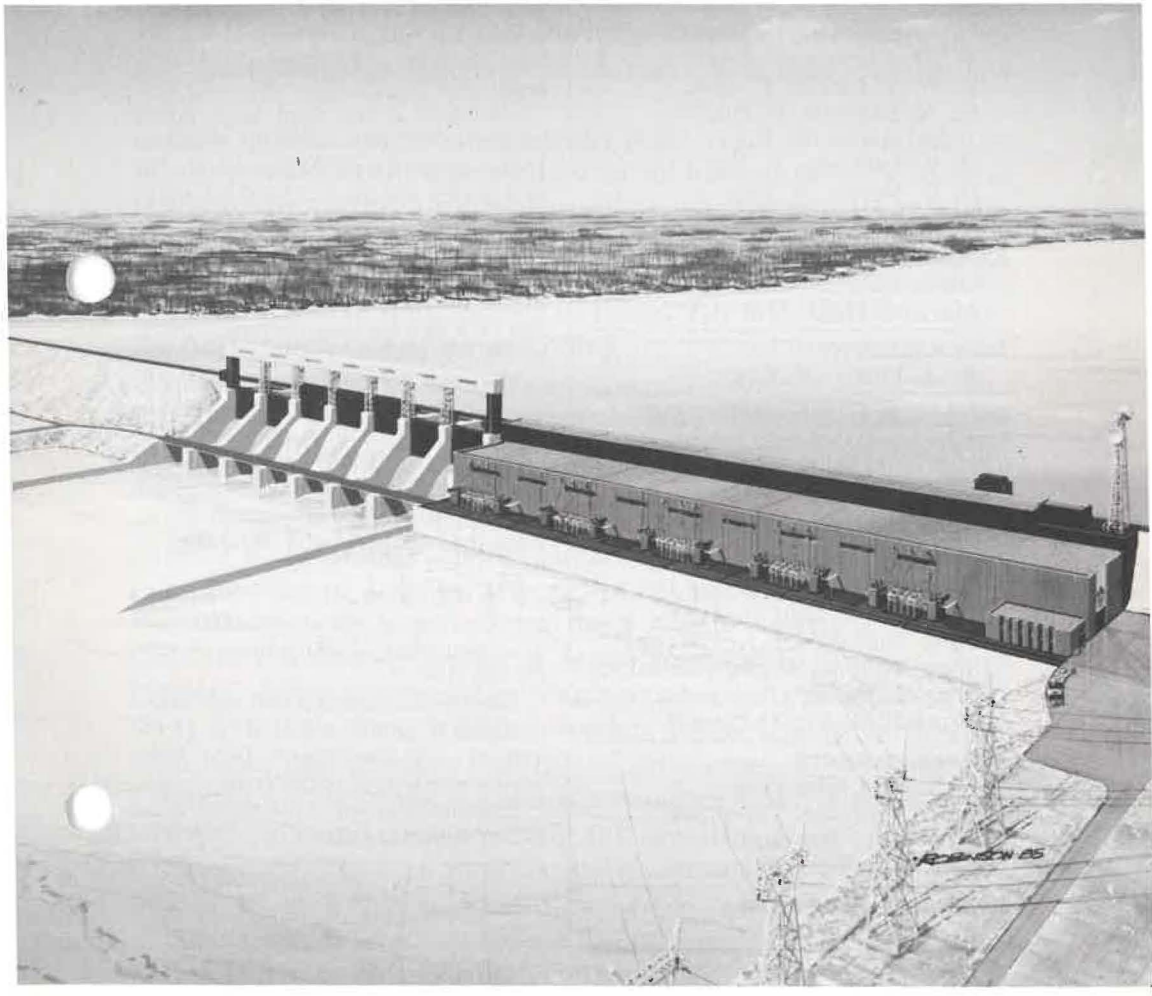
The Manitoba Professional Engineer

August

bulletin 85

MANITOBA HYDRO'S LIMESTONE GENERATING STATION



Cover Story on page 2

The Manitoba Professional Engineer
bulletin85

August, 1985

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

Cover Story

LIMESTONE CONSTRUCTION STARTS

The April issue of the Bulletin carried a picture of "Old Pinawa", Manitoba's first hydro-electric plant. Our cover picture is an artist's rendering of Manitoba's newest.

When completed around 1993, Manitoba Hydro's Limestone Generating Station will have ten generating units, each with a capacity of 130,000 kW. The units will harness a 30.7 metre head.

Limestone is the third large power project to be constructed by Manitoba Hydro on the Lower Nelson River. The first project was the 1,272,000 kW Kettle Generating Station completed in 1974 and the second was Long Spruce Generating Station which went into initial service in 1977 and was completed in late 1979 with a total generating capacity of 980,000 kW.

The total volume of material in the main dams and the dyke will be 2,700,000 m^3. The total volume of fill required for the various construction cofferdams, including the one existing, will be 3,500,000 m^3. The project will also involve the excavation of 3,200,000 m^3 of rock.

The 600,000 m^3 of concrete required for the structure will use 132,000 tonnes of cement and 27,000 tonnes of reinforcing steel.

Limestone is located 750 kilometres north of Winnipeg and is about 23 km and 18 km downstream from Long Spruce and Kettle, respectively.

Estimated cost of construction is 2.1 billion dollars.

A.P.E.M. ANNUAL GENERAL MEETING OCTOBER 18, 1985

President's Message

Success/Failure...

By Roger A. Kane, P. Eng.

A history teacher once put a question on a general test asking why the Puritans had come to America. She was surprised when the best answer came from one of her dullest students. The answer; "The Puritans came here to freely practise their religious beliefs and to make everyone else do the same".

How could someone so generally poor in school work have so much insight? From time to time we all have gone back to class reunions and we are often surprised by who "made it" and who did not. A number of years ago I recall a proposed article for the Bulletin to do a study of the gold medal recipients from the U. of M. to see what had become of them. The article died because the anticipated tale of never-ending success did not pan out and it was not a cheerful story.

What is happening out there? We who are now active members of the A.P.E.M. of varying experience all have unique stories.

Lee Iacocco has written a very successful autobiography. One chapter is "Making America Great Again". In it Iacocco states that the general policies of government are counterproductive. For example, on a per capita basis North American Colleges turn out 1/4 the engineers that Japan does and 15 times as many lawyers. Iacocco argues that engineers work to produce something for their fees, whereas lawyers often simply work with each other and produce nothing of substance.

Being a rather pragmatic man he wonders aloud why we spend so much time and energy writing and rewriting rules followed by endless battles to seek interpretation of the rules when it really does not create jobs or wealth.

Huge companies are spending millions to purchase each other and not a dime to improve what they are doing. A company, that has been successful manufacturing steel thinks it can run a ►

chemical manufacturing business. The two are too different to be compatible and the end result is a dilution of basic strengths.

As engineers we feel frustrated when we see capital expenditure to get a new piece of equipment (which will have great long term benefits for our client) only to see that money diverted into some non-productive hassle. An example is the railroads. Diesel engines have been in use for years yet, because of an expedient compromise, each train must have a fireman on board. How can this type of agreement be good? It only diverts limited resources in a highly competitive global market place to non-productive ends.

Recently the federal government announced that the airlines were going to be de-regulated. This brought a collective expression of acceptance from the major airlines plus a unanimous consensus that airfares would go down. If airfares are reduced more people will travel. More people travelling demands more equipment, more capital being spent on real goods. The spin-off effect sounds promising. What good was this regulatory board? How many more examples are there?

When I look back at that poor dull student I ask "why is he dull"? Is it because, like Don Quixote tilting at windmills, he's not "playing the game". Is he just plain stupid, or has he been turned off through frustration? In our ranks are there a number of us who have become turned off by the system, because we are banging our heads against the wall. Why do senior engineers, who have great engineering talent, wind up spending so much of their time doing non-engineering things?

The world is full of conundrums. I do not wish to impose another. Certainly the ability of the A.P.E.M. to single-handedly turn it around is ludicrous. But if one engineer, Lee Iacocco, can save Chrysler then maybe we, as a group, can look at our own lines of endeavour and see if we can sell ourselves. The plain and simple truth is that if the North American economy is to turn around, the profession of engineering will be very much a part of the solution.

Do not give up.
The stakes are too high!

As of July 1st, 1985, the following are no longer entitled to practice professional engineering in the Province of Manitoba due to non-payment of fees:

M.M.A. Abo-El-Saad
C.G. Aruliah
P.C. DiNovo
P. Hardy
D.R. Jack
G.W. Lawson
J.S. McRae
G.A. Ross
A.A. Sebak
A. Shoamanesh
H.G. Symonds
K.S. Uppal
B.C. Wiebe
G.D. Anderson
K.S. Au
W. Fast
R.V. Houghton
W. Jaster
M.W. Leobold
R.M. Maglaya
K.S. Sachdev
R.J. Senez
R.W. Smith
D.A. Wakeford
J.W. Wright
E. Arnason
G.A. Cotter
O.S. El-Zabet
C.G. Hamilton
C.D. Huston
G.W. Klym
E.R. McKie
R.G. Powers
K.L. Schmidt
G.M. Shapiro
A.I. Soti
K. Tsang
S.J. White

The following Members have resigned their membership in A.P.E.M.:

A.S. Orchard
P.G. Phillips
J.C. Linnay
I. Shpancer
R. Klukie
Mark Young
J.A. Fedoruk
R. Petrie
F.W. Jansen

Council Meeting

JUNE 10, 1985

The Council Meeting got under way at 3:30 p.m. President Roger Kane was in the Chair. Ten Council members were present. Council quickly approved the agenda and the Minutes of the Council Meeting of May 13, 1985. Six applications for registration, seven for licences, three for engineering graduate membership and four for transfer were considered, discussed and approved.

Council then considered a number of matters placed on the agenda by the Executive Committee. The first matter was the appointment of a Chairman of the Bulletin Committee who would also act as Editor of the Bulletin. K. J. Hearson, P. Eng. was appointed by Council to fill this position. The Registrar reported that an early committee meeting would be held, with Mr. Hearson in the Chair, and the matter of a possible new format for the Bulletin would be considered at that meeting. Council then put forward a number of names for members of the newly formed Safety Committee. These names will be passed on to the Chairman of that Committee and it is the intent of Council to appoint all members of the Safety Committee at the next regular meeting of Council. Bohdan Goulay, P. Eng. and Henry Penner, P. Eng. were appointed to the Ad Hoc Committee of Stamping of Shop Drawings. The next item of business considered by Council was the matter of a "log of experience" referred to in the new Admission Standards. This matter is to be referred to the Admissions Review Board with a request that they prepare such a log for consideration and approval by Council.

President Roger Kane reported on his attendance at the A.P.E.O. Annual Meeting and the A.P.E.G.G.A. Annual Meeting. He reported that the attendance at these meetings was a problem and although both Associations have large memberships, the number of people at their meeting was about the same as the A.P.E.M. Annual Meeting. Items discussed at the Ontario meeting revolved around problems related to the new Ontario Professional Engineer's Act and a Paper entitled "The Engineer in the Year 2000". At the A.P.E.G.G.A. Meeting a Professional Development Seminar was held but attendance was sparse. Council then discussed the matter of the President attending different Association annual meetings next year but there was no agreement on which meetings should be attended.

R. E. Scouten, P. Eng., Chairman of the Practice and Ethics Committee, joined the meeting for the next agenda item which was a new Practice and Ethics Committee Report to Council of June 5th, 1985 in connection with the matter of L. A. Bateman, P. Eng. Mr. Bateman left the meeting during discussion of this matter but returned later to give some of his views to Council. A long discussion took place regarding whether or not certain documents relating to the matter should be published in the Bulletin. Eventually, Council decided that there would be no further publication of any documents relating to this matter. However, they decided that certain of these documents would be made available in the office for any member requesting information on the matter.

The Registrar reported on an unsuccessful attempt by the Association to have the Manitoba Building Code re-

vised to require that the design of medical gas piping systems be done by a Registered Professional Engineer. Then Council passed a Motion to the effect that the design of medical gas piping systems and the design of industrial gas piping systems are, in fact, the practice of engineering and therefore must be designed by professional engineers. Design engineers take note.

R. R. Foster, P. Eng., Past President, reported on the University of Manitoba Appeal to the Canadian Accreditation Board on the denial of accreditation for the Industrial and Computer Engineering programs at the University of Manitoba. He advised that the appeal had been denied by C.C.P.E. The Registrar was instructed to contact the Dean of the Faculty of Engineering and request that he refer all enquiries from graduates of these programs regarding registration procedures to the Registrar.

Council adjourned at 8:55 p.m.

JULY 8, 1985

By Craig Nelson, P. Eng.

The July 8th Council Meeting was brought to order promptly at 3:30 p.m. by Ted Clarke who, in the absence of President Roger Kane, chaired the meeting. Holidays taking their toll, W. D. Christie and M. Haid were also missing.

Council then went to work on those items on the agenda which always excite Bulletin readers. The approval of the agenda, minutes of the last meeting, approval of registrations, licences, engineering graduates, transfers, reinstatements and accounts were discussed and passed.

Council then moved on to bigger and better things. A Motion was put forward that a Social Committee be formed. This was passed. A second Motion was made that Ted Speers draft an appropriate set of Terms of Reference for this committee; and passed. The only dissenting vote came from Ted Speers.

A report on permanent staff salaries was presented by Bill Mackenzie. The permanent staff members present along with the Bulletin reporter were then asked to leave. What was discussed in camera will be left to the readers imagination. However, some subjects we might consider are: The A.P.E.M.'s stand on Canadian involvement in the "Star Wars" plan, "Mosquitoes — Friend or Foe", or "A secret way to get home after the meeting without running into road construction".

Council then considered the recommendations of the Board of Examiners and the recommendation of the Executive Committee regarding the registration of computer and industrial engineering graduates. Council decided to accept the recommendation of the Executive Committee that these graduates be assessed individually by the Board of Examiners when they apply for registration.

At this point in the procedings chinese food is usually mentioned and the meeting is suspended briefly. However, we will not mention it since some of the Bulletin Committee members think it frivolous to mention the eating of chinese food in a Council Meeting.

The remaining items on the agenda were of a housekeeping nature, including recommendation from various sub-committees. One item that should be mentioned is that Council passed a Motion to budget $10,000.00 in the 1985-86 fiscal year to help finance a Museum of Man and Nature project to celebrate the Centennial of the Profession.

The final item on the agenda was a recommendation from the Admissions Review Board that an Ad Hoc Committee be formed to draft a "Log of Experience" for submission to Council for approval. This was carried and the meeting adjourned at 7:45 p.m.

Letters to the Editor are the opinions of the authors and not necessarily those of the Bulletin Committee or Council.

Letters

Professional Unions

Much has been said and debated, over the years, about the concept of professional employees engaging in the collective bargaining process. The real life significance of such a situation is being brought home to the professional employee engineers currently in dispute with the Manitoba government.

Employee engineers in the government have seen their ability to negotiate with respect to their professional development and compensation, on an individual basis, diminish. The authority with which they must deal, for the most part, has been removed from their immediate superiors and now lies at other levels, exercised by people without faces, with understandings and priorities removed from the working environment of the engineer. The response of the employee engineers is to represent their interest by grouping together. The response was spurred on some years ago when labour legislation was changed to end the professional excluded status and to make professional employees vulnerable to being swallowed by large bargaining organizations.

For employee engineers in government, the answer was to form an exclusively engineering group to be recognized by government as representing their collective and individual interests. The government would not recognize the group unless it certified and so it certified itself as a union.

Things went along quite well for a number of years but the inevitable situation finally arose where contract negotiations were stalemated and the professional group were forced to hold up the mirror and come to grips with the fact that they were a union and, in the collective bargaining process, were expected to act like one. There was great reluctance to face up to this, but gradually as the members became accustomed to the idea, and as they became more frustrated and angry at the inability to conclude an agreement, a change occurred culminating in, what many professionals would consider a major insult to professional ideals, a strike.

When the dispute is finally settled and the smoke has cleared, we will, I am sure, feel some need to analyze what it all means. Will we have gained or lost as a group? Will be have gained or lost as professional engineers? We will have to decide, and in that decision will lie the basis for mapping the future in terms of how the interests of these employee engineers can best be represented. The larger professional engineering community should feel that they have some stake in the results and so should be willing to contribute to the process.

Jon P. Stefanson, P. Eng.

IN MEMORIAM

The Association has received, with deep regret, the notification of the deaths of the following members:

E. R. WILBEE
M. C. FEHER
B. G. REDFERN
P. BEESLEY

MANITOBA HOSPITALITY C.C.P.E. Meets in Winnipeg

The annual meeting of the Canadian Council of Professional Engineers was held this year in Winnipeg in May. Over one hundred delegates and guests attended from all parts of Canada and from as far away as Alabama in the United States.

It was Manitoba's pleasant task to look after the programme for the ladies and the entertainment for everyone for one evening. The ladies were taken on a river excursion on the Lady Winnipeg to Lower Fort Garry where they were given a tour, returning to Winnipeg by bus. In the evening guests boarded buses at the Westin Hotel and were driven to the St. James Street Station to board the Prairie Dog Central which had been dusted off and polished for its first outing of the year.

The Prairie Dog Central chugged through the lush Manitoba farmland on its way to Grosse Isle, and all went well until the train came to an unexpected stop and bandits boarded the train demanding jewellry. Other members of their gang rode back and forth alongside the train brandishing their guns. Several shots were fired. People rushed for cameras to have their pictures taken in the clutches of a masked bandit.

The ladies of Grosse Isle did an outstanding job of serving an old fashioned fowl supper. The Meadowlarks, a great Prairie folk group, entertained with music from all parts of Canada, plus some from south of the border for the Americans.

A special edition of our Bulletin was prepared by Loreen Dunklee and distributed to all the guests, who also received a Red River cart and some Manitoba wild rice as a momento.

Everything went off very well, orchestrated under the baton of maestro Bill Mackenzie. Our C.C.P.E. Director Bob Foster was the master of ceremonies at the Grosse Isle function, and President Roger Kane and the members of Council and spouses radiated Manitoba charm in helping to entertain the guests. It was a thoroughly enjoyable and successful affair. Manitoba lived up to the slogan on its licence plates.

Amendments to the "Act"

At the recent sitting of the Legislature an Act to amend the Engineering Profession Act was passed by the Legislature and received Royal Assent the same day. Mr. Phil Eyler, MLA, sponsored the Act through the Legislature.

One amendment makes the immediate Past President an ex-officio voting member of Council. Another amendment allows an elected member of Council to serve three consecutive terms where previously, under the terms of the old Act, a member of Council could serve only two consecutive terms.

The third amendment allows appointed Councillors to serve three consecutive terms in place of the two consecutive terms previously specified in the Act.

These amendments received Royal Assent and became law on July 11, 1985.
W. B. Mackenzie, P. Eng.
General Manager & Registrar

Location?

We are unable to locate the following members, if you should know the whereabouts of these members please contact the A.P.E.M. office:

M. Singh
T. Skimming
H.G. Volume

ASSOCIATION OF PROFESSIONAL ENGINEERS OF MANITOBA

1985 SALARY SURVEY

This article summarizes the results of A.P.E.M. members salary survey, as well as a similar survey of engineering employers.

This year 2,824 questionnaires were mailed to the A.P.E.M. members, and 548 were received for a 19.4% response. Of these, 20% came from the manufacturing sector, 50% came from the non-manufacturing sector and the remaining 30% came from government and teaching positions. Salaries shown in the tables represent actual base salaries as of April 1st, 1985 paid to full-time employees and self-employed individuals. Figures do not include bonuses, overtime, possible future increments or income received from sources not associated with engineering. It was noted from the responses that a significant number of replies indicated that the date of the last salary increase was in excess of 12 months ago (some exceeding 24 months). This lag can be explained by the fact that as of the survey date many employers have not as yet implemented the 1985 salary adjustments. In still other cases salary adjustments were either pending on resolution of negotiations or may in fact not have occurred because of past economic conditions affecting the employer. As a compromise, the Salary Schedule Committee adjusted the data shown in figure 1 by 0.34% per month (4% per annum) retroactively up to 12 months to provide a somewhat more realistic comparison. The results show that the survey mean is very close to the A.P.E.M. recommended starting salary curve effective July 1, 1985. Also shown are two lines encompassing the 90% range of salaries.

The Employee's Survey is classified by year of graduation, discipline, field of employment and principal function in Tables 1, 2, 3 and 4 respectively. The datum in these tables have not been adjusted for the effective date of the last salary increase, but is presented as raw data. While the data may be of interest to both engineers and employers, the committee urges that caution be used in attaching meaning to some of the results. In Tables 2, 3 and 4 for many of the categories the number of responses are much too small to draw any meaningful conclusions. Also there is no assurance that responses in each category or group are made up from comparable levels of job responsibility. For example, a higher salary in a category relative to others may simply represent responses from a segment of more senior engineers holding jobs of greater responsibility.

This years' questionnaire also asked whether the A.P.E.M. salary survey was needed and used. A large majority of respondents or 88.1% said that the survey was needed. A majority of 52.3% said that it was used, while 40.7% didn't know and the remaining 7.0% said it wasn't used.

A survey of eight major employers is shown in figure 2. The data plotted represent the average salary without any adjustments in effect as of April 1, 1980. Here again, a number of the employers did not implement salary adjustments for 1985 while other responses represented salaries in effect prior to 1984. The employers' curve also excludes the salary range for engineers with higher than 700 points because of the incomplete data. For comparison the average employees' salary curve is also shown. As expected the average curves from both of the surveys are similar.

The most meaningful information is contained in figure 1 represented by the mean curve adjusted for inflation by up to a maximum of 4% depending on the effective date of the last salary increase. The committee believes that this curve represents fairly the salary situation in effect as of April 1, 1985.

N. Fedorchuk, P. Eng.
Chairman
Salary Schedule Committee

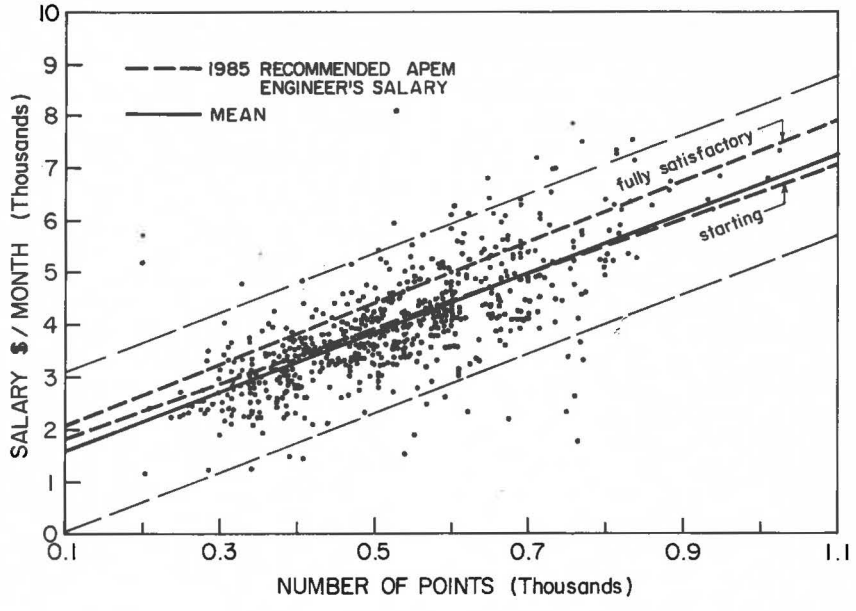


FIGURE 1. ADJUSTED EMPLOYEE'S SURVEY

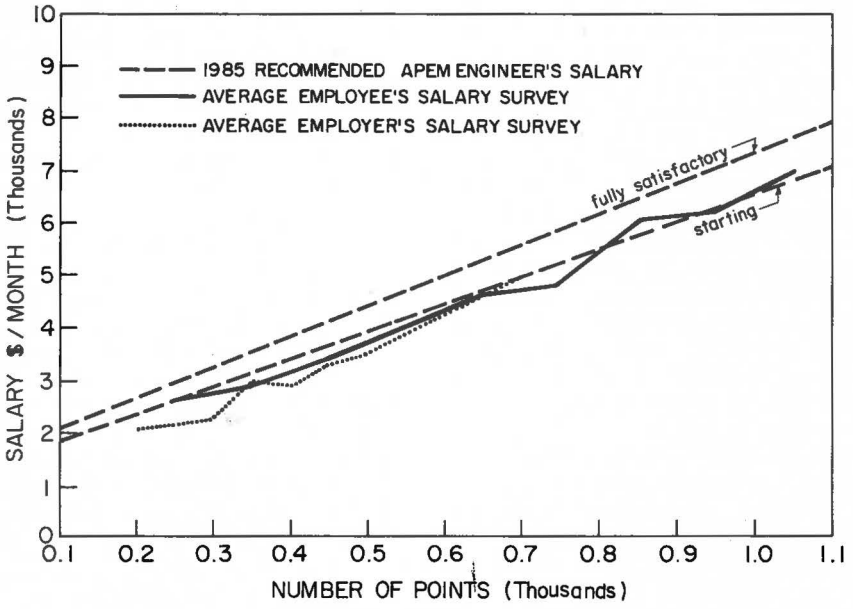


FIGURE 2. ACTUAL BASE SALARIES

Table 1 **YEAR OF GRADUATION**

Year	Count	Low Decile	Low Quartile	Mean	High Quartile	High Decile
48	8	3949	4624	5374	6124	6799
49	10	3661	4260	4926	5592	6191
50	10	2790	3449	4182	4915	5574
51	5	3102	3487	3915	4343	4728
52	5	2595	3284	4049	4814	5503
53	15	3669	4363	5135	5907	6601
54	6	4236	4628	5064	5500	5892
55	13	3437	3946	4512	5078	5587
56	7	3282	4033	4868	5703	6454
57	9	3537	4269	5082	5895	6627
58	12	2972	3716	4542	5368	6112
59	10	3172	3681	4247	4813	5322
60	13	3196	3961	4811	5661	6426
61	15	3651	4221	4854	5487	6057
62	17	3161	3751	4407	5063	5653
63	13	3326	3944	4630	5316	5934
64	14	3447	3911	4428	4945	5409
65	18	2563	3246	4004	4762	5445
66	19	3099	3689	4345	5001	5591
67	6	3064	3803	4624	5445	6184
68	14	3360	3803	4295	4787	5230
69	19	3159	3543	3969	4395	4779
70	16	3066	3442	3859	4276	4652
71	29	2924	3352	3827	4302	4730
72	23	2237	2819	3465	4111	4693
73	30	2958	3373	3834	4295	4710
74	23	2875	3268	3705	4142	4535
75	17	2386	2783	3223	3663	4060
76	16	2382	2694	3040	3386	3698
77	16	2630	2978	3365	3752	4100
78	29	2094	2565	3088	3611	4082
79	22	2178	2425	2700	2975	3222
80	24	2338	2589	2867	3145	3396
81	24	1798	2137	2513	2889	3228
82	10	2041	2239	2459	2679	2877

Table 2 **DISCIPLINE**

Discipline	Count	Low Decile	Low Quartile	Mean	High Quartile	High Decile
Agricultural	25	2047	2721	3469	4217	4891
Civil	212	2479	3115	3822	4529	5165
Chemical	16	2059	2938	3914	4890	5769
Electrical	135	2722	3359	4067	4775	5412
Geological	20	2656	3187	3776	4365	4896
Industrial	4	2143	2591	3089	3587	4035
Mechanical	111	2226	2993	3846	4699	5466
Mining	8	3166	3905	4726	5547	6286
Other	16	2223	3101	4076	5051	5929

Table 3 FIELD OF EMPLOYMENT

Field of Employment	Count	Low Decile	Low Quartile	Mean	High Quartile	High Decile
Manufacturing:						
Chemical	7	1788	2607	3516	4425	5244
Electronics	20	2398	2872	3399	3926	4400
Mech. Equipment	30	1915	2497	3143	3789	4371
Pulp and Paper	5	3179	3637	4146	4655	5113
Heavy Electrical	6	2099	2810	3601	4392	5103
Metals	19	1919	2724	3619	4514	5319
Petroleum	4	4987	5179	5392	5605	5797
Other	19	2090	2934	3873	4812	5656
Non-Manufacturing:						
Construction	25	2295	3120	4036	4952	5777
Consulting Eng.	92	2255	2942	3704	4466	5153
Consulting, other	4	1823	3152	4628	6104	7433
Elect. Utilities	56	3285	3775	4320	4865	5355
Utilities, other	19	2364	3199	4127	5055	5890
Communications	12	3065	3486	3954	4422	4843
Transportation	19	2749	3266	3840	4414	4931
Petroleum	5	2275	3407	4665	5923	7055
Data Processing	1	5515	5515	5515	5515	5515
Mining	27	2436	3248	4150	5052	5864
Other	14	2345	3073	3883	4693	5421
Government:						
Federal	42	3020	3432	3890	4348	4760
Municipal	22	3733	4242	4806	5370	5879
Provincial	65	2382	2865	3402	3939	4422
Educ. & others	35	2370	2959	3613	4267	4856

Table 4 PRINCIPAL FUNCTION

Principal Function	Count	Low Decile	Low Quartile	Mean	High Quartile	High Decile
Management	155	3168	3874	4658	5442	6148
Admin. Services	11	1665	2629	3700	4771	5735
Public Relations	2	2298	2733	3215	3697	4132
Computer Services	5	2953	3284	3651	4018	4349
Consulting	70	2212	2894	3652	4410	5092
Planning	28	2843	3373	3962	4551	5081
Marketing Sales	20	1973	2592	3280	3968	4587
Production Eng.	19	2449	2819	3229	3639	4009
Construction	36	2239	2894	3622	4350	5005
Quality Assurance	7	3014	3170	3343	3516	3672
Field Exploration	8	2301	2763	3276	3789	4251
Instrumentation	2	3287	3503	3744	3985	4201
Maintenance Eng.	25	2763	3199	3684	4169	4605
Design Eng.	85	2449	2900	3402	3904	4355
Development Eng.	8	2176	2614	3101	3588	4026
Research Eng.	18	2651	3076	3549	4022	4447
Surveying	2	2388	3084	3856	4628	5324
Teaching	27	3746	4115	4525	4935	5304
Other Engineering	17	1865	2435	3068	3701	4271

1985 C.C.P.E. Meeting
— Winnipeg, Manitoba —

The Annual Meeting of the Board of Directors was held in Winnipeg on May 23, and May 24, 1985. Some excerpts from the President's report should be of interest to members of A.P.E.M.

Professional Liability
We live in a litigious society and with all the new lawyers entering the market place, it promises to be worse! Liability is a matter of concern across Canada. Ontario's new Act and Regulations will require liability insurance of all engineers providing engineering services to the public. Alberta is concerned that there is apparently no time limit on liability — and an engineer's estate could be sued years after the engineering design. At an excellent seminar in Saskatoon, the assembled engineers were told (by a lawyer) "It is the engineer's own fault. If they want to work in a profession that is ill paid and has strong price competition — they should expect to attract higher liability." This is a very persistent problem across Canada. The C.C.P.E. board may wish to consider a seminar to discuss the provincial situations as well as future trends in liability.

Admission to the Profession
Each constituent considers admission to the profession in a unique way. It has been charged that this inhibits mobility, and it may even contravene the new Bill of Rights!

C.C.P.E. has formed two committees, one chaired by J. C. Taylor to examine and report on entry to the profession via the examination route, and the other chaired by Yvon C. Dupuis to examine the overall problem of entry to the profession.

It is anticipated that the findings will be useful to each constituent and that it may be possible to improve mobility through more uniformity and a better understanding of the process.

Fiftieth Year and Centennial
In 1986 C.C.P.E. will celebrate its 50th year. It is planned as a low-key celebration so as not to conflict with the centennial, and will involve individual constituents recording historical events of interest. Norm Johnson, President-Elect heads up the committee.

In 1987, the engineering profession marks its centennial. The program is supported by C.C.P.E., A.C.E.C. and E.I.C. The major events will be in Montreal, but money will be available to constituents to make it a truly national celebration. As a member of the Executive Committee of the Centennial Board, Don Laplante coordinates our activities with the planning committee. C.C.P.E. has 5 members on the Centennial Board including Phil Seabrook who is Vice-Chairman.

Canadian Accreditation Board
CAB has now been in place for 20 years and has justly earned a reputation as C.C.P.E.'s premier committee. It provides for accreditation of programs in engineering faculties across Canada.

The profession can be proud of the standards of engineering in our country, but concerns have been expressed by the National Council of Deans of Engineering and Applied Science (NCDEAS), and by CAB that there are problems. Real university funding has decreased, and engineering faculties are crowded and understaffed. Last year CAB approved for the usual 5 years only 25% of the programs visited, many received only a 3 year approval and some were not approved. For the first time, we had an appeal of the CAB findings.

We cannot continue the status quo. I believe C.C.P.E. should take a more active role with NCDEAS and CAB, and should ensure good communication between these organizations. There is much work to be done in the preparation of curricula for new programs, in updating and formalizing appeal procedures and in providng methods to ensure uniform standards for accreditation. This will re-

quire dollars and manpower over and above the routine CAB budget.

Engineering Education

Incidental to CAB I noted above some of the problems facing engineering educators. Real funding is down, enrollments are up, equipment is outdated and many teachers are nearing retirement with very few potential teachers in post-graduate work. These problems are found throughout universities and are not just particular to engineering faculties, but the growth in engineering registration exacerbates the problem. Each constituent will be aware of its local situation.

I believe the trends are for higher tuition fees, more involvement by industry, i.e. funding of chairs etc., and more support from the profession in terms of dollars and time.

C.C.P.E. should support dialogue with NCDEAS, should provide CAB with adequate resources and if desired, by the constituents, convene national engineering education seminars, when a useful purpose might be served.

Engineering Access Program

A.P.E.M. members who have not seen the recent press release regarding an Engineering Access Program for Native persons at the University of Manitoba will be interested in the following information.

In a joint agreement between the Province of Manitoba and the University of Manitoba an Engineering Access Program is being developed that will provide access to an engineering education for Native persons who, for social, economic or cultural reasons, have not had such an opportunity. The Province, through the Adult and Continuing Education Branch of the Department of Education, will provide the funding, and the University, through the Faculty of Engineering, will operate and administer the program. The first students will be admitted in September 1985.

The Program will select students who have a combination of academic, social and financial needs. The academic program is designed to provide pre-engineering instruction, and tutoring in the regular First Year Engineering Program, over a period of two years. As in the case of all students who successfully complete First Year, individuals will then select their branch of engineering and proceed to the regular three years of specialized study that lead to the regular B.Sc. degree in engineering.

A committee to advise the Engineering Access Program has been established. The membership of this Policy Advisory Committee includes representatives from the University of Manitoba, the Manitoba Department of Education, the Manitoba Metis Federation, the Manitoba Indian Education Association, the Limestone Aboriginal Partnership Directorate, Manitoba Hydro, and the A.P.E.M. (President Roger Kane is the current member).

The statistics regarding Native participation in high education are alarming. Whereas somewhere in the order of 20% of the population of Manitoba is Native, only about 2% of the university student population, 0.2% of all academic staff are Native. There will be an initial intake of fifteen students into the Engineering Access Program, but even at the projected peak enrollment of forty-five, Native students will still represent only 3-4% of enrollment in engineering.

For further information regarding this Program, contact:

John I. Glanville, P. Eng.,
Director,
Engineering Access Program
Faculty of Engineering
University of Manitoba R3T 2N2
474-9872

NEW MEMBERS

H.W. Armstrong
J.D. Beaton
S.M. Britton
A. Burachynsky
J.P.Y. Chan
R.G. Chercoe
L.H. Christensen
J.E. Comeau
A.F.G. Gossen
P.E.B. Hill-Carroll
B.R. King
J.N. McLeod
P.C. Miller
D.G.L. Pearsons
H.G. Peters
R.E. Petley
G. J. Popowich
M.S.A.E. Sanad
D.G. Sanders
G.E. Schellenberg
R.P. Smith
B.C. Tracy
W.C. Tripp
R.J. Wittebolle

ENGINEERING GRADUATES

R.C. Crang
G.E. Hornby
D.J. Kramble
P. Maycher
L.E. Midford
W.J. Muzyczka
R.A. Nakka
K.L. Nelson
G. Neufeld
W.D. Penny
S.D.O. Rajpal

LICENCES

R. Adhirkary (Ont.)
J.W. Butler (Ont.)
F.J. Dusel (Alta.)
R.J. Grafton (Alta.)
E.H.E. Halewijn (Ont.)
G.A. Harris (Ont.)
J.D. Hubbert (Ont.)
P.S. Lamba (Ont.)
R.D. Lapas (Ont.)
A.J.S. Logie (Alta.)
B.J. Lukes (Ont.)
J.A. Mastrofini (Ont.)
E.C. McRoberts (Alta.)
C.E. Palmer (Sask.)
J. Seguin (Ont.)
H.H. Singer (Ont.)
B. Singleton (Alta.)
T.W. Smith (Alta.)
C.G.A. Straub (Sask.)
C.P. Wee (Alta.)

DO YOU KNOW THAT....

The number of professional engineers in Canada has increased from 3,750 in 1936 to 123,628 in 1984.

In 1965 there were 102 accredited undergraduate engineering programs in 19 engineering schools in Canada.

As of June 1984 there were 170 accredited undergraduate engineering programs in 28 engineering schools in Canada.

In 1965 there were 13 accredited program titles, while by 1984 the number had increased to 45.

The total reported undergraduate enrollment in engineering programs for 1984-85 is 36,345 — about a 2% increase from last year's total reported enrollment of 35,401.

The number of women undergraduates in engineering represents 10.6% of the total Canadian undergraduate enrollment.

Goodbye! ! !

By Loreen Dunklee

By the time this issue of the Bulletin is published and distributed to the members I will have retired from the Association and will be residing in Victoria.

It was late in 1955 when Jack Hoogstraten, then President, persuaded me to come to work for the Association. The first office space had been rented, in the Avenue building, and the files were to be moved to the office from the Registrar's kitchen.

It has been a pleasure to work for the many members with high professional standards who have always kept the Association's best interests in mind. The job afforded me an opportunity to meet and work with and for some remarkable people. My husband and I made some lasting friendships, and since his passing in 1972 I have continued to make valuable friendships.

I have known Bill Mackenzie, Registrar and General Manager, for many years and have been working with him for a year. It has been a very enjoyable period. He is dedicated and conscientious, and I urge you all to give him your full support.

It was a privilege for me to be associated for so many years with the members who gave voluntarily of their time and expertise for the benefit of the Association. I want to thank particularly those members who did so much to make my job easier and more pleasant. I wish the Association, and the conscientious members who serve it, well.

Continuing Education for Professional Engineers

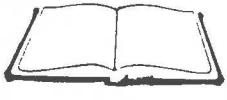
Continuing Education Division, The University of Manitoba, are developing a number of seminars and short courses for Engineers, in consultation with the Faculty of Engineering. Brochures relating to these learning activities will be mailed to the members of the A.P.E.M., about the last week of August, 1985.

The seminars and short courses being planned are:

1. **Fleet Management:** This three-day seminar will be of interest to managers of fleets of cars, trucks, vans, buses, etc. October 16-18, 1985.
2. **User Interfacing Techniques for Fortran Programming:** For engineers and engineering technicians, etc. Some details about this course are still uncertain. Expected offering in February-March, 1986.
3. **Building Envelope I:** This two-day seminar will be of interest to engineers, builders, architects, etc. Wednesday and Thursday, November 20 & 21, 1985.
4. **Variable Speed Motors:** This two or three-day seminar will be of interest to engineers, particularly electrical engineers. Expected time of offering: February, 1986.
5. **Structural Masonry:** This eight lecture course will be offered during November, 1985 to February, 1986.
6. **Technical Report Writing:** This one-day seminar will be of interest and use to engineers and other technical professionals. About mid-February, 1986.

Those interested in receiving brochures and whose names and addresses are not on the A.P.E.M.'s list, and those who might wish to see some special courses and/or seminars offered for engineers, please call or write to:

Professor G. S. Bains,
Continuing Education Division
541 University Centre
The University of Manitoba
Winnipeg, Manitoba R3T 2N2
Telephone (204) 261-5760 or
(204) 474-9921



Congratulations

To David Edward Blanchard, P. Eng. and Gary Edward Hornby, E.G. for achieving a mark of 100% on the Professional Examination on the Act, Bylaws and Code of Ethics.

A.P.E.M. Says Goodbye to LOREEN DUNKLEE

After thirty years as a permanent staff member, Loreen Dunklee retired at the end of July and has gone to Victoria to enjoy the salubrious climate and to indulge in some well-earned leisure activities. At the time of her retirement Mrs. Dunklee was Assistant General Manager of the Association.

Loreen Dunklee has, over the years, filled every staff position in the Association (including a stint as registrar) and has been advisor, supporter and friend to innumerable committee members, members of council and Association presidents. She made a tremendous contribution to the well-being of our Association. The "Bulletin" was a special interest of Loreen Dunklee's and as production manager, contributor and ofttimes ipso facto editor, she was largely responsible for getting the editions to the members on a regular basis.

In order that her many friends would have an opportunity to say goodbye to Loreen and wish her well, two functions were held in July. An informal reception was held at the Wildewood Club on July 22nd with about sixty friends and well-wishers present. Speeches were made and a going away gift was presented. In answer, Loreen recalled many of the pleasant and interesting things that had happened to her in her years with A.P.E.M. It was a happy and a sad occasion for all those present.

On July 25th, Council held an official luncheon at the Winnipeg Chamber of Commerce in honour of Mrs. Dunklee. Roger Kane and Bill Mackenzie spoke of the many contributions Mrs. Dunklee had made to A.P.E.M. Councillor Len Bateman, who was a member of council when Mrs. Dunklee was hired, was able to comment on the early part of the career of the guest of honour and commented on her loyalty and dedication. In an emotional reply, Mrs. Dunklee recalled how much a part of her life A.P.E.M. had been and spoke of her innumerable friends in the Association and of the great personal satisfaction she had had in working with so many members of A.P.E.M.

Council, committees and staff will miss the wise counsel and guidance of Loreen Dunklee and the Association will be the poorer because of her absence.

Engineering History in Manitoba

By John W. Markowsky

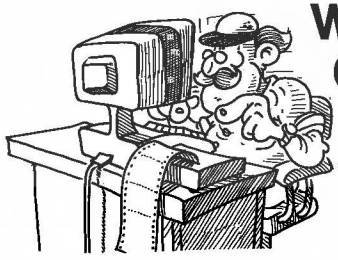
This is a request for information from our membership with respect to engineering history in Manitoba. We are looking for articles or ideas which may be of either technical or general interest. The information may be multi-disciplinary or specific to an engineering event or detail.

There is no one source for this type of information. In fact a great deal of it has not been recorded. We would, therefore, appreciate any stories, pictures, or source information any member or company would be willing to offer. Any material or written articles submitted will be reviewed by the Bulletin Committee for editing prior to publishing. Any original material such as reproducible photographs would be handled with care and returned to the source.

We will, of course, recognize any efforts by members who contribute. You can send information to the A.P.E.M. office to the attention of the Bulletin Editor.

We are requesting historical submissions in anticipation of the "Centennial of the Profession" in 1987.

Friends bid Loreen Dunklee a "Happy Retirement".



Winnipeg Symposium on Computer Applications

The first Winnipeg Symposium featuring exhibitions and seminars on computer applications in a variety of specific business environments. The MicroSense Symposium will provide you with the unique opportunity to interact with other business people and meet with computer manufacturers, computer suppliers, and other professionals to help you conduct your business more efficiently and effectively.

In order to help your business become more productive, the Unix/Usr/Group/Winnipeg and Byte-Me Computer Consulting will put on four mini-seminars for the price of one. The topics will include Office Automation, Computer Aided Design and Manufacturing, Industrial Robotics, and the Unix Computer Operating System.

Office Automation is a broad concept encompassing all aspects of office work related to the acquisition, recording, storing, and dissemination of information. Devices that handle such informational data include word processors, intelligent copiers, voice and data store-and-forward systems. Come and listen to an AT&T representative, the leading supplier of office automation and communications speak about the office of today and tomorrow.

Computer Aided Design and Computer Aided Manufacturing (CAD/CAM) has without a doubt, proven itself a powerful tool in reducing the time and improving the reliability and productivity of the design and manufacturing cycle. If you're either a small or a large manufacturer, come and see how CAD/CAM will improve your enterprise. Sun Microsystem a major manufacturer of CAD/CAM equipment will speak about this exciting entry in the world of computers and engineering.

Robotics, the newest tool for manufacturers to develop high quality output. Robots cut costs and increases productivity; they relieve workers of hazardous or unpleasant jobs and improve the consistency and quality of production. If you are considering a robot or would like to learn more about this interesting field, come and hear a guest speaker from Horizon Robotics talk about what's new.

Unix. What is unix and how does it fit into the realm of CAD/CAM, office automation, and robotics. Unix is the computer operating system that all of the above employ. Unix is transportable and hardware independent. Listen to quest speakers from the Unix Trade Association speak on the benefit of this versatile operating system.

This symposium will take place
October 29, 1985, 1:00 p.m. to 5:00 p.m.
at
The Winnipeg Convention Centre
Tickets $30.00 each.

For further information contact
DON GALAGUN at 204-269-0885