Canadian Nuclear Society
Société Nucléaire Canadienne
111 Elizabeth St., 11th Floor,
Toronto, Ont., Canada M5G 1P7

CNS BULLETIN SNC

Vol. 3, No. 4 June-July / Juin-Juillet 1982

MOORADIAN CONVOCATION ADDRESS

CNS JOURNAL UPDATE

ANNUAL CONFERENCE REPORT

La Société Technique de l'Association Nucléaire Canadienne
The Technical Society of the Canadian Nuclear Association

The CNS Bulletin is the membership newsletter of the Canadian Nuclear Society.

Le Bulletin SNC est l'organe d'information de la Société Nucléaire Canadienne.

CNS provides Canadians interested in nuclear energy with a forum for technical discussion. For membership information, contact the CNS office, a member of the Council, or local branch executive. Membership fee is $25.00 annually

La SNC procure aux Canadiens intéressés à l'énergie nucléair un forum où ils peuvent participer à des discussions de nature technique. Pour tous renseignements concernant les inscriptions, contacter le bureau de la SNC, les membres du Conseil ou les responsables locaux. La cotisation annuelle ext de $25.00.

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Canadian Nuclear Society/
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EDITORIAL

Don't Give Up The Ship

What with the Canadian dollar slumping like RMS Titanic and interest rates maintaining their unprecedented altitude, the expiration of the Mexican nuclear export possibility was as welcome to the Canadian nuclear industry as a concrete life-jacket to a struggling swimmer. While it is true that in Canada 14 new CANDU reactors are due to come into service over the next eight years, it is also true that no Canadian electrical utility has committed nuclear plants beyond this point. And with the Canadian economy in its present shambolic state it is not possible to be particularly optimistic about any change in this situation in the near future.

However, this is not the moment to take to the boats. The nuclear industry may be suffering damage, but it's still very much afloat. As Pat Campbell reminded his audience at the CNA Annual Conference luncheon last June, engineering work doesn't stop when a nuclear unit goes into service. While the nuclear industry "must strip down and shape up," Mr. Campbell also noted that "I am confident that the industry, the utilities and AECL will be able to retain the core of their nuclear research and development and design and construction staff."

And there might also be some argument for those of us in the business of adopting the approach of a certain military commander who observed "My men are outnumbered fifteen to one. I am totally surrounded. I only have one course of action -- attack!" The nuclear industry has so much to offer -- much more than supplying cheap, clean and reliable electricity, that it might be a good idea to let the outside world know about it. What are some of the opportunities?

- high-temperature reactors (perhaps using organic coolant) for oil sands processing
- advanced fuel cycles
- reactors for district heating and industrial process heat
- expanded radioisotope applications in medicine and industry
- hydrogen production
- substitution of nuclear electricity in, for example, steel production using the plasma arc furnace. Or railway electrification (countries as climatically different as Switzerland and England have successful electrified railway systems, why not Canada?)

Discussing these ideas among ourselves is useful, and indeed, is being done. But that's no substitute for bringing these ideas before the rest of the people of Canada -- legislators,

businessmen, academics, the news media and the general public whose tax money after all, nurtured Canada's nuclear program through its early stages. We could remind ourselves of Bill MacOwan's words at the opening of the CNA conference: "I want to see much more effort to push our ideas throughout the year, not just during the 2-3 days of this conference... let's get out there and earn some positive headlines for a change."

Ernie Siddall

It would be difficult to think of a more appropriate recipient of the W.B. Lewis award than Ernie Siddall. As all those who read Ernie's papers on safety and risk will know, Ernie combines intellectual rigour in his analyses with outspokenness in his conclusions. At a time when the issue of risk and safety is all too often treated with circumlocution or obfuscation Ernie's approach is not only refreshingly different but vital if we are to base our actions on reality. The CNS Bulletin would like to join with all CNS members -- and indeed everybody in the Canadian nuclear industry -- in congratulating Ernie on the well deserved recognition of the contribution he continues to make to Canada's nuclear community.

This Issue

Phil Armstrong completes his assignment as unpaid Bulletin reporter in this issue with his wind-up report on the CNS Annual Conference. Phil's contributions have been an editor's dream -- well written, correctly punctuated and -- most important -- on time. Thanks. Also thanks to Ara Mooradian, for permission to publish his convocation address, and John Hewitt for obtaining that permission as well as the text. The next issue of the Bulletin will include an article on the Canadian fusion program.

LETTERS

Issue Management Re-defined

I must take issue with Dan Meneley's definition of issue management in the May 1982 issue of the CNS Bulletin. The situation he describes, of being stuck in a snake pit, is the usual one for the nuclear industry. Usually, however, we aren't so fortunate as to find a convenient rope dangling in front of us (or if we are, it has a noose on the end of it). This gives rise to the common industry view of the public relations function, so aptly expressed in a Toronto Star cartoon recently (in case of emergency, break glass).

Issue management, properly practised, keeps you out of the snake pit in the first place. Too often, we're so intent on scrambling out of the pit we're already in that we can't take the time to plan a course that will avoid the next one.

Egon Frech

PERSPECTIVE

Even as the afternoon sessions of the Third Annual CNS Conference were in full sway on June 9, 1982 at the Royal York Hotel, another event, also of interest to the nuclear community, was taking place a few blocks away at the University of Toronto.

An Honorary Doctor of Science degree was conferred on Dr. Ara Mooradian, Senior Vice-President of the Atomic Energy of Canada Limited, at the 1982 convocation for graduates of U of T's Faculty of Applied Science and Engineering. Dr. Mooradian then addressed the new graduates in a most timely manner. Since we believe that his remarks will be of interest to less recent graduates as well, we are pleased to share the text of his address with CNS members.

J.S.H.

"IT'S TIME TO STOP FUELLING AROUND AND START FUELLING AT HOME"

Mr. Chancellor, Mr. President, Members of the Platform Party, Members of the Graduating Classes, Ladies and Gentlemen:

It is a great honour to join the University of Toronto Class of '82. We who now carry the banner for this University are not only privileged to enjoy its reputation, but we are also obligated to ensure that its capacity for achievement and contribution will expand to match the needs of an era which promises to be one of the most stimulating yet to be encountered by man.

I need a new word to describe what I want to talk about today. No doubt many of you can think of a better one but, for the purposes of this address, I have invented the word "CREEPSIS." It's a creeping crisis. I suppose the plural should be "CREEPSES" for creeping crises. I define a CREEPSIS as an issue which, if not responded to today, will inevitably and inexorably -- without drama, without romance, without excitement -- lead to very unpleasant consequences on a major scale as surely as the unfolding of a Greek tragedy.

It's an issue which demands a response characterized by the tenacious application of intelligence, resources and ingenuity. The key work is "TENACIOUS."

In the past, the word we have used to describe such a situation has been "CRISIS." We've used crises to motivate organized society to concerted action. We've sometimes synthesized them to bring serious issues to public attention. We've often used crises

to divert public attention from even more serious issues. It's true that a crisis can still sometimes unify purpose and release ingenuity and, at least for a short period, motivate productivity. However, it is a concept which has been so overworked that we have become conditioned to them -- like drugs -- so that it takes larger and larger dramatic events to effectively command attention.

At a time when we need a unity of purpose and a tenacious application of resources as never before to resolve the most pressing issues which face this next five decades -- those of immediate concern to you in this audience -- the concept of "crisis" is completely inadequate as it is understood today. It appeals to our natural tendency to respond to the most immediate stimulae and has come to denote a very short time constant in comparison with the tenacity required to address our major issues. In short, the cry of crisis has lost its credibility. Hence the need for a new word.

What I wish to talk about today is the ENERGY CREEPSIS. There are few issues which have received so much attention and yet are so poorly understood. The public has gone through at least two cycles in which they have been told that the world is running out of oil only to find that we are facing what the media calls an oil glut. The credibility of producers and governments alike has been challenged and, like Stephen Leacock's Hoodoo McFiggin, we've cursed the oil producers singly and when we've tired of that, we've lumped them all together and cursed them collectively.

Even at that, in comparison to the energy creepsis, the oil crisis is reasonably well understood and I'm not going to focus on that issue today. We are all aware of how vulnerable we've become with one-third of the world supply of oil subject to a single collective decision. Most of us are aware that world producibility is likely to peak as early as the 1990's and if the rest of the world consumed oil as we do in North America today, we could completely exhaust the Persian Gulf in less than four years. Fewer of us are aware that if the current world population were to consume oil as we do, we could completely exhaust all resources thought to be ultimately recoverable by man, including those for which there is not yet recovery technology in place, in the space of about 30 years -- well within the time span of immediate interest to you in this audience.

The so-called oil glut is known to be a short term phenomenon that results from rapidly escalating prices over the past few years combined with a very short hold-up between production and use.

I am in no way suggesting that our over-dependence on natural oil and the instability in its price, production and demand is not a

serious situation. I simply wish to point out that the energy creepsis is of even more fundamental and compelling concern.

There is a sort of feeling that when oil runs out, we'll always have natural gas and when natural gas runs out, we'll always have coal. What I wish to address as the energy creepsis is the implicit feeling of comfort that, one way or another, we'll muddle through by simply exploiting more and more of nature's resources of fossil fuels and that, although some such fuels may not be elegant, there will be sufficient for our needs.. It is this erroneous perception which lies at the heart of the energy creepsis.

On a world-wide basis, we are now well over 80% dependent on a fossil-based energy supply. It has therefore become critically important to assess the adequacy of its resource base.

Surprisingly, the estimates of recoverable fossil fuels have not changed by even one order of magnitude over the interval of the past 40 years. The most recent authoritative estimates were reported in 1980 by the World Energy Conference in Munich, and at first glance they indicated that we have been endowed with a plentiful reserve. Proven reserves -- coal, oil and gas -- thought to be recoverable under current technical and economic conditions would be sufficient to supply the world for about 100 years, provided however that our energy requirements remain as they are today.

Two factors combined to change this perception -- population growth and the common aspiration of all peoples for a decent life. If we assume that an appropriate energy supply for the world is likely to be one approaching present North American standards (with all of its built-in disparity) and that the world population can be stabilized at about 10 billion (admittedly an optimistic assumption), we find that the world's proven reserves of all fossil fuels, including coal, oil and gas, would be exhausted by such a society within a period of about 6 to 10 years. Indeed, if we assume that we could in fact recover all estimated additional resources thought to be recoverable by advances in technology beyond that which we command today, the fossil energy supply would be adequate for no more than about 60 to 100 years. (Includes coal seams half a meter in thickness at depths down to 1 1/2 kilometers).

What's more, if the same pattern of exploitation persisted as in historically proven fashion, we would find that it would be impossible to elevate the current world population to North American standards even for a brief moment in history.

It was against the background of this perception that the Conservation Commission of the World Energy Conference asked experts from around the world to address themselves to the question --

> **How much can the world energy supply be increased over the next 40 years?**

The answer fell far short of the standard that I have been talking about. Indeed, simply to achieve an energy supply between a third and a sixth of the current North American standard by the year 2020 required some truly heroic assumptions.

For example, it required conventional oil supply to expand from 3 million tons per annum to 5 million tons by about 1990. It assumed that renewable energy -- solar, biomass, geothermal, etc. -- that is to say, all the technologies which today make a trivial contribution to our energy supply -- will by the year 2020 be contributing energy at the rate of about one-third that of the total current world demand. It required that coal supply will have to increase by about 300% to something approaching the entire world energy supply today. And it required that nuclear energy increase many-fold to contribute even more energy than coal.

The sheer logistical impact is truly staggering. Simply to provide the increase in the energy supply to achieve these modest goals is equivalent to a traffic in 1/2 million ton coal super-freighters of one every 7 1/2 minutes continuously, day and night.

For a generation which has seen man visit the moon, it is difficult to avoid the popular misperception that science can do anything. Clearly, the Energy Creepsis requires a completely different dimension of response than the space program. The task before us equates more closely to colonizing the moon than walking on it. Resolution of the problem will required the tenacious, consistent application of all of our skills and mind power.

We shall need the best minds we can find

- not only in science
- not only in engineering and geology
- not only in economics, commerce, finance and management
- not only in political and social science

but also in every facet of scholastic activity which injects into our society

- a sense of perspective
- a sense of wisdom
- a taste for integrity

and the discipline and courage to generate and to defend pragmatically supportable convictions.

It has been tempting for some to assume that with the passing of the baby boom through our universities, we can afford to relax our investment in this area. This would be a most unfortunate and erroneous conclusion. We shall need our universities as we have never needed them before. They will be called upon to train the broad spectrum of disciplines required. More important, they will be called upon to integrate these disciplines into the systems which the task inevitably demands.

The time scale is such that you are entering your profession at the turbulent initiation of the energy conversion process, your children will be in the middle of it, and your grandchildren will see it mature. In responding to the Energy Creepsis, we cannot afford to waste the precious next three decades which will make up the most productive years which you in this graduating class have to invest. The longer we wait to transform our energy supply system to one with a substainable and unconstrained future, the less capital of viable recoverable resources we will have to invest in transforming the new system. The stakes are nothing short of world stability -- we simply cannot take the risk of running out before we have an adequate replacement in place. Standing still could be tantamount to giving up.

We in Canada have a special obligation. Few nations are as wealthy as we in both natural and human resources. Fewer still face such magnificent liabilities as our vast distances and variable climate -- liabilities which should stimulate us to leadership in evolving a stable long term energy supply system. The very act of putting our own house in order will put us in a much better position to help the rest of the world -- not only by example but by tangible investment and trade.

All of this brings me to the snappy title of this address:

"IT'S TIME TO STOP FUELLING AROUND AND START FUELLING AT HOME."

Ara J. Mooradian

FYI

TMI Cleanup Levy Through To Senate (Atomic Industrial Forum)

The TMI cleanup bill (S-1606) has been reported without recommendation from the Senate Environment and Public Works Committee to be considered on the floor of the Senate. The bill establishes mandatory fees which would be used for the TMI cleanup and levied at the rate of one mill (one tenth of a cent) per kilowatt hour of nuclear generation. Utilities would not be assessed until their plants were "operational." The collection of these revenues would begin late this year and continue for 6 years, netting an estimated $160-170 million. The Secretary of Energy would be responsible for distributing the funds to GPU.

Rain Over Land Slightly Radioactive (Globe & Mail)

Rain over the Prairies may not glow in the dark, but it is certainly radioactive, University of Minnesota researchers say. Rainwater from thunderstorms was found to emit more than five times as many radioactive particles as water in the same region. The level is still well within a range considered harmless to humans and the radioactive elements decay to background levels after about 30 minutes. Most of the surface rocks on Earth contain small amounts of radioactive minerals, says George Frier, of the university's physics department. These rocks constantly emit small amounts of radon gas, a by-product of radioactive decay. The gas is absorbed by water molecules rising into the atmosphere through evaporation to eventually fall as rain.

Lepreau Critical (Staff)

First criticality was achieved at New Brunswick Power's Point Lepreau 1 reactor at 20:02 July 25. Presently at near zero power (about 2 kW th) the 600 MW CANDU unit will be brought to about 0.1 per cent full power after two to three weeks of tests, then to 5 per cent power for first steam production. The step-by-step progression to full electrical power is expected to take about three months. NB Power spokesman Roland Krause said there was "a lot of excitement and a real feeling of accomplishment" as this major milestone in Lepreau's progress towards commercial service was passed. Naturally as criticality approached, Krause said, there was "something of an atmosphere of apprehension" in the control room -- perhaps heightened by the presence of representatives from Korea and Hydro Quebec, but "our boys came through with flying colours." Apart from being the first CANDU 600 to start up, Lepreau is also the first power reactor in Canada to have a significant proportion of its output dedicated to power

exports to the US. Contracts for power sales add up to 265 MW to US utilities, the contracts to run from the in-service date of the station to 1987, with provision for extension to 1990.

LaSalle Allegations Dismissed (Atomic Industrial Forum)

Commonwealth Edison will bring its LaSalle-1 nuclear power plant at Seneca, Illinois, to 5 per cent power following action by the Nuclear Regulatory Commission dismissing allegations that the plant is unsafe. A total of 36 allegations were delivered to the NRC on the eve of the plant's scheduled licensing and immediately thereafter, the NRC issued a 5 per cent license April 17 but placed a special zero-power restriction on LaSalle-1 pending resolution of the complaints, many of which were filed as affidavits. Illinois Attorney-General Tyrone Fahner, citing statements by ex-workers, alleged March 25 that improper drilling and coring of containment walls had taken place. On April 27 a coalition of anti-nuclear activists, co-ordinated by the Government Accountability Project (an arm of the Washington-based Institute for Policy Studies) brought additional allegations to NRC's attention.

The 36 allegations compiled by the Attorney General and the Activists included complaints about graffiti at the facility, poor working conditions and debris in concrete forms. They resulted in an 11-week NRC investigation that ultimately delayed the test program by 18 days, costing the utility an estimated $10 million. The most serious charge -- that improper and unsafe drilling and coring operations had been performed -- was dismissed when Commonwealth Edison produced documentation relating to each hole.

LaSalle-1, a 1078MW BWR is expected to begin commercial service in September.

CNS NEWS

CNS Journal

Council has determined in principle to proceed with the publication of a technical, referenced journal for the members of CNS. This journal is intended to be a showplace for the high quality of technical capability involved with all the nuclear related applications in Canada. It will be a quarterly publication with a wide distribution throughout the world, and the first issue is scheduled tentatively for June 1983.

Much work remains to be done by your councillors and committee members and progress reports will be given in later issues of the Bulletin. At this time, preliminary notice is being given to members that journal articles will be required for the first issue by December 1982.

Such articles should be significant technical contributions and as far as possible involve original work. Articles will be submitted to and perhaps solicited through, the Technical Divisions structure of the Society. You are invited to submit your draft articles or abstracts or discuss your ideas for articles with the appropriate Divisional Committee representatives. The names and addresses of these representatives are listed below:

TECHNICAL DIVISIONS COMMITTEE MEMBERS

Design And Material

R. Doucet (Chairman)	Canatom Inc. 740 Notre Dame Avenue West Montreal, Quebec, H3C 3X6 (514) 879-5248
T.J. Carter	Ontario Hydro - Nuclear Material Management 700 University Avenue Toronto, Ontario, M5G 1X6
Mrs. N. Yousef	Ontario Hydro 700 University Avenue Toronto, Ontario, M5G 1X6 (416) 592-5983
John Martin	Ontario Hydro - Mechanical Design Department 700 University Avenue Toronto, Ontario, M5G 1X6

W. Clendening	AECL - Process Design Methods Branch Design and Development Division Sheridan Park Research Community Mississauga, Ontario, L5K 1B2 (416) 823-9040

Environmental Health & Public Affairs

T. Drolet (Chairman)	Ontario Hydro 700 University Avenue Toronto, Ontario, M5G 1X6 (416) 592-5539
Mel Feraday	AECL-Chalk River Nuclear Laboratory Chalk River, Ontario, K0J 1J0 (613) 687-5581
Eva Rosinger	AECL-Whiteshell Nuclear Research Establishment Pinawa, Manitoba, R0E 1L0 (204) 753-2311
S. Trussart	Hydro Quebec - Research Institute 1800 Montee Ste. Julie Varennes, Quebec, J0L 2P0 (514) 652-8578
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Mining Manufacturing & Operations

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John Pauksens	AECL - Engineering Sheridan Park Research Community Mississauga, Ontario, L5K 1B2 (416) 823-9040
Prof. D. Rozon	Groupe d'analystes Nucleaire 6600 Cote des Neiges Suite 215 Montreal, Quebec, H3S 2A9 (514) 344-4200
Prof. A.A. Harms	Department of Engineering Physics McMaster University Hamilton, Ontario, L8S 4M1 (416) 525-9140/4545
Dr. C.H. Miller	P.O. Box 161 Deep River, Ontario, K0J 1P0 (613) 584-2801

Joe Howieson

CNS Annual Conference

Plenary Session Report

Is the nuclear 1st operator's job impossible? Does he or she have to exercise Solomon's wisdom under the threat of a reactor blowing itself to pieces? Is he singlehandedly expected to save society from Armageddon? Some of these dark undercurrents seem to influence the role and qualification of nuclear plant operators around the free world.

The panelists representing the industry were unanimous in declaring that the operator's job is bounded by a written job description. The 1st operator is a key position in any company but the job tasks are definable. Since it is known what has to be done then it follows that what has to be known to do it can also be defined.

Training programs can then be devised to close the gap between what a person knows and what must be known to do the job well. This may on the surface seem to be a simple task but in practice many small utilities find it very expensive to maintain the capability to execute the training function and hence the formation of INPO represented at the conference by Ken Strahm.

The regulatory bodies responding to various pressures don't always see things in this logical sequence. Jim Ryder, Manager of Ontario Hydro's Nuclear Training Department emphatically pointed out that AECB examinations sometimes try to establish that the candidate can complete analytical calculations having no bearing on what is expected in the field. No operator has to work out the thermodynamics of a heat exchanger on the job. Examination questions have in the past asked for this type of calculation which would be more appropriately done in the station's technical section. Fred Davediuk defended the control board by explaining that in his view it wasn't sufficient that an operator mechanically carry out set routines: he should also be expected to have some fundamental understanding of what he is doing.

Of course, no one could disagree with this view but the industry differs with the control bodies, on what constitutes fundamental understanding.

There are many other facets to the role and qualifications of nuclear plant operators. There wasn't much time to explore the man-machine interface but this may receive more attention at the Human Factors in Control Room Design and Operation Conference.

There were questions from the floor. A "person" asked why there weren't more women operators. Apparently women are starting to

appear in limited numbers at US power reactors but not yet in Canada. Canadian plants are however gearing up to provide the facilities although regulations governing exposure limits may discriminate against male workers.

Phil Armstrong

CNS BRANCH PROGRAMS

Toronto Branch

The autumn program for the Toronto Branch CNS has been finalized as follows:

October 19 at 19:30

Dr. L. Yaffe, MacDonald Professor of Chemistry, McGill University will speak on "The Health Hazards of Not Going Nuclear." Dr. Yaffe will examine the risks associated with the current methods of producing electricity. He will compare the health hazards of coal-fired and nuclear generating stations, including the front end of the fuel cycle and radioactive emissions and compare the risks associated with nuclear energy to those currently accepted by the general public. The meeting will be held in Room 202 of the Galbraith Building, 35 St. George Street, Toronto.

November 9 at 19:00

Members will have an opportunity to tour the CGE Fuel Pelletizing Unit at 1025 Lansdowne Avenue, Toronto. The tour will include a presentation on the health and safety aspects of fuel fabrication. Since numbers will be limited, those interested should contact David Jefford (592-2853) as soon as possible. Due to the proprietary nature of the plant facilities, employees of competitor organizations cannot be admitted.

November 30 at 19:30

Dr. Tom Drolet, Manager of Ontario's Fusion Energy Materials Program, will describe the Canadian Fusion Fuels Technology Project. This program has been established to pursue research and development into fusion energy, with special reference to the application of existing Canadian expertise in related fission energy areas (tritium and deuterium). Dr. Drolet will describe the program and discuss fusion energy with particular reference to environmental aspects and remote maintenance. The meeting will be held in Room 202 of the Galbraith Building, 35 St. George Street, Toronto.

Arthur Guthrie
Chairman, Toronto Branch CNS

CONFERENCES & MEETINGS

International Meeting On Thermal Nuclear Reactor Safety

Co-sponsored by CNS, ANS, ENS and JAES, the meeting will be held at Chicago, Illinois, August 29 to September 2, 1982. Further information available from Jan B. van Erp, Co-Chairman, Technical Program Committee, Argonne National Laboratory, Bldg. 208, Argonne, IL 60439.

Uranium '82

Co-sponsored by the Canadian Nuclear Association and the Hydrometallurgy Section of the CIM Metallurgical Society, to be held at the Royal York Hotel, Toronto, from August 29 to September 2, 1982. For information contact Dr. I.J. Itzkovitch, Eldorado Nuclear Ltd., 400-255 Albert Street, Ottawa, Ontario, K1P 6A9.

Workshop On Geophysical Investigations in Connection with Geologic Disposal Of Radioactive Wastes

Sponsored by the OECD Nuclear Energy Agency, this workshop will take place September 8 to 10, 1982 in Ottawa. For information contact Dr. Peter Johnston, Division of Radiation Protection and Waste Management, OECD NEA, 38 boulevard Suchet, F-75016, Paris, France.

International Conference On Radioactive Waste Management

An International Conference on Radioactive Waste Management, sponsored by the Canadian Nuclear Society, will be held in conjunction with the Annual Information Meeting of the Canadian Nuclear Fuel Waste Management Program on September 12 to 16, 1982 at the Winnipeg Convention Centre, Winnipeg, Manitoba. For additional information contact the Canadian Nuclear Society, 111 Elizabeth Street, Toronto, Ontario, M5G 1P7.

Decontamination Of Nuclear Facilities

Co-sponsored by the CNS, the CNA and the ANS. The conference will be held at Niagara Falls, Ontario, September 19 to 22, 1982. Further information from Eric LeSurf, London Nuclear Services Inc., 2 Buffalo Avenue, Niagara Falls, NY 14303.

"Materials In Nuclear Energy" Conference

Co-sponsored by the CNS and the Canadian Council of the American Society for Metals (CCASM). The conference will be held at Huntsville, Ontario, September 29 to October 2, 1982. Further information from Derek O. Northwood, Dept. of Engineering Materials, University of Windsor, Windsor, Ontario, N9B 3P4.

A Symposium On The Assessment And Perception Of Risk To Human Health In Canada

Co-sponsored by the Royal Society of Canada and the Science Council of Canada, to be held at the Ontario Science Centre October 18 to 19, 1982. Further information from Laurier Forget, Conference Services Office, National Research Council of Canada, Ottawa, Ontario, K1A 0R6.

Seminar On Nuclear Issues

Sponsored by the Canadian Nuclear Association, to be held November 2 to 3, 1982 in Ottawa. Further information available from Canadian Nuclear Association, 111 Elizabeth Street, 11th Floor, Toronto, Ontario, M5G 1P7.

Ionizing Radiation Measurement Seminar

Sponsored by the National Research Council of Canada, to be held November 8 to 9, 1982 in Ottawa. Further information available from Heather Matchett, Physics Division, National Research Council of Canada, Room X-11, Building M-35, Ottawa, Ontario, K1A 0R6.

Thermalhydraulics For CANDU Reactors

A course sponsored by AECL, Ontario Hydro, CNS and the McMaster Institute for Energy Studies, to be held at McMaster University, Hamilton, December 13 to 17, 1982. For information contact Dr. Jack Kirkaldy, McMaster Institute for Energy Studies, 1280 Main Street West, General Sciences Room 203, Hamilton, Ontario, L8S 4K1.

2nd Workshop On Analytical Chemistry In The Nuclear Industry

Co-sponsored by the Canadian Nuclear Society and the Canadian Nuclear Association, to be held April 24 to 27, 1983, Hecla Island, Manitoba. Further information available from P. Campbell, Analytical Science Branch, Whiteshell Nuclear Research Establishment, Pinawa, Manitoba, R0E 1L0.

Symposium On Commissioning - Call For Papers

A Symposium on Commissioning, under the joint sponsorship of the Canadian Nuclear Society and the Canadian Nuclear Association, will be held on Tuesday, May 3, 1983 at Toronto's Constellation Hotel. The symposium will provide a forum for those involved directly or indirectly with the commissioning of nuclear power plants to discuss and share experiences, problems and accomplishments. Papers (from individuals or organizations) are invited on the following topics:

- The mechanics of a commissioning program (program management, scheduling, procedures, control, current results and problem areas)
- AECB licensing requirements (current and future directions)
- Quality assurance programs (application, benefits, problems and future directions)
- Equipment and design (performance feedback mechanisms, the impact and relevance)
- Manufacturers' direct participation in commissioning (experience, potential and support services)

The deadline for submission of summaries of papers is December 1, 1982.

For further information contact:

B. Harling
Ontario Hydro
595 Bay Street
Toronto, Ontario, M5G 2C2
Telephone: (416) 592-4389

23rd Annual International Conference Of The CNA And 4th Annual Conference Of The CNS

Co-sponsored by CNS and CNA, to be held June 12 to 15, 1983 in Montreal. For information contact CNS.

4th Pacific Basin Conference

Co-sponsored by CNS, CNA et al., to be held September 11 to 15, 1983 in Vancouver. For information contact CNS.

THE UNFASHIONABLE SIDE

My contacts at Aphasia University tell me there's a right royal row brewing. It concerns the appointment to the newly established Chair of Experimental Energy Studies of Dr. Dennis Molestrangler, best known as the project leader of the Sunnyside Stream Solar Generating Station, Canada's first commercial-scale solar electricity project. Chairman of AU's Department of Underwater Ornithology and well-known freelance environmental critic, Professor Armitage Loathing, has been particularly critical. In an open letter to faculty and students, Prof. Loathing calls for a "university-wide day of silent protest" to resist "the imposition of this personification of uncaring technocracy." Outlining the central objection to Dr. Molestrangler's appointment, Prof. Loathing notes "Aphasia University's major tradition is of cross-disciplinary research. Dr. Molestrangler's academic qualifications and professional experience are solely in engineering. The most searching scrutiny of his published work fails to reveal any attention paid to socio-ethnic or psycho-sexual considerations." Prof. Loathing draws particular attention to Dr. Molestrangler's recent paper on elastomer energy storage systems for air transportation which he describes as "a classic case of technological tunnel vision. Nowhere in this paper does the author even attempt to discuss the possible socio-economic impact of the proposal on middle-aged pipefitters living in Mississauga."

Dr. Molestrangler is a pretty difficult sort of chap to get hold of, but I finally ran him to earth at AU's campus pub, "The Irradiated Physicist." There, over a few beers, he explained that he hoped his initial program of work would make full use of AU's renowned cross-disciplinary expertise and, in doing so, perhaps make his appointment more acceptable to some of the faculty. "As a start I'm having two graduate students working full-time on increasing the scope of the elastomer-storage study, especially in evaluating the impact of the elastomer-storage systems on the rise of socialism in the Austro-Hungarian Empire -- a vital area, hitherto untouched," he pointed out as he absent-mindedly inserted some sunflower seeds into the battery compartment of this pocket calculator. "And I'll be putting in a lot of time on the analysis of diversified personnel electromagnetic induction systems, with special emphasis on the impact of the laws of electromagnetic induction on the development of participatory decision-making." Our discussion was interrupted at that point by the non-arrival of more beer, this causing a trip on low-flow. We've made arrangements to continue the conversation at a later date, after the usual poison-shut down period.

Fragmented Memories Of The Annual Meeting

Most of the stories I've heard about the Annual Meeting will have to await the expiration of the Statute of Limitations before they can be published, but there are a couple... For example, I've heard that one young gentleman was exposed to a new interpretation of AECL's slogan about CANDU -- "Proven, not promising." It appears that said young gentleman encountered an AECL official who, after a traditional exchange of pleasantaries, said "how about coming up to our hospitality suite for a drink." Not unnaturally, this invitation was accepted with alacrity. But when the eager (and thirsty) group arrived at the suite, DISASTER! It appeared that a Very Senior AECL Official was being interviewed in the suite, and worse, said interview was taking place in the part of the suite where the booze was located. Properly feeling that AECL's public image would not be greatly enhanced by the sudden introduction into the interview locale of a thirsty group snatching bottles and running, it was decided to wait in an adjoining room until the interview was concluded. The group waited. And waited. And waited. The situation became critical rather rapidly with all present reaching a stage of advanced dryout. At this point the host made a decision of unparalleled courage and self-sacrifice -- "let's go down to my room -- I've got some stuff there." To said host at least one thirsty gentleman of my acquaintance extends most heartfelt thanks.

And for the chaps in the Bristol Aerospace hospitality suite -- be very careful when you hand out those little samples of zirconium. Someone I know narrowly escaped prosecution by the Toronto Transit Commission when he put three of them in a streetcar farebox... said he mistook them for quarters. You might want to call him up as well to explain that you can't put batteries in that nifty pen you gave him. He won't believe me.

Ernest Worthing

Canadian Nuclear Society
Société Nucléaire Canadienne

111 Elizabeth St., 11th Floor,
Toronto, Ont., Canada M5G 1P7

☐ Request For Further Information
(Complete Only Name and Address)
☐ MEMBERSHIP APPLICATION

A. PERSONAL DATA:

Surname: _____ Given Names _____
(underline name used)

Indicate desired mailing address in one of the check boxes:

☐ Home Address: _____ (Street) _____ (City) _____ (Province)

_____ (Postal Code) _____ (Phone Number)

☐ Business Address: _____ (Street) _____ (City) _____ (Province)

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B. MEMBERSHIP DATA:

Employer _____

Business Title (if applicable) _____

Please list any Technical or Scientific Societies, Institutes and Professional Associations of which you are a member.

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EDUCATION

University, College Institute, etc.	Discipline	Degree/Diploma	Date of Degree or Diploma

Your Association with Nuclear technology

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Please indicate the one or two CNS Technical Divisions most accurately reflecting your interests.

A. Nuclear Science ..... ☐
B. Design and Materials ..... ☐
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D. Environment, Health and Public Affairs ..... ☐

Are you interested in attending local Branch events? ☐ Yes ☐ No

Are you willing to serve as an executive on Canadian Nuclear Society Committees?

Administration	☐ Yes	☐ No
Technical Division	☐ Yes	☐ No
Branch	☐ Yes	☐ No

Previous experience on Committees:

_____

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Date (Signature of Applicant)

Language for correspondence _____

C. FEES:

MEMBER: $25.00 for Calendar Year - January 1 to December 31.
STUDENT: $ 5.00 for Calendar Year - January 1 to December 31.
Cheque payable to: CANADIAN NUCLEAR SOCIETY

FOLD AND STAPLE OR TAPE FOR MAILING

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CANADIAN NUCLEAR SOCIETY
111 ELIZABETH ST., 11TH FLOOR
TORONTO, ONTARIO
CANADA
M5G 1P7

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☐ Demande pour de plus amples renseignements (Noms et adresse complets)
☐ Demande d'adhesion

A RENSEIGNEMENTS PERSONNELS:

Nom de famille: _____ Prénoms: _____
(soulignez le prénom usuel)

Cochez la case appropriée pour l'adresse où vous désirez recevoir votre courrier:

Adresse au domicile: _____ _____ _____
(rue) (ville) (province)

_____ _____
(code postal) (numéro de téléphone)

Adresse au bureau _____ _____ _____
(rue) (ville) (province)

_____ _____
(code postal) (numéro de téléphone)

B RENSEIGNEMENTS PROFESSIONNELS:

Employeur: _____

Fonction (s'il y a lieu): _____

Veuillez indiquer les sociétés ou associations de caractère technique ou scientifiques vous êtes membre.

_____ _____

EDUCATION:

Université, collège, institut, etc.	Discipline	Diplôme	Année décerné

Domaine d'activité ou d'intérêt relié à la technologie nucléaire

_____

Veuillez indiquer **un ou deux** groupes techniques de la SNC qui représentent le mieux vos intérêts.

A. la science nucléaire .....
B. la conception et les matériaux .....
C. l'exploitation minière, la fabrication, l'exploitation des centrales .....
D. l'environnement, la santé et les affaires publiques .....

Vous intéressez-vous à assister aux événements des sections locales? oui non

Désirez-vous participer aux comités de la Société nucléaire canadienne?

Conseil d'administration	oui	non
groupes techniques	oui	non
sections régionales	oui	non

Expérience antérieure comme membres de comité:

_____ _____

_____ _____
Date (Signature du candidat)

Langue de correspondance _____

C MONTANT DE LA COTISATION:

MEMBRE: $25 par année civile - 1er janvier au 31 décembre
ETUDIANT: $5 par année civile - 1er janvier au 31 décembre

PLIEZ ET BROCHEZ OU COLLEZ POUR POSTER

DE _____

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