THE MANITOBA

Professional Engineer

ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF MANITOBA

August, 1987

Engineering Programs at University of Manitoba Given Full Accreditation

by G. A. Morris, P. Eng.

The seven engineering programs at the University of Manitoba came through their recent Canadian Engineering Accreditation Board (CEAB) review with flying colors. Each of the programs received the maximum period of accreditation permitted under CEAB procedures.

The five programs that had been accredited previously, Agricultural, Civil, Electrical, Geological and Mechanical Engineering, were accredited for six years, from July 1, 1987 through June 30, 1993. They were among the first group of Canadian engineering programs to receive a six-year accreditation. Prior to 1987, the maximum possible term was five years. The Industrial Engineering program, introduced in 1982, received a three-year accreditation, the maximum possible for a previously unaccredited program. Computer Engineering was accredited for one year. The reason for the short term is that substantial changes were made to the program last year, in response to earlier CEAB suggestions. Consequently, during the recent accreditation visit only the 'old' program was reviewed and accredited for 1987. Beginning in 1988, only the 'new' Computer Engineering program will exist, and it will be reviewed by CEAB in October, 1987.

The positive accreditation results are particularly gratifying to the Faculty, in view of the negative accreditation publicity it received a decade ago. At that time, all programs received 3 year accreditations that subsequently were extended to five years on the basis of a report that the Faculty was required to submit to the CEAB. Nonetheless, concerns were expressed regarding the funding of the programs. Those concerns resulted in a public perception that the programs were of questionable quality.

Ironically, that perception remains despite the fact that the Faculty has improved substantially, due, in part, to a 1982 budget increase of twenty percent. Between 1981 and 1986, the value of research grants and contracts held by Engineering staff increased from $1.36 million to $4.25 million. Today,

(continued on page 2)

1987 Annual General Meeting to be Held at U. of M. Campus

by D. Ennis, P. Eng.

To commemorate the 80th Anniversary of the University of Manitoba Faculty of Engineering, the Association has decided to hold its 1987 Annual General Meeting on the University Campus. In a departure from the practice of recent years, the event will be held on Monday, October 19th, 1987.

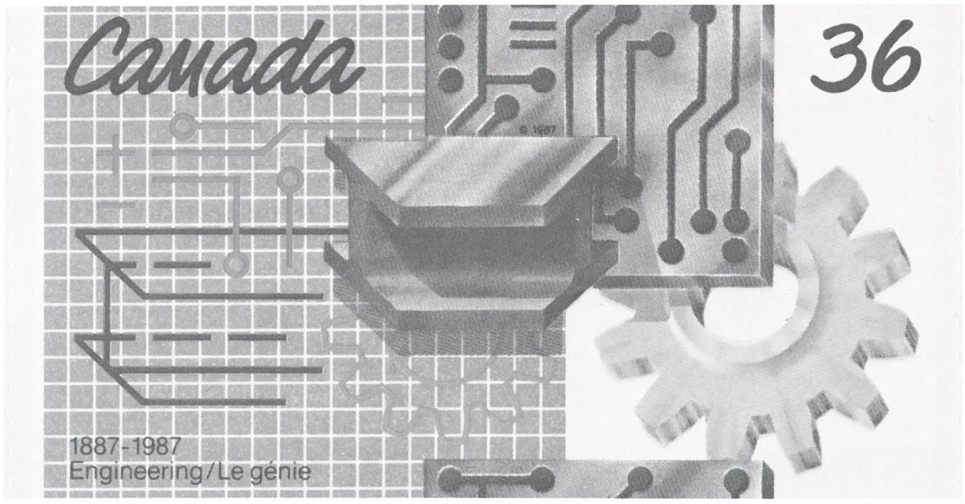
It will be a Monday meeting held in the Senate Chamber, Room 245 of Engineering Building, and will be followed by a feature presentation. The Annual Awards Luncheon will be held in the University Centre Building.

On Monday afternoon the Faculty will host an open house which will include guided tours of the Engineering facility. Association members will have the opportunity to observe today's students in action on a typical 'working day'. Engineering Senior Stick Irene Mikawoz and the University of Manitoba Engineering Society will host a mid-afternoon 'Meet the Profession' coffee break.

To top off the afternoon's activities there will be a ceremony in which the three wings of the Engineering complex will be named in honour of former Deans of the Faculty.

This opportunity to meet in the campus surroundings should be of interest to all and particularly to those who are graduates of the University of Manitoba.

Attendees at the Annual Meeting will receive Gold Engineering Centennial lapel pins and bumper stickers.



Canadian Postage Stamp pays Tribute to Engineering

Canada Post has recognized the 1987 Canadian Engineering Centennial by issuing a colorful stamp that symbolizes different disciplines of the profession.

Issued May 19, the 36 cent commemorative stamp features a steel beam which represents structural engineering, a gear wheel that symbolizes mechanical engineering and a microchip in recognition of electronic engineering. To illustrate the engineering process, the three elements are shown in a progression from drawing board sketches on a grid paper to finished product.

Continuity is further suggested in the unusual layout of the stamp. Two of the design elements, the background grid and microchip, overlap the stamp perforation to give the impression of a column of grids. Thus, the full microchip illustration is actually spread over two stamps. This design technique has never been used before on a Canadian stamp.

The stamp was created by graphic artists Les Holloway, Richard Kerr and Nita Wallace of the Toronto firm Design Source. The design called for strong coloration and was printed in lithography in eight colors -the most colors ever used for a single Canadian postage stamp.

A total of 15,000,000 stamps will be printed.

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(204) 942-6481

Notices

Engagement of Consultants Guide

The Association Guide for Engagement of Consulting Professional Engineering Services has been reviewed, updated, revised and printed.

Any member may contact the Association office to obtain a copy.

Our Apologies

Credit was regretfully omitted in our last issue for the 'Line Building in Polar Bear Country' Article. Our apologies to the Manitoba Hydro Publication 'Connections'.

Licences Issued in June/July '87

J.G. Agar (Alta.)
L.M. Benke (Alta.)
K.A. Bocking (Sask.)
A.J. Booker (B.C.)
D.B. Burnes (Alta.)
J.C. Burford (Alta.)
J.W. Butler (Ont.)
G.L. Colborne (Ont.)
R. Davidson (Ont.)
A. Demitt (Alta.)
P.B. Elliott (Alta.)
S.H. Gebler (Illinois)
R.J. Grafton (Alta.)
H.H.H. Ho (B.C.)
W.P. Hodkinson (Ont.)
F.K. Hucaluk (Ont.)
J.M. Hutton (Alta.)
S. Karandikar (Ont.)
R. Kaliandasani (Alta.)
W.H.W. Leung (Ont.)
S.G. MacDonald (Que.)
E.C. McRoberts (Alta.)
W.G. Miller (Ont.)
C.A. Poczyniak (Ont.)
J.B. Sawers (Alta.)
B. Singleton (Alta.)
D.R. Sutherland (Alta.)
D.W. Tam (Ont.)
C.H. Tate (California)
T.H. Woolhouse (Alta.)
C.A. Zawadzki (Ont.)

Resignations Effective June 30th, 1987

E.Y. Ahn
R.C. Aitken
K.E. Barron
B.R. Bird
J.L. Conquist
B.E. Crawley
R.D. Durante
P.A. Giese
A. Gravel
P.W. Hague
C.A. Hennigar
E. Kim
J.C. Milan
R.E. Petley
K.W. Pidhirniak
M.S.A. Sanad
Y.D. Sharma
T.C.H. Tsang

As of July 1st, 1987, the following are no longer entitled to practice professional engineering in the Province of Manitoba due to non-payment of fees:

F.M. Arnason
G.H. Baril
D.E. Berry
J.T. Berry
D.W. Bertram
C.E. Birston
G.E. Brockhouse
D.K. Butt
K.M. Cail
P.K. Cameron
Ryan A. Campbell
R.W. Carson
V. Chan
D.B.T. Davis
G.R. Gavaert
J.C. Huculak
C.D. Hughes
J. Hunter
D.F. Johnston
W.C. Kennedy
W.C. Kent
E.S. Kovacs
M. Krol
A.S. Lamothe
P.D. Lawson
S.H.K. Lee
W.A. McBean
A.W. McIsaac
M.Y. Marcus
J.L. Mitchell
K.E. Nelson
A.M.K. Ng
R.G. Nizalik
M.R. Orecklin
D.M. Phipps
P.A. Reimer
J.M. Robert
G.S. Samant
D.J. Sampson
W.A. Scott
R.T. Seepish
R.K. Shemie
D.J. Stark
L.G. Sigurdson
G.R. Stetski
J. Thayaril
R. Thom
W.G. Tipper
J.T. Winstone
J.A. Winterbourne
R.J. Wong

Congratulations to the following people who achieved 100% on the professional practice examination

R.N.H. Dickson
N.A. Kellington

With Deep Regret, the Association Records the Passing of:

S.V. BURR
J. TINKLER

U. of M. Accreditation

(continued from page 1)

for every dollar in the Faculty opera budget, engineering staff bring into Manitoba approximately sixty cents in research funding. Since 1981 the number of Ph.D. students in the Faculty has increased from 34 to 85, while the number of M.Sc. students has increased from 122 to 197.

University of Manitoba Engineering undergraduate students have been highly successful in international competitions such as the Expo 86 Innovative Vehicle Design Competition and the SAE Super Mileage Vehicle Competition. The University of Manitoba IEEE student section was the first one in Canada to establish a McNaughton Research centre.

The various engineering departments have also received international recognition. For example, the Mechanical Engineering Department was recently ranked amoung the top four in Canada, in an international survey of professional faculties. In 1984, the Electrical Engineering Department became the only one in Canada to be honored by the U.S.-based Eta Kappa Nu Honor Society, in its annual student award competition. Meanwhile, the Civil Engineering Department has received Canadian International Development Agency contracts for its educational projects in several developing countries.

In announcing the accreditation decisi to the Engineering Faculty Council, Dea Kuffel expressed appreciation to the Manitoba engineering community for its strong support of the Faculty in recent years.

New Members Registered in June/July '87

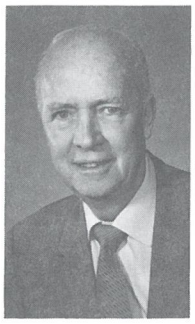
J. Abiuai
H.A. Bertsch
G.E.J. Bridges
K.W. Buechler
L.G.P. Chambers
L.R. Chandler
G.I.J. Chartier
R.C. Crang
W.J.S. Crawford
R.P.L. Daniels
R.N.H. Dickson
D.A. Donachuk
J.T. Dunn
J.R. Edwards
A.R. Forbes
D.M. Foreman
A.J. Flam
E.W.G. Guest
N.C. Halden
D.C. Hicks
E.B. Hyworon
W.H. Johnston
N.A. Kellington
M.S. Khan
M. Klassen
R.N. Kummen
T.C. Kosokowsky
A.D. Louas
P.R. Maycher
L.E. Midford
P.J.H. Mills
T.V. Murray
N.M. Myska
W.J. Muzyczka
B.S. Nazar
G.R. Norberg
R.J. O'Toole
J.A. Paley
W. Pries
G.K. Rosendahl
G.L. Shuster
G.L. Slagerman
G. Smyczynski
A.G. Stacey
C.D. Stewart
I.A. Taylor
J.R. Trites
M.M. Uloth
O. Wegner
D.J. Wittleton

Engineering Graduate Members Registered in June/July '87

L.P. Deane
L.E. Dunn
K.J. Hunter
B.R. Nelson
L.P. Pelletier
S.D. Schipper
D. Skinner
C.S. Sparham
I. Szelemej

President's Message

Ted Speers, P.Eng.



Celebrate the Centennial

The annual meeting of the Canadian Council of Professional Engineers, held in Montreal May 14th-15th, covered many discussion topics, including the usual committee reports on public affairs, Canadian Engineering Manpower Board, insurance programs, and greetings from the various associations across Canada. Past-President Ted Clark, Councillor; Bill Mackenzie, Registrar; and I, Observer, attended the Convention and participated in many of its activities. A highlight of the reports was given by our Councillor Garland Laliberte who spoke on the work of the Canadian Engineering Accreditation Board (CEAB). This committee evaluated forty-four programs at eight institutions during the 1987 cycle of accreditation visits. Garland received a presentation for the excellence of his chairmanship and report.

Following the CCPE meeting, the Centen-al Convention opened with a musical even-ng with the Montreal Symphony Orchestra. Each day of the following week featured theme talks and technical papers with twenty-seven sessions running simultaneously, for a total of about one hundred and sixty presentations. In addition to the papers, the Technical Exhibit in Old Montreal featured computer-controlled robotics, holography, and replicas of the ten outstanding Canadian Engineering projects being honoured in the Centennial celebrations.

During the two days I was at the Convention, I had the opportunity to view the Leonardo da Vinci exhibit, which continues into October of this year, at the Montreal Museum of Fine Arts. The display features engineering-architectural models and designs, including beautifully crafted wooden mechanical models from Italy, made after da Vinci drawings, and the original da Vinci manuscript and sketch books. We are endeavouring to get a video of this exhibit to show at our Annual General Meeting on October 19th.

Several members of the APEM Council enjoyed the hospitality of the Thompson Chapter, in celebrating the Engineering Centennial, May 28th. We toured an Inco mine to the two thousand foot level and then down several ladders to the twenty-four hundred foot level—quite an experience! In the evening, there was a meeting, followed by a reception and dinner, and then the local chapter of the Institute of Mining and Metallurgy held 'Oral Papers' where three excellent papers were given, subsequently judged and prizes issued. Altogether, a first-class celebration and we express our compliments and appreciation to President Robert Cotterill, and his very able committees.

On June 24th-25th, the Manitoba Museum of Man and Nature opened 'our' Centennial exhibit, 'Northern Transitions—Engineering and the Development of Northern Manitoba', which highlights and celebrates local engineering achievements. Past President, Bob Foster, raised funding for this exhibit of engineering excellence and did an excellent job as chairman of our first Centennial Committee.

At the gala donor opening of the exhibit, I had the pleasure of making a presentation, on behalf of the Museum and our Association, to Major John L. Charles. He was closely involved in the engineering of the Hudson Bay Railway (the mainspring to the development of mining, hydro power, and forestry in northern Manitoba), held the position of APEM President in 1953, and having joined in 1921, Major Charles is our oldest member (he will be ninety-five in December).

Finally, you have probably noticed the colourful red, black and gold signs on the standards along Portage Avenue and Main Street downtown. This display is the work of our Ad-hoc Centennial committee, co-chaired by Councillors Ostap Hawaleska and Kelly Kjarstanson. In addition, this committee and Kelly Hearson, Editor, arranged for the newspaper publication of the Proclamations from Premier Howard Pawley and from Mayor Bill Norrie for Provincial and Civic Engineering Weeks.

As engineers, we have every reason to be pleased with the many ways our committees and associations have undertaken to celebrate all across this great country in this, our Centennial Year.

Thompson Chapter Hosts Council Guests

by Alex Murchie, P. Eng.

A special meeting of The Thompson Chapter was held on May 28th at The Burntwood Hotel with approximately 40 members and guests in attendance. The event was of particular interest to the members, as a number of out-of-town guests were present. The Winnipeg guests included; Ted Speers, Association President; Bill Mackenzie, Association General Manager; and three Councillors; Garland Laliberte, Ken Buhr and Ostap Hawaleshka. Flin Flon area was represented by Bunny Barlin.

The meeting was opened after dinner by Robert Cotterill, Chapter President, who greeted the guests and members and expressed pleasure that such interest could be generated during 'Official Engineering Week' in Thompson. Robert also acknowledged the kind generosity of Inco Ltd. for fully underwriting the cost of the -al and the bar, and the efforts of the -hapter executive committee for organizing the works, which brought applause.

Robert gave a short review of chapter activities and then called on Ted Speers to say a few words. Ted brought greetings from the executive and urged engineers in the area to recount their history during the year of the Centennial of Engineering in Canada.

Ted alluded to some of the landmarks of this history, and spoke of the ten most exceptional feats of Canadian Engineering's first century. Ted felt that it was time for Canada to take stock of achievements by its engineering community and that it behooves engineers in this province to dedicate efforts in 1987 to chronicling our successes. Towards that objective, the Association is participating with The Museum of Man and Nature in a project depicting construction of our early railways and the development of the Hudson Bay Railway which will be displayed this fall at the museum.

Referring to the regular affairs of Council, Ted advised that proceedings are running smoothly, that a draft of the suggested ethical uses of the seal has been issued, and that professional development breakfast meetings are a hit. Ted noted that David Ennis has been hired on as Act Administrator for the Association. In closing Ted wished the chapter well in its activities.

Garland Laliberte, Bill Mackenzie and Ken Buhr were also given an opportunity to speak. Garland, a councillor, professor and past chairman of the Canadian Engineer Accreditation Board expounded on his favorite topic, accreditation. He noted that variations from province to province had necessitated a national perspective that was now being implemented. The provinces were still left the right to accept or reject the board's recommendations.

Bill Mackenzie advised that he was not new to the north, simply reconstituted. He deemed that some comments on the use of the seal were timely and expanded on this.

Ken Buhr spoke on the need for more representation from areas such as Thompson. Ken advocated more sub and ad hoc committee involvement from the outlying areas, outlying to Winnipeg that is, and that financial support be allocated for ensuring willing and incumbent participation in association matters.

A question period followed where inquiries were made concerning the method of sealing CAD drawings, sealing computerized pre-engineered designs and authorizing work handled entirely be non-professionals.

In total much good was said for the cause of engineering. Chapter members were left to surmise optimistically that engineering today is not a bed of thorns but rather a garden of roses. The meeting was closed in that scents.

Our Very Own Museum Party

by V.L. Dutton, P. Eng.

Centennial Committee Chairmen Bob Foster, Kelly Kjartanson, Ostap Hawaleshka, ad President Ted Speers under our centennial banner in front of the Museum of Man and Nature.

The Honourable John S. Plohman, Minister of Highways and Transportation, delivering opening speech at the Museum's Donors Reception, June 24, 1987.

Yes, it was a great evening - the launching of Northern Transitions - and, for those who were not there for the ribbon-cutting, a visit to 'our gallery' will be an interesting experience.

It was entirely in keeping with the theme of our Centennial project - Northern Transitions - that Mr. Elijah Harper should have been asked to open the exhibit. Coming from the Red Sucker Lake Band, and being MLA for Rupertsland, gives him a feeling for the work of the engineer in the north in a way that few southerners can appreciate. This engineer appreciated Mr. Harper's thoughtful words of appreciation for our profession and the work they have done in northern Manitoba. His recollections of the first aircraft landing at their lake brought back some memories of my own - of how the 'entire' town of Birtle would be out in their yards, craning their heads skyward, when an aeroplane would be heard in the stillness of a summer's day.

For a 'ribbon', Mr. Harper was asked to cut a cloth surveyor's tape which had been stretched across the doors to the gallery. I do not know who's idea that was, but I consider it to be entirely out of keeping with one of the basic concepts of engineering, which is to avoid unnecessary waste.

The exhibit showing the erecting of the Kettle Rapids bridge brought back waves of memories of Bailey bridges in the winter setting of Petawawa. However, it was the display of the winter camp of the survey[illegible] believe, that intrigued this old Scouter. [illegible], the Museum's artist who developed this model even remembered the 'little piles'associated with the tethered dog. However, the lashing shown on the toboggan is incorrect.

It's rather a pity that it was not possible to mention, amoungst the displays, the role played by prefabrication of buildings in the North. Manitoba's, and perhaps Canada's oldest per-fab is St. Paul's Anglican church at Churchill. It was designed, and the components built, in England, after which it was shipped out to 'the Bay' and erected in the old town of Churchill. Half a century later, with the move of the town to its present site, the church was disassembled, moved across the river, and re-erected on its present site where it has served for another half-century. Perhaps the Museum will devote other space to this aspect of northern development, and will include something about the role played by the 'winter roads' and the tractor-trains in the thirties and forties.

People? Yes, the affair was well attended, although there was room for many more. I will mention only two venerable ones, Ben Striowski and Professor Leith, both of whom have been long associated with engineering in this province. At the other end of the ti[illegible] scale was Ms. Irene Mikawoz, senior stic[illegible] Engineering for the coming year. With my own daughter-in-law almost through her Chemical Engineering, it is satisfying to see these bright young women coming into our profession.

A century of development and a credit to our profession! While you are visiting 'our gallery', you might ponder what the exhibit, for our bi-centennial, will contain. It should be equally fascinating.

SOCIETIES: The Institute of Electrical & Electronics Engineers

by L.M. Glantz, P. Eng.

The Institute of Electrical and Electronics Engineers is one of the world's largest professional organizations, with an international membership of 282,708 at the end of 1986. Canada contributed 14,713 of this total.

The IEEE, which celebrated its centennial in 1984, includes amoung its key objectives the promotion and encouragement of professional growth and recognition in all branches of electrical and electronics engineering and related disciplines. As elements in the generation and dissemination of knowledge, the institute includes within its structure 33 societies which cut across major technical, scientific, management and social interest areas. Furthermore, it publishes some seven dozen journals, as well as sponsoring general and special interest conferences, satellite video seminars, and other activities of value to the engineering community.

The Winnipeg section encompasses all of Manitoba and Northwestern Ontario. Full Section programs are currently being complemented by those of four society chapters; Communications Society, Computer Society, Engineering in Medicine and Biology Society, and Power Engineering Society.

It is a matter of pride to record that the Power Engineering Society Chapter of the Winnipeg Section won the Outstanding Chapter (in the world!) Award last year.

By way of a number of brief examples, some of the presentations in the past organizational year have included the recent MICONEX '87 meeting, co-sponsored by the IEEE; and sessions on new broadcasting technology, VLSI design and application, data security and cryptography, connection machines, transputers, computer graphics, computer music, artificial intelligence, HVDC systems in North America and China, EHV transmission lines, static VAR compensators, wind power sources, electromyographic control of prostheses, and medical imaging. Others are still to come.

A chapter of the Engineering Management Society is currently being formed, and other society chapters are in prospect. Program coverage will be expanded thereby.

Student chapters are now active at the University of Manitoba, Red River Community College and Lakehead University, with facilities to enhance the members' opportunities for learning and experimentation. Discussions are in progress for establishment of cooperative programs among them.

Further, to encourage student accomplishment, the Winnipeg section sponsors a group of awards at the respective institutions for outstanding student achievement.

Membership in the IEEE is open[illegible] various grades, to those active in or otherwise connected with its interest areas. In addition, affiliate memberships are available in the several societies for members of recognized scientific and engineering organizations with related objectives. Inquiries are welcome.

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

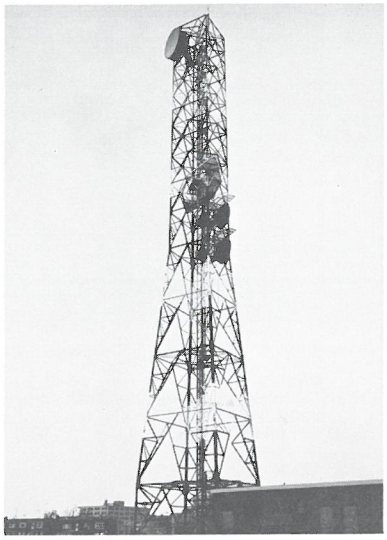
This issue, we feature the following two engineering feats in our continuing series.

THE CREATION OF THE WORLD'S LARGEST MICROWAVE TRANSMISSION NETWORK

Since July 1, 1958, this network of microwave transmission has been the backbone of our system of telecommunications from one ocean to another. At the request of the Canadian Broadcasting Corporation, the seven members of the Trans-Canada Telephone System carried out the construction of this transmission link.

In three years, some 139 towers ranging in height between 9.14 m to 106.68 m were erected on a 6,276.27 km track stretching between Sydney, N.S. and Victoria, B.C. Some 48.27 km apart, these steel sentinels were designed to assure the telecasting of distortion-free images. Adjacent lines, and another which links Newfoundland to the network, were erected later.

The construction of these special relay stations posed some thorny problems, especially those of resistance to climatic and atmospheric conditions. Site marking, construction of access routes—even by telepheric roadway—the erection of temporary aluminum towers to verify reception, and finally the erection of permanent towers in galvanized steel taxed existing engineering know-how to the limit. Costs were in the $50 million range and Canadian expertise in this area gained an international reputation. An example of this was the participation of Bell Canada International in the establishment of the PANAFTEL network linking five African countries (Benin, Niger, Upper Volta, Mali and Senegal).

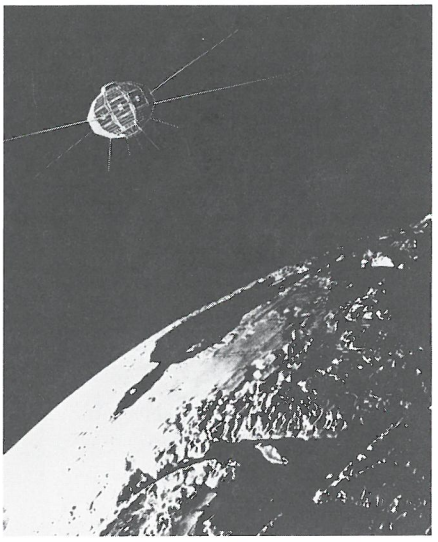


Typical Microwave Tower in Network Link

THE ALOUETTE SATELLITE

Canada now has its own system of satellite telecommunications.

In 1959, after the signing of a co-development agreement with the United States, NASA undertook to launch a satellite designed, built, and assembled in Canada. On September 29, 1962, Alouette 1 was launched and was set to orbit the planet for a year. It stayed up for 10 years. Studies on the effects of solar activity on the ionsphere and telecommunications led to new ideas and changes in design, construction and use of spacecraft and their subsystems. The primary function of the Alouette was to 'sweep' the ionsphere of radio waves at varied frequencies in the hope of establishing a kind of radar map. It also had to measure the reflection of these waves by using 'blankets' of charged particles.



The Alouette I Satellite in Orbit over Mother Earth

The apparatus comprised two special antennas measuring about 46 m and 23 m respectrively, the longest ever installed on a space vehicle. The satellite also had to measure cosmic noise, listening to low-frequency radiophonic noise to count the number of charged particles surrounding them. The extension of this research led to the signing of new agreements and the launch of a series of international satellites: the ISIS program was aimed at other kinds of measurement of the ionsphere. The sophistication of the material used clearly showed the competence of the Canadian space industry and is a true indicator of its future.

The Fourth Decade of A.P.E.M.: 1950-1959 The Baby Boom Era

by D.N. Spangelo, P. Eng.

This article is the fourth in a series of historical notes taken from Council Meeting Minutes. It covers the Baby Boom Era, 1950 - 1959

The Baby Boom Years 1950 - 1959

At the 1950 Annual Meeting a motion was passed for the APEM to enter into an agreement with the E.I.C. and a By-law was passed which changed voting procedures. At Council meetings, two-thirds majority was changed to simple majority with two-thirds majority required for letter ballots.

Consideration was given to setting up an Architect-Engineers Committee. In the same year it was decided to publish a newsletter the beginning of the present day 'Professional Engineer'.

In 1951 a letter ballot on an agreement with the E.I.C. came back quite favourably, 225 to 20. It was reported that the Province of Alberta considered taking over licensing from professional associations. The annual fee remained at $5.00 which had remained unchanged from the 1920's. A change in the Income Tax Act made annual fees deductible for salaried engineers.

Council was asked in 1953 to consider making the annual meeting reception at least partially self-supporting.

In 1954, 46 members signed a petition requesting the publication of a schedule of minimum salaries.

A questionaire was sent out in 1955 to recruit members to serve on committees. A total of 96 replied. Council also considered opening an office and hiring an assistant to the secretary. A proposal to increase annual fees from $5.00 to $12.00 was voted in by letter ballot, 243 to 32. As well, this was the first year North American Life offered group insurance.

In 1956 an association office was opened at The Avenue Building. Mrs. M. L. Dunklee was hired as an assistant secretary, and G. T. Christie, P.Eng. was named editor of the proposed publication.

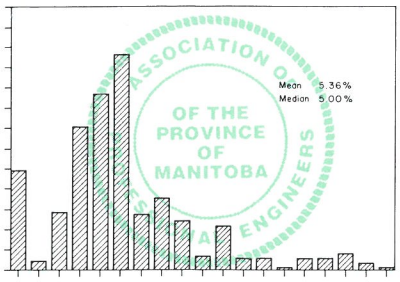
Council passed a motion in 1957 approving in principle that committee membership change about 20% annually. A number of Council members visited Flin Flon partially at their own expense. A By-law amendment increased Council membership from 7 to 9 members.

In 1958 P. Burke-Gaffney, P.Eng. was presented an honourary APEM Life Membership. Council planned visits to Brandon, Shilo and Virden. A staff pension plan was started that same year.

Mrs. M. L. Dunklee was appointed Executive Secretary in 1959. The association advised the Canadian Council of Professional Engineers that the APEM Board of Examiners agreed that the syllabus of examinations for the institution of mechanical engineers was not as comprehensive as that for APEM Membership. The 1959 CCPE Annual Meeting was held in Winnipeg with a total cost to the APEM of only $1,027.11.

The next issue will cover The Rock and Rolling 1960's. □

Association of Professional Engineers of



This document, prepared by the Salary Research Committee, summarizes the results of the 1987 APEM membership salary survey as well as a similar survey of engineering employers.

This year 3100 questionnaires were mailed to the APEM members and 454 were received for a 14.7% response. Of these 24% came from the manufacturing sector, 43% came from the non-manufacturing sector and the remaining 33% came from the government and teaching positions. Salaries shown in the tables represent actual base salaries as of April 1987 paid to full time employees and self-employed individuals. Figures do not include bonuses, overtime, possible future increments or income from sources not associated with engineering.

This year's survey again asked whether the APEM salary survey was needed and used. A large majority of respondents, 89% said that the survey was needed. A majority of 64% said that it was not used, while 5% said that it was, and 31% said they didn't know whether it was used or not.

The Employees' Survey is classified by year of graduation, discipline, field of employment and principle function in Tables 1, 2, 3, and 4 respectively. This data is presented raw and no adjustments have been made to reflect the times since the last salary increase. While the data will be of interest to both engineers and employers, caution should be used in drawing conclusions from some of the categories in Tables 2, 3, and 4 where the number of responses is small. Also there are no assurances that responses in each category or group are made up from comparable levels of job responsibility. For example, a high salary in a category relative to others may simply represent responses from a segment of more senior engineers holding jobs of more responsibility.

In contrast to the last salary survey done in 1985, where a significant number of salary increases had occurred more than one year

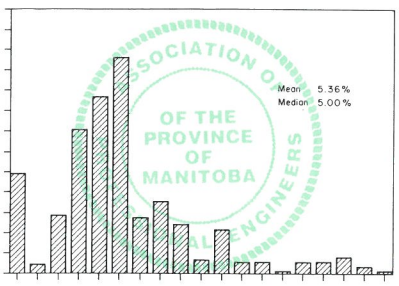


Table 1: Year of Graduation ($/month)

Year	Count	Low Mean	Low Decile	Low Quartile	Median	High Quartile	High Decile
49	5	4655	—	3300	4000	5500	—
50	8	4785	—	4375	5250	5770	—
51	2	4150	—	—	4150	—	—
52	2	5417	—	—	5417	—	—
53	9	5786	—	4406	5200	6200	—
54	4	5234	—	4769	5382	5700	—
55	8	4459	—	3793	4615	5050	—
56	5	5511	—	4058	5600	6250	—
57	7	5687	—	4200	5360	6600	—
58	7	4965	—	3700	4500	5930	—
59	11	5120	3750	4500	5000	5475	6760
60	8	5821	—	5080	5760	6678	—
62	8	5323	—	5060	5325	5557	—
62	8	5191	—	4848	5050	5475	—
63	12	5201	3250	4083	4687	5366	10000
64	16	5095	2583	4328	5050	5540	6300
65	10	4773	3318	4500	4736	4900	6640
66	20	4913	3630	4457	4775	5400	6200
67	5	4639	—	3939	4100	4357	—
68	14	4432	3333	3900	4444	5030	5595
69	16	4257	3500	3907	4237	4595	5140
70	18	4471	3600	3800	4247	4831	5250
71	22	4123	2880	3680	4144	4800	5933
72	15	3983	2830	3650	4000	4400	4915
73	22	3973	3167	3605	3925	4300	5000
74	15	4209	3229	3651	4300	4708	5400
75	12	3911	3000	3594	4070	4248	4750
76	10	3676	2815	3660	3829	3924	4000
77	10	3928	2773	3208	3736	4230	6417
78	19	3704	2917	3300	3570	4165	4700
79	24	3203	2167	2895	3295	3692	4000
80	19	3295	2600	3030	3186	3650	4031
81	20	2984	2292	2683	3100	3331	3540
82	18	2811	2080	2560	2922	3150	3300
83	14	2814	2083	2666	2815	3100	3417
84	10	2671	2000	2250	2587	3093	3300
85	1	2294	—	—	2294	—	—

Table 4: Principal Function ($/Month)

Principal Function	Count	Low Mean	Low Decile	Low Quartile	Median	High Quartile	High Decile
Management	160	4894	3370	4000	4725	5481	6350
Admin. Services	6	3679	—	3000	3682	4296	—
Public Relations	0	—	—	—	—	—	—
Computer Services	3	4100	—	—	4350	—	—
Consulting	44	3985	2250	2775	3800	4416	6600
Planning	21	4256	3065	3663	4295	4900	5230
Marketing Sales	17	3164	2300	2890	3061	3700	4000
Production Eng.	15	3496	2540	3168	3500	3985	4227
Construction	17	3845	2292	2815	3500	4400	5661
Quality Assurance	7	3777	—	3175	3680	3058	—
Field Exploration	2	3495	—	—	3495	—	—
Instrumentation	0	—	—	—	—	—	—
Maintenance Eng.	14	3829	2167	3500	3819	4499	4928
Design Eng.	81	3714	2574	3100	3750	4300	5000
Development Eng.	7	3366	—	2900	3540	4330	—
Research Eng.	8	3721	—	2725	3548	4654	—
Surveying	0	—	—	—	—	—	—
Teaching Univ.	9	4649	—	4768	5000	5480	—
Teaching Other	7	3147	—	3099	3350	3400	—
Other Eng.	15	3692	2722	3222	3900	4000	4516

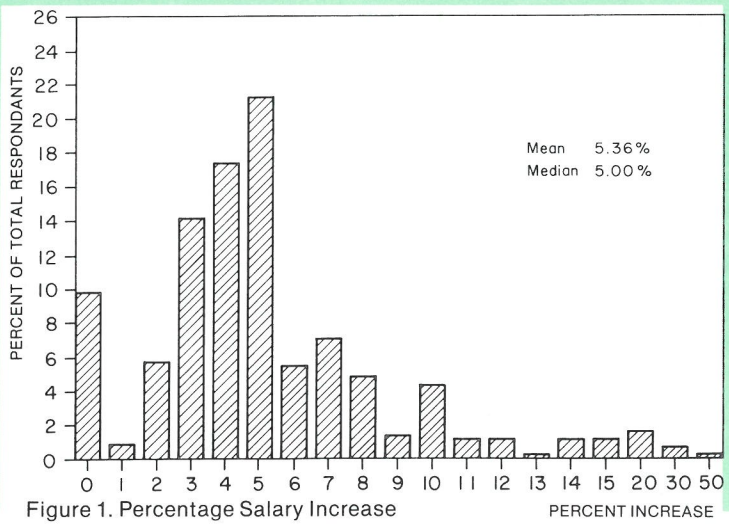


Figure 1. Percentage Salary Increase

Manitoba 1987 Salary Survey

Table 2: Discipline ($/Month)

Discipline	Count	Mean	Low Decile	Low Quartile	Median	High Quartile	High Decile
Agricultural	23	3183	2083	2550	2917	3900	4768
Civil	150	4121	2773	3330	4082	4700	5500
Chemical	17	4212	3000	3516	4100	5030	5900
Electrical	118	4362	3000	3650	4261	5050	5625
Geological	7	4402	—	3990	4000	5480	—
Industrial	3	4800	—	—	3300	—	—
Mechanical	89	4127	2750	3168	3750	4750	6200
Mining	13	5092	2990	3726	5040	6000	8000
Other	16	4296	2994	3230	3822	4890	5333

Table 3: Field of Employment ($/Month)

Field Of Employment	Count	Mean	Low Decile	Low Quartile	Median	High Quartile	High Decile
Manufacturing							
Aerospace	12	4135	2600	3090	4125	4617	7660
Chemical	6	5021	—	4680	4875	5600	—
Electronics	14	3840	2574	3168	3610	4750	5933
Mech. Equipment	22	3343	2167	2500	3180	4000	5000
Pulp and Paper	3	3833	—	—	3605	—	—
Heavy Equipment	7	3975	—	3333	3750	5208	—
Metals	17	3850	2480	3125	3660	4267	6600
Petroleum	3	5550	—	—	5900	—	—
Other	18	3257	2294	2773	3233	3704	4500
Non-Manufacturing							
Construction	16	4667	2500	3165	4100	6066	8000
Consulting Eng.	60	3919	2420	2840	3800	4725	5871
Consulting, Other	4	4987	—	3000	4375	6975	—
Elec. Utilities	36	4846	3650	4284	4962	5450	5650
Utilities, Other	13	4729	2890	4374	4625	4928	7000
Communications	7	3884	—	3600	3700	4000	—
Transportation	12	4313	2890	3665	4428	4834	6200
Petroleum	2	8208	—	—	8208	—	—
Data Processing	1	3100	—	—	3100	—	—
Mining	23	4476	3000	3500	4100	5120	6670
Other	13	4253	2900	3100	3900	4200	10000
Government							
Federal	31	4003	3117	3516	4140	4375	5100
Municipal	24	4768	3200	4052	4937	5347	6757
Provincial	69	4017	2945	3651	4000	4530	5000
Educ. & Others	23	4346	2000	3380	4400	5360	6200

Table 5: Pay Research Bureau
(Mean Salary/Year as of August 15, 1986)

Region	Eng 1 175 pts	Eng 2 252 pts	Eng 3 342 pts	Eng 4 423 pts	Eng 5 523 pts
Atlantic Provinces	28329	38329	42115	48568	55166
Quebec	28026	33814	40722	50344	58764
Ontario	28908	35905	42826	52159	61450
Prairies	30353	35715	43443	53217	64046
British Columbia	29213	35433	44655	51017	59066

Notes:
1 The points shown above are the equivalent APEM salary points for the various job descriptions described by the Pay Research Bureau.
2 The data is based on 21627 salaries from across Canada.

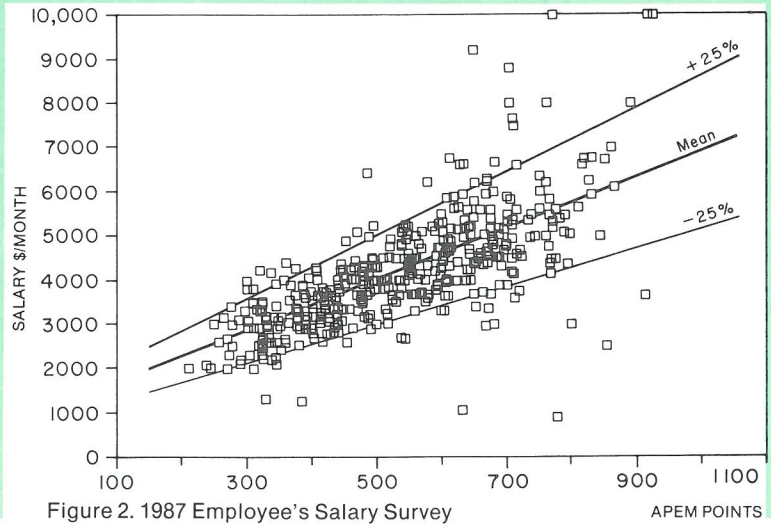
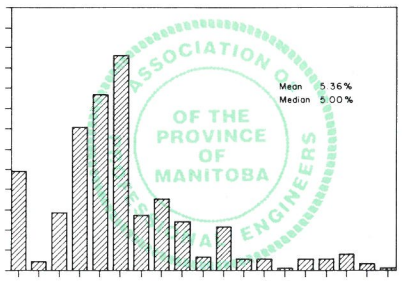


Figure 2. 1987 Employee's Salary Survey



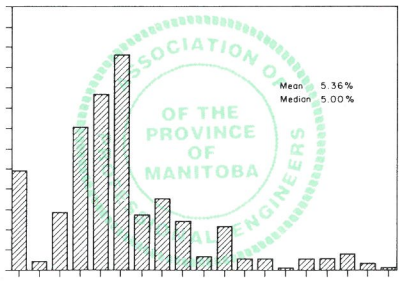
prior to the survey, most engineers in this survey received a salary increase within the last 12 months. These adjustments in pay have generally occurred either at calendar or fiscal year end. The percentage increases are shown in Figure 1. The mean salary increase was 5.36% and the increase median was 5.00%. In contrast, the Consumer Price Index rose 4.2% during calendar year 1986 and the average salary increase for all engineers across Canada was 3.7% (Pay Research Bureau).

Figure 2 shows the 1987 Employees' Salary Survey results as well as the mean curve. Again, this is raw data. Figure 3 shows the average of the same data. The 1985 Employees' and the 1986 Employers' Surveys averages are shown for comparison.

The results of a survey of fourteen major employers as well as consultants are shown in Figure 4. The data plotted represents the average April 1, 1987 salaries, without any adjustment. The employers' curve does not include the salary range for engineers with higher than 700 APEM points due to incomplete data above that point. For comparison, the mean salaries from the 1985 Employees' Survey, and the 1987 Employers' Survey are plotted in Figure 5.

Also, for comparison, the salaries for engineers across Canada, given in Table 5, is provided with the permission of the Pay Research Bureau. It should be noted, however, that this data is as of August 15, 1986, and not the April 1, 1987 date for the Manitoba surveys.

Acknowledgements: The committee chairman acknowledges the efforts of the various firms who submitted data for the Employers' Salary Survey are the efforts of the committee members. **Contributing members are:** B.F. Klaponski, C.E. Ireland, C.E. Chapman, E.G. Parker, C.E. Anderson, B.G. Bettess, W. McGilvery, J.M. Symonds (Vice Chairman), S.H. Rizkalla (Chairman), W.B. Mackenzie (General Manager & Registrar), D.A. Ennis (Act Administration Officer).



A.P.E.M. 1987 Salary Survey

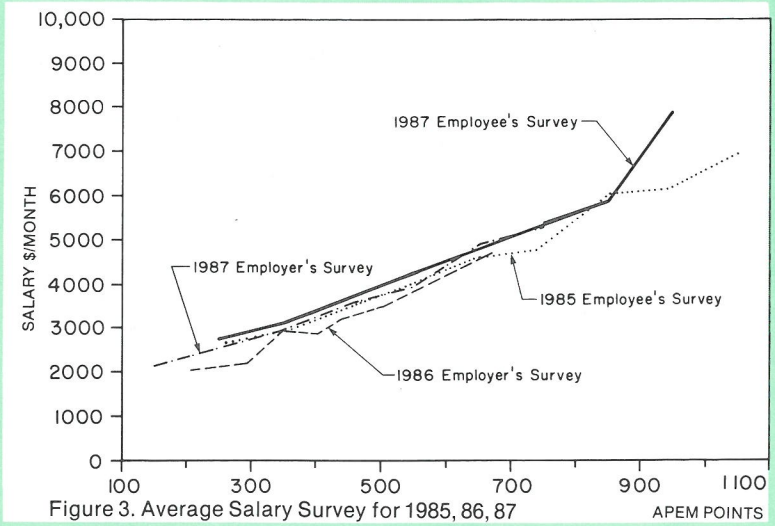


Figure 3. Average Salary Survey for 1985, 86, 87

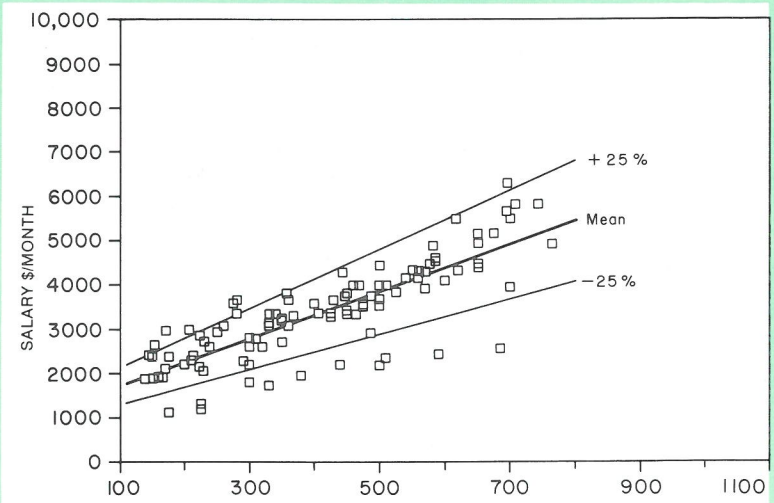


Figure 4. 1987 Employer's Salary Survey

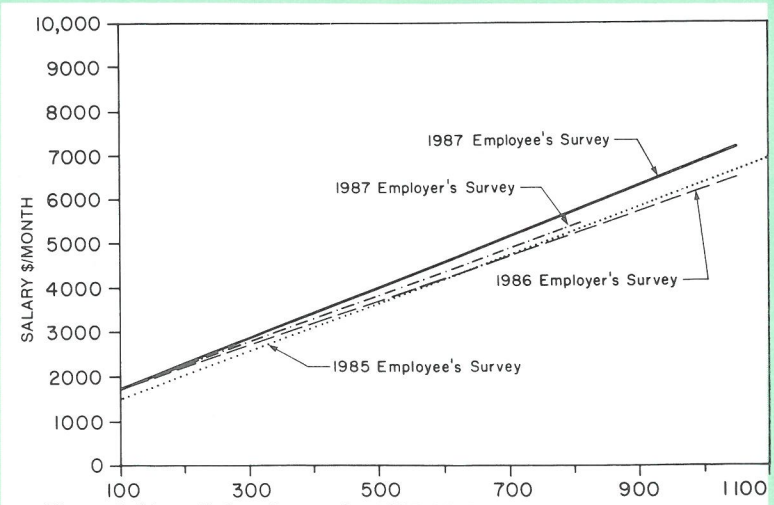


Figure 5. Mean Salary Survey for 1985, 86, 87

Brain Drain Continues

by Technical Service Council

Over 2700 accountants, engineers, scienti and other professionals emigrated to the United States in 1986, according to the Technical Service Council. Among the emigrants were 488 engineers. This number was equivalent to about 6.8% of the number of 1986 bachelor of engineering graduates. However many of the people emigrating were experienced rather than new graduates.

The number of Canadians emigrating to the United States increased steadily from 1982 to 1985, even while the Canadian economy improved. Fewer Canadians emigrated in 1986, a decrease more than compensated for by the over 2000 others who were approved in the recent U.S. Government lottery.

The Statistics do not include Canadians who have been transferred by their employers to an American parent company.

Most American companies advertising for personnel are seeking people who are already in short supply in Canada. Although many professionals are unemployed here, emloyers report trouble recruiting people with specialized experience particularly in electronics engineering and computer science.

'For American employers, Canada is as convenient as a water tap,' according to Neil A. Macdougall, President of the Technical Service Council. 'We have capable peo any time they need them usually the sa people who are in high demand in Canada.

'During the last five years Canada lost 17,932 professional and technical workers to the United States. This figure includes 2,097 engineers.

The Technical Service Council has been monitoring the 'brain—drain' since 1927, when it was set up to encourage Canadians to stay in Canada. At that time, 20% to 30% of the university graduating classes in engineering were trekking to the United States. As a practical means of keeping such people in Canada, the Council operates a coast-to-coast placement service.

Interviewers for the Council have identified 13 common reasons for Canadian professionals to go to the United States. These include: 'the greener fields' syndrome, to work in a specialty which is not available in Canada, to have a greater choice of jobs in their industry, to work for internationally famous researchers (applies mainly to people with advanced degrees), for the sake of a change, to get out of a rut, to avoid a layoff in the Canadian subsidiary of a U.S. firm, money, climate, to obtain post-graduate training.

Sharply reduced U.S. income tax rates will become another powerful incentive. Effective July 1, U.S. marginal tax rates for dividuals will be slashed to 33%. Canada could face a dramatic increase in the 'brain-drain' if Canadian rates are not reduced soon. The Economic Council has already called for a reduction of the top federal marginal tax rate for individuals from 34% to 30%. □

A Computer Integrated Manufacturing Laboratory for Low Cost Automated Production

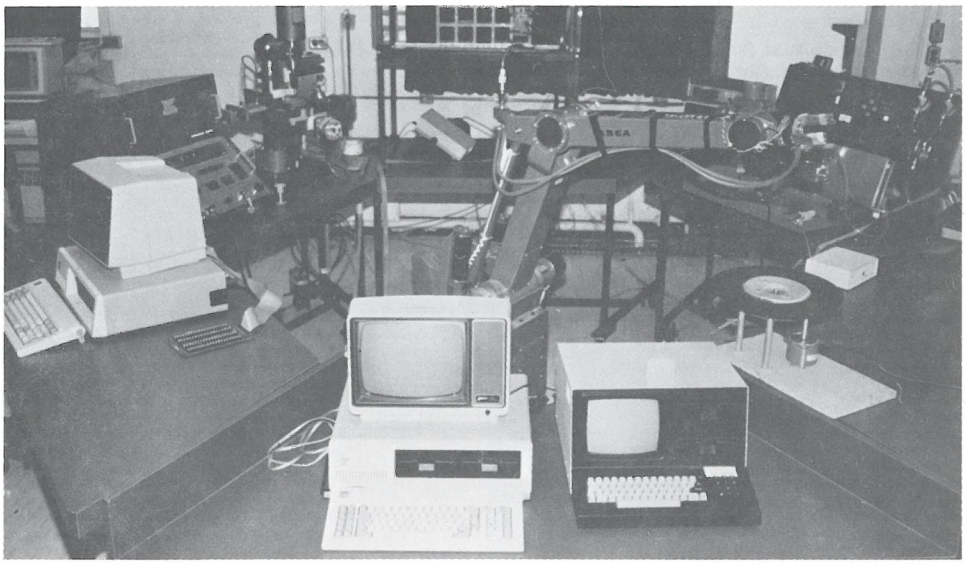
by S. Balakrishnan, P. Eng.

The Industrial Engineering Program in the Mechanical Engineering Department at the University of Manitoba is oriented towards assisting medium-to-small industries in the introduction of advanced, appropriate and affordable technologies into their production systems. The emphasis is on the development of engineering manpower, knowledge and skill in micro-computer applications to all aspects of modern automated and integrated production. Recognizing the fact that the University students will have to be exposed to advancing technology in order to answer the needs of industries, efforts have been directed toward the establishment of a Computer-Integrated-Manufacturing. (CIM) laboratory. A functioning CIM laboratory has been developed using small scale computer controlled machines.

The University of Manitoba Computer Integrated Manufacturing (UMCIM) cell shown in the photograph has the following hardware components. A five-degree industrial robot (ASEA LRb6) located at the center of the hexagonal cell controls the movement of material and unfinished parts within the cell. It is used in both machine tending as well as assembly operations. There are two CNC machines, a mill and a lathe for all metal removal operations. The two machines are also integrated to the central processor. An IBM-PC acts as the central controller. There is a Computer-Aided-Design (CAD) processor (Bridgeport Easycam) for creating numerical control part programs. The Easycam interfaces with the mill using the IBM-PC as a link. In addition to the robot the cell has a five degree-of-freedom teach-mover robot working on a gantry configuration. The teach-mover retrieves material from a rack to introduce the concept of Automated Storage and Retrieval Systems (AS/RS).

Modular software for the AS/RS introduces the users to an inventory-based material handling system. The cell contains an assembly segment with several components of automated equipment. Both the mill and lathe are totally automated for unattended machining. Work is underway for interfacing a vision system as well as a bar code reader within the cell. At the present time the cell runs under the control of two IBM-PC's and an Easycam CAD processor. However, a multi-tasking operating system is being developed for total integration of the cell under one controller.

The software structure for UMCIM has several layers under a massive control program. All were developed in-house. The first level of software pertains to the generation of tool path and geometry for CNC operations. Although the CAD processor generates CNC codes using 'APT' programming, postprocessors had to be developed for producing compatible codes for the CNC machines in the cell.



ASEA 5-AXIS Computer Controlled Robot Arm

The second level of software deals with transferring part programs to appropriate machines within the cell. This is done using a control program. The software is modular and it allows downloading of programs from the control processor to any one of the machines within the cell.

The next level of software pertains to control programs for material handling within the cell.

To illustrate the concept of automated warehouse operations, control software with the following capability has been developed:

1) present inventory of parts within the material rack,
2) display product information for a single part,
3) retrieve material from any of the aisles within the rack by using the smaller gantry robot,
4) restock the part and update the inventory for a real time inventory control.

The fourth level of software was developed after realizing that CIM of the future will also involve total unattended machining. All of the key functions available on the CNC machines were controlled remotely from the IBM-PC using specialized input/output control boards. Extensive control software enables automatic downloading of programs from a remote central computer without manual intervention. The control software then monitors various functions of the machines and automatically prepares the machines for part loading as well as part rejection. The various devices retrofitted to the mill and lathe are controlled using this level of software. The motion of the full-size robot is also controlled at this level.

The Mechanical Engineering Department welcomes visitors to the laboratory. Tours and demonstrations can be arranged by contacting Dr. T.R. Hsu, P. Eng., Head, Department of Mechanical Engineering, University of Manitoba, Winnipeg, R3T 2N2, Telephone 474-9803.

Hood Honoured with University Medal

Two Winnipeg residents are receiving the University of Manitoba's Distinguished Service Award at Convocation this year. One of them, Russell Hood, is a member of our Association.

Distinguished service awards are presented to individuals who are not members of the university staff, but who in the judgement of the Board of Governors, have made outstanding contributions to Manitoba generally, but especially in areas of major interest to the university.

Russell Hood, who has served his profession with distinction, has worked closely with the faculty of engineering as Chair of its industry liaison committee.

He was instrumental in persuading the Manitoba government to provide a special three year grant to allow the faculty to strengthen its existing undergraduate program and to implement new programs in computer and industrial engineering. He has consistently provided advice to the faculty on its interface with local and national industries.

Mr. Hood has been active in the profession, having served as president of the Engineering Institute of Canada, the Canadian Council of Professional Engineers and our association.

From One to One Hundred

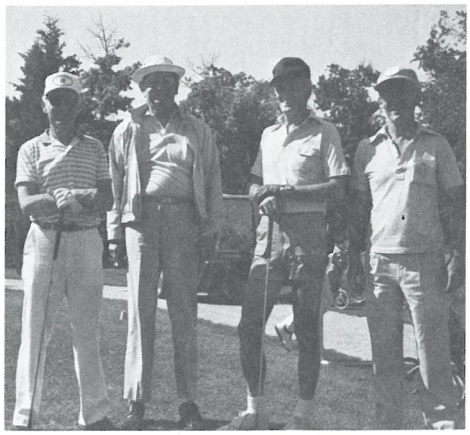
by D.A. Ennis, P. Eng.

It was a record setting day at the Bel Acres Golf & Country Club on June 15th, 1987, the day of the annual APEM Golf Tournament.

Not only did the temperature set an all time record for that day, but a hole-in-one was recorded for the first time in the history of the tournament.

Not to be outdone by a hole-in-one, five engineers, in the spirit of the centenary of the profession, recorded scores of 100. Since there was only one prize available to honour the achievement, it was awarded to Ray Bodnaruk on the basis of a countback.

Ted Speers presenting the Landon Cup for Low Gross to Harold Wilson



Funny Fore-Some (Left to Right) Glen Morris, Bill Beley, Len Domaschuk and Art Sparling

Other notable achievements were the capturing of the Landon Cup for the low gross by Harold Wilson with an 83 and the Sullivan Cup for low net by Bob Harris with a 66.

The runners up for low gross were Carl Wiebe - 83, Jim Terris - 84, Sean Kavanaugh - 86, Bob Upton - 88 and Bruce Birdsell - 89. The low net runners-up were Lees Strath - 68, Bob Zimmerman - 70, Jerry Knoll 71 and George Hrabowych and Wilf Gatin both at 72.

Sean Kavanaugh recorded the longest drive, but since he had collected once already the prize was awarded to Ron Payne. Closest to the hole honours went to Brock Sanderson and the most honest golfer award went to Bill Beley

The extremely low humidity on the co[urse] was not evident in the club house afterw[ards] and the Bell Acres staff served a very enjoyable meal.

The Sports Committee under the Chairmanship of Bill Saunders are to be commended for the organization of the event. On a historical note, this was the first time in the history of the Association that the committee used a computer to do the handicapping.

Ted Speers presenting the Sullivan Cup for [Low] Net to Bob Harris

Council Reports

MAY 11, 1987 *by P.R. Gordon, P. Eng.*

Where Council approves plans for expanding Professional Development Activities

President Ted Speers, P. Eng., called the meeting to order at 3:35 p.m. and proceeded through the first eight items on the agenda at a brisk pace. The agenda and minutes of the previous meeting were quickly approved. The financial statements of the Association, which show a very healthy situation, were adopted. Licences, engineering graduates, transfers and registrations were approved with one licence withheld to get elaboration regarding the use of the seal.

Centennial Celebration: Councillor Kelly Kjartanson described the work of the Ad Hoc Centennial Committee which has been considering various actions to celebrate the Engineering Centennial. The City of Winnipeg and the Province of Manitoba have issued proclamations declaring an Engineering Week. The committee proposed placing signs on the light standards along Portage Avenue and Main Street which would contain a message relating to the Engineering Centennial. There was some discussion regarding the content of the message and also alternative projects, after which the council approved expenditures of up to $5000 on activities related to the Engineering Centennial.

Practice and Ethics Committee Member: The council deferred consideration of adding a new member to the Practice and Ethics Committee to the next meeting allowing the committee to provide a recommendation.

Thompson Trip: The plans for a trip by the executive to meet with engineers at Thompson were reviewed. The trip will take place on Thursday and Friday, May 28/29, 1987 and will include a luncheon meeting, a tour of the open-pit mine and a dinner and dance.

Technologists: A letter from the APEM President to MANSCETT was reviewed. This letter had been previously agreed to be the Ad Hoc Committee - Technologists.

Act Administration Officer's Report: Dave Ennis, P. Eng., Act Administration Officer, reported on his trip to Nova Scotia to attend a meeting of act enforcement officers and the Annual General Meeting of APENS on April 24/25, 1987. Mr. Ennis was very impressed with the activities of the Nova Scotia Association and the quality of their Annual Meeting which included a full day of technical sessions with high caliber speakers that was well attended. Mr. Ennis also presented a draft of the Priorities, Guidelines and Terms of Reference for Act Enforcement. The council took this information under advisement for consideration at the next meeting.

ENGAP-Engineering Access Program: Roger Kane joined the meeting and provided a report on the success of ENGAP which was set up in 1984 to bring native Manitoban's into engineering.

Engineering Achievement Award: Roger Kane, P. Eng., representing the Awards Committee, proposed a one-time engineering achievement award as part of the engineering centennial. The award would recognize a significant engineering project that is unique to Manitoba, has a wide affect on people and required multidisciplinary involvement. The matter was referred to the Centennial Committee.

Annual Meeting at University of Manitoba: Dr. Ed. Kuffel, P. Er[ng.] joined the meeting to invite the APEM to hold its next anual meeti[ng] at the University of Manitoba. This would coincide with the 80th Anniversary of the Faculty of Engineering. The council tentatively accepted the invitation subject to satisfactory arrangements and timing.

Professional Development: Mr. Barry McBride, P. Eng., reviewed a planning document prepared by the Professional Development Com-

Past-President Recollections: Ted Glass, 1977-78

by W.G. McKay, P. Eng.

A proposed change of the Act to introduce 'Group Practice' licensure was vigorously debated, both at a special general meeting and within APEM committees. Similar legislation has been introduced for consulting firms in Alberta and Saskatchewan. A more general legislative change in Ontario attempted to encourage annual Group Practice licensure to all organizations, including government agencies and corporations with groups of engineers involved in professional practice. The intent was to ensure that the professional engineer would practice in an environment, free from commercial or other external pressures, and in a position to fulfill professional obligations under the Act to the fullest extent.

In 1977, the events which led to the Provincial Government inquiry into the decisions of Manitoba Hydro management and its senior engineers, related to the development of the Lower Nelson River and the Churchill River Diversion, were gathering momentum. A serious concern to the Council at that time was the assignment of responsibility for judgement of this engineering project away from the engineering profession and to the legal profession. Chief Justice Tritschlar chaired the investigation.

Questions related to professional ethics and responsibilities were generated by the issues at Manitoba Hydro and the Association implemented a study of the Code of Ethics. A similar study has been introduced in Alberta. This study was completed in 1979.

Council convened meetings with senior management engineers to corporations to limit the application of engineering titles to those engineers registered with the Association, and to request their support to ensure that the professional engineers in their companies were registered, as required by the provincial law.

Reporters Comments: This was an interesting interview as most of the events prominent during Ted's term, are again some ten years later under serious discussion by the Council, and are as significant today to the practicing professional engineer as then.

New Member Reception

by W.B. Mackenzie, P. Eng.

Every May, one of the more pleasant events on the Association calendar take place. New members are informally welcomed into the Association at the APEM New Member Reception. This year the reception took place on Wednesday, April 29th, 1987 at the Wildewood Club in Ft. Garry.

A broad spectrum of new members attended. Most were young graduates newly registered and just starting into their professional careers. Others were older practising engineers from other parts of Canada. The new members mingled and chatted with various committee chairmen, with staff members and with members of Council. Refreshments and mouth-watering hors d'oeuvres added to the conviviality of the occasion.

President Ted Speers gave a short speech of welcome; he suggested that new members should find out more about how the Association's various mandates are implemented by Council, by standing and ad hoc committees and by staff. He emphasized the importance of members taking an interest in and participating in Association affairs. He encouraged new members to consider becoming volunteer members on Association committees.

The President's speech and more refreshments sparked some animated dialogue. After the bar closed the discussions continued for some time - even out into the parking lot. The reception concluded at 9 p.m.

mittee. The plan has five work streams as follows:

1) provide information on existing PD activities
2) develop PD opportunities where none exist
3) monitor PD activities of members
4) promote PD to members, clients and employers
5) work with other engineering associations to develop a national PD program

The council approved new terms of reference and procedures for the Professional Development Committee as outlined in the planning document.

Nominating Committee: Mr. W. McGilvery, P. Eng., was appointed to fill a vacancy on the Nominating Committee.

Museum of Man & Nature Exhibit Opening: The plans for the official opening of the engineering exhibit at the Museum of Man & Nature were reviewed. The council will be invited to a donors preview on June 24. The official opening will take place starting at 8:00 p.m. on June 25.

Adjournment: The meeting adjourned at 6:30 p.m. which was quite early compared to other meetings and considering the number of items on the agenda.

June 8, 1987 *by J.W. Bogan*

Council reviews the Terms of Reference for the Salary Schedule and Research and Development Committees. Also, members of senior British engineering institutions applying for APEM membership will no longer have to be referred to the Board of Examiners for academic assessment.

Licenses: Council expressed concern about wording of descriptions used by applicants for engineering licenses. Some members were concerned because at times, a uniform standard does not always seem to be applied when considering these descriptions. For example, certain descriptions create ethical questions when they are considered. Yet, other very brief and general descriptions are accepted without requests for additional information. The review procedure should be uniformly applied to all applicants.

Terms of Reference-Salary Schedule Committee: Council agreed to rename the Salary Schedule Committee as the Salary Research Committee at the committee's request. A review of the reference terms suggested that the chairman and vice-chairman be nominated from within the committee and referred to Council. Where possible, members from private, public and academic organizations are to be included. The committee will focus on reporting actual current salaries rather than projections. At times, these projections did not accurately reflect economic conditions.

Research & Development Committee - Terms of Reference: A Terms of Reference report for this committee was submitted for council's review. Council wished to emphasize to this committee that any references making the Association appear as a self-interest group be excluded.

APEM Employees Pension Plan: The existing pension plan for APEM staff is to be amended according to present provincial legislation. The report was tabled and to be further reviewed by the Executive Committee.

Board of Examiners - U.K. Applicants: The Board of Examiners recommended that membership applicants who are full or corporate members of Senior British Engineering Institutions (electrical, mechanical, civil, aeronautical, or production engineering) be academically qualified for registration without further reference to them. These applicants would not be required to pay the $235 assessment fee and the Association's internal paperwork would be reduced. Council approved the recommendation.

News from other Associations

The Consultants Practice Committee of the Newfoundland Association is examining the possibility of developing some sort of **self-administered liability insurance plan** in an effort to try and hold back premium increases. Contact has been made with the other four Atlantic Region Associations to see if there is enough interest to form a joint plan.

Faced with only two practical courses of action, the provincial government employee engineers in Newfoundland have reluctantly decided to **apply for certification as a union** and not remain in the government employees' union which they were forced into recently.

The Quebec Ordre has been focusing on the **critical situation which continues to face Quebec universities, and particularly engineering schools.** Budgets for engineering students have dropped 26% from 1980 to 1986. The Ordre has submitted many briefs and made frequent representations to government officials, yet has witnessed little change.

The Prince Edward Island Association reports that ten feasibility studies have been commissioned to 15 Atlantic-based consulting firms, all dealing with a **fixed crossing to P.E.I.** Topics studied include the overall impact of a fixed crossing as well as assessing ice retention, sedimentation, displacement of fishing activity, vessel traffic, and tide movement.

The President of the B.C. Association had to cast the deciding vote, coming down against a motion for that Association to spend $55,000 for a **fringe benefits survey** of 30 firms in 5 areas. In the present tough economic climate in B.C., consulting firms are in a poor position to afford much in this area.

An organizational review of the Ontario Association currently being conducted by a management consulting firm will hopefully identify weaknesses in its planning and policy-making decision, says Ray Corneil, P.Eng. new president of the A.P.E.O.

The Saskatchewan Association has decided to **schedule its 1987-88 meetings at various centres throughout the province,** with the hope being that members will take advantage of the opportunity of meeting with Council.

Although the Career Development Advisory Committee of the Alberta Association has created a comprehensive 'Unemployed Member Services Program', they have discovered that **unemployed members are extremely reluctant to step forward.** Recognition of the current economic and business climate in Alberta motivated that Association to provide assistance to unemployed members.

One of the conclusions reached by an Alberta Association **sub-committee investigating professional liability insurance** was that 'The funding and administration of professional liability insurance is a function which can be handled effectively by a professional association as has been demonstrated by other professions'.

IEEE Professional Communications Conference

The Professional Communication Society of the IEEE is bringing its annual conference to Canada for the first time this October. The chosen site is Winnipeg, Manitoba and the conference is scheduled for October 14-16 at the Sheraton Hotel. This is a major event in the Society's calendar and a rare opportunity for Manitoba engineers and engineering technologists to take part in a significant international conference without incurring long distance travel costs.

The theme for the three-day event is 'Engineering Communications: A Byte Into the Future,' although conference chairman Ron Blicq says that topics will range broadly from making oral presentations to writing technical reports. A corps of international specialists will be contributing to the conference on practical themes such as: preparing technical proposals, writing at a computer terminal, editing engineering reports, using graphics to increase readability, writing electronic mail, and sharpening written and oral communication skills.

You do not have to be a member of the Institute of Electrical and Electronics Engineers (IEEE) or the Professional Communication Society (PCS) to attend the conference. If you want to be placed on the mailing list for conference information write to: Mr. David P. Whelan, Publicity Chairman, IPCC 87, GEC Canada Ltd., 419 Notre Dame Avenue, Winnipeg, Manitoba, R3B 1R3. Alternatively, call Dave at (204) 942-7721 or Ron Blicq at (204) 452-6480.

Temporary Bracing for Masonry Walls

The Department of Environment and Workplace Safety and Health has requested that our Association assist in reminding members of the requirements regarding temporary bracing of masonry walls. Extensive damage to property, serious injury, or even loss of life (as has occured recently in Winnipeg) may result from inadequate bracing of these walls. Regulations require that professional engineers be involved in the approval of some bracing. A safety bulletin which states the appropriate regulations has been issued and is available at the Association office.

Professional Development

Fourtieth Canadian Geotechnical Conference, The Regina Inn, Regina, Saskatchewan
October 19-21, 1987

The conference, jointly sponsored by Canadian Geotechnical Society, Regina Geotechnical Group and the Saskatoon Geotechnical Group will address various and significant geotechnical topics. The conference will be followed on October 22nd and 23rd by the 1st Canadian Symposium on the Application of Microcomputers to Geotechnique. For further information, contact: Mr. John Oosterveen, 3250 Margaret Road, Regina, Saskatchewan, S4V 1G6.

Fourth Canadian Conference of Women in Engineering, Science, and Technology
Westin Hotel, Calgary, Alberta
October 1-3, 1987

Presentations on concurrent technical, scientific engineering, and professional development topics. For further information, contact: C. West, P.O. Box 6912, Postal Station D, Calgary, Alberta, T2P 2G1.

Sixth Canadian Conference on Engineering Education, Call for Papers
University of Manitoba
Winnipeg, Manitoba

The conference will address current issues related to educating engineers in Canada and will bring together practising engineers as well as administrators and educators from across Canada. The overall conference theme is 'Preparing for the Future'. Abstracts to be received no later than October 16th, 1987. For further information contact: Dr. A.Soliman, Dept. of Civil Engineering, University of Manitoba, Winnipeg, Manitoba, R3T 2N2, or call (204) 474-9220.