P.Eng.

At which Council approved the Formation of A Public Relations Committee

With a full slate of Council but two, President Speers began his last council meeting prior to joining that growing list of past-presidents. The meeting got off to a smooth start with the approval of the agenda, the previous minutes, the financial statements, licences, new members etc. A "Glich" in the program occurred without warning. It appears that a reinstatement of a former member was not a reinstatement but rather a change in form. The subject member had forwarded his late payment cheque of \$35.00 prior to the deadline for write off. However, it arrived at the same time as the registrations for the golf tournament. This same member did participate in the golf but claimed that he paid by cash. After long discussion the members status was rectified and a recommendation was approved that the late payment fee and the golf entry be different amounts.

Assessment Fee: A new policy is to be formulated regarding the fee for assessing of new applicants qualifications. There will be no refunding of the assessment fee. It was stated that whether an applicant

was fully qualified or not the amount of staff work was the same in both cases.

Public Relations Committee—Terms of Reference: The Ad Hoc Committee presented terms of reference for a Public Relations Committee. The terms of reference were accepted and a motion formulated to proceed with the structuring of a P.R. Committee. The chairman will be appointed by the new Council.

Licensing: After great discussion about the Application for Licensing Form, a motion was formulated that all applicants, rather than just those that are not members of another provincial association be required to complete the form listing their engineering work experience. Applicants would show how their work experience qualifies them to be licensed in Manitoba.

Examination Program: Council has decided to return to the policy of using the APEO examinations for those individuals following the CCPE Syllabus of Examinations. If the APEO is unable to provide certain exams than U of M professors will be asked to set the exams. The examination fees were increased for the first time since 1981.

Ad Hoc Committee Report on Group Practice: The committee's report was accepted without further action by this Council and was laid over for discussion by the incoming Council. □

News from other Associations

The Saskatchewan Association has approved a new design for the seals issued to members and licensees which bear the registration number of the member and also have a space to record the date of application. The Association is also actively engaged in the process of having the Engineering Profession Act revised, among the proposed revision would be the inclusion of Geologists and Geophysicists. Another step would be to provide right to title for qualified technologists by providing recognition as registered engineering technologists.

For the first time in its history the Newfoundland Association has found the increase in enrollment insufficient to cover the inflationary cost increases and Council has found it necessary to seek an increase in the Annual Membership Dues to offset a projected loss of \$33,000.00 for 1988.

On the other coast, the British Columbia Association has made provision to waive the

fees of members and Engineers-In-Training who are in full time attendance at University taking post-graduate courses. The Council has also decided to upgrade the computer system at a cost of \$96,000.00, and over the next 5 years to spend a further \$47,000.00 on software and hardware plus \$30,000.00 for routine programming. APEBC has also reported that because of the new Act they now have provision to appoint a non-member to the Investigations Committee.

Cape Breton Engineers from the Nova Scotia Association have plans to unveil a plaque honoring Guglielmo Marconi at the Marconi Museum in Glace Bay Nova Scotia as part of their Centennial activities. The Act Enforcement Committee of APENS has made a presentation to the Provincial Government Task Force on Hazardous Waste Management stressing the importance of engineering input into the management of hazardous wastes.

Alberta Engineers have just completed their major Centennial Program with separate three day presentations in both Edmonton and Calgary of an Engineering Centennial Showcase and Symposium entitled, "Voyage of Discovery". The discipline committee of the Alberta Association has adopted a policy whereby, if sanctions are issued as a result of a formal hearing into the conduct of a member, the other Associations in which the member is registered will be notified.

The New Brunswick Association reports that a Fire Science centre has been established on the Fredericton Campus of the University of New Brunswick. The center is the only facility in Canada that provides graduate level training in fire technology and is primarily academic and research oriented providing services to both the local and the national community. □

SOCIETIES: The Canadian Institute of Mining & Metallurgy

The Canadian Institute of Mining and Metallurgy (CIM), founded in 1898, is a technical society with a Charter and By-Laws which permit and encourage those specialists who are employed by, or are in any way associated with any area of Canada's vast and varied mineral industries to function with autonomy and dedication to their particular disciplines. Membership stands at over 12,500. CIM's primary technical divisions are: * Canadian Mineral Processors Division * Coal Division * Geology Division * Industrial Minerals Division * Maintenance/Engineering Division * Metallurgical Society of CIM * Metal Mining Division * Petroleum Society of CIM.

To accommodate the regional needs of CIM across Canada, the country is divided into six districts from the east to west coasts and into the Northwest Territories and Yukon. Individual CIM branches exist in key communities across the country, which are either mineral resource-based communities or ones which are supply centres to the mineral resources industries.

Manitoba is located within District 4 which also includes Saskatchewan, Northwestern Ontario and the District of Keewatin. CIM Branches in District 4 are located in Saskatoon, Estevan, Esterhazy in Saskatchewan; Winnipeg, Thompson, Flin Flon, Snow Lake, Lynn Lake and Leaf Rapids in Manitoba; and Red Lake, Ignace, Thunder Bay, Marathon and Manitowadge in Northwestern Ontario.

CIM Headquarters or Secretariat are located in Montreal and are directed by a full-time Executive Director, Mr. Pierre Michaud. The President of CIM is elected on a yearly basis with six District Vice-Presidents and 24 District Councillors being elected for 2-year terms. The President,

Lindsay Milne, P.Eng. is Vice-President of Canterra Energy Ltd. Calgary. The Technical Divisions, and Societies and the individual Branches each elect their own executive.

The premier yearly event of the CIM is the Annual General Meeting which is held in major cities across the country, generally alternating between eastern and western locations. Attendance at the Annual General Meeting (AGM) is in the order of 2500-3000 delegates with over 200 technical papers being presented over a 3-day period. A major feature of the AGM is the Trade Show.

In addition, smaller District Meetings are held every two years and the various technical Divisions and Societies hold technical meetings each year. Most recently the Metallurgical Society of CIM held its 26th Annual Conference of Metallurgists in Winnipeg on August 23-26, 1987. 700 delegates representing 19 countries worldwide attended.

CIM is the one organization which represents and embraces the needs of individuals employed by or associated with Canada's mineral resources industries.

For information on CIM activities in your area contact Carl. E. Anderson, P.Eng., Vice-President, District 4 at 204-284-0580 or c/o UMA Engineering Ltd., 1479 Buffalo Place, Winnipeg, Manitoba., R3T 1L7. □

Professional Development Structural Engineering Courses

by G.A. Morris, P.Eng.

The Civil Engineering Department at the University of Manitoba announces two graduate-level professional development courses which will be of interest to local structural engineers. The courses, which can be used for graduate credit, will be presented during the Spring Term (January 4 through April 8, 1988).

Prestressed Concrete Design
(Mondays & Wednesdays, 4:30 to 5:45 p.m.)

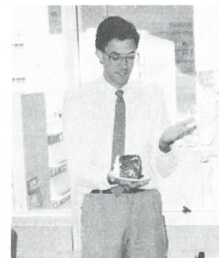
The course will deal with material properties, prestressing methods, flexure, shear and torsion, loss of prestress, composite construction, deflection analysis, continuous beams and frames, slabs, and compression members.

Advanced Behavior and Design of Steel Structures
(Tuesdays & Thursdays, 4:30 to 5:45 p.m.)

The course will deal with the behavior and design of welded thin-walled members, plate girders, composite construction, beam-columns and connections. Current design specifications will be reviewed, and special topics will be included.

For more information, contact Dr. Attiogbe 474-9622. □

Thank You!
Kelly Hearson



The Publication Committee and Council wish to express their appreciation to you for the leadership you gave as the first editor of the new publication "Manitoba Professional Engineer."

We sincerely thank you for all the many hours which you gave so freely. □