



CNS BULLETIN SNC

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Nabila Yousef Becomes CNS President

Nabila Yousef assumed the Presidency of the Canadian Nuclear Society at the Annual Conference in June. She received her B.Sc. in Mechanical Engineering from the Ain-Shams University in Cairo and her M.A.Sc. in Mechanical Engineering from the University of Waterloo. She has taught at the Conestoga College of Applied Arts and Technology, Kitchener (Engineering Mechanics, Metallurgy, Statistics and Quality Control) and at Waterloo (Engineering Measurements and Electricity and Magnetism). Following a period at Hawker Siddeley Canada Ltd. as a Mechanical Engineer, Ms. Yousef joined Atomic Energy of Canada Ltd. in 1975 as a Design Engineer specialising in design and testing of fuelling machine components. Ms. Yousef moved to Ontario Hydro's Nuclear Systems Department in 1978 where she is now Supervising Design Engineer of the Systems Engineering Unit.

President's Message

One very pleasant feature of taking over the Presidency of the Canadian Nuclear Society is that, unlike a change of political administration where the new incumbent tends to promise changes of direction in all directions, I can promise (or, rather, com-

mit myself to) a continuation of the dedication and enthusiasm of my predecessors.

I am particularly optimistic about the future of the Society. While membership has not noticeably grown this year (I hope to see that change in the future), the vigour of the Society is well demonstrated by the fact that, in addition to the New Brunswick Chapter, two new CNS Chapters have opened in Ontario, one to serve the Pickering, Darlington, Port Hope and Peterborough area and the other to serve the Bruce area.

Further evidence of the Society's strength is the launching of the *Nuclear Journal of Canada* whose first issue is scheduled for publication in Spring 1987. This flagship publication will not only provide a technical forum for the exchange of information and ideas on all aspects of nuclear science and engineering in the Canadian context, but also can only enhance our reputation as a technical society internationally. I do urge all CNS members to support the *Journal* by contributing articles and supplying critical input.

I feel very strongly that one of the most important roles the CNS can play is an educational one. All CNS members, by definition, have much expertise to contribute to any public discussion about nuclear energy -- in this vital area there is little respectable technical information readily available and CNS members can help to fill this gap. Of particular importance are schools and universities -- that's where future CNS members are. I should like to remind everybody (including myself) that we are the Canadian Nuclear Society, not the Canadian Nuclear Power Reactor Society, and we should try to stimulate interest in all aspects of nuclear science and engineering. Energy from nuclear power reactors is a large and vital part of the "N" in CNS, but not the only one.

Finally, I should like to assure all CNS members of my determination to see that

the CNS continues to flourish in the year ahead, and should also like to request your input, as CNS members, to your Chapters, the Council and myself. Let us know where you think the Society should be going.

N. Yousef

CNS News

President's Year-end Report — June 1986

As I indicated to you in my remarks at this time last year, no major conferences were planned for my term in office. Hence, I hoped to concentrate our attention on two major areas:

- (1) our relationships with the CNA, and
- (2) the startup of the *Nuclear Journal of Canada*.

It is my pleasure to report to the membership on the considerable progress Council has made in these two areas over the past year. Also as you will see from the Annual Reports from your Committee Chairmen, there has been significant progress made in other areas as well.

Since the formation of the CNS/SNC by the CNA in 1979, we have received unstinted support from the CNA for all that we have attempted to do. This support has come in many ways - from the guidance and unsparing help of the CNA Office staff to that of the CNA's Board of Directors -- many of them our bosses -- who have encouraged the Society's members to use their facilities and time for transacting Society business. Without this help our Society could not have grown to its present stature. We acknowledge our indebtedness and thank the CNA and their member companies for this help.

The Canadian Nuclear Society / Société Nucléaire Canadienne has over the last six years developed its own functioning organization, it has built up a good financial base, it is nationally recognized as a mature society and it is internationally recognized as representing Canada's nuclear scientists and engineers.

In this situation discussions with the CNA on two aspects have been started:

- (1). Development of some way to recognize our maturity. This is exploring the possibilities of incor-

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poration of the two organizations as fraternal organizations,

- (2). Development of a contract defining the continuing financial and organizational relationships.

These discussions have not yet reached definitive outcomes but significant progress is being made.

On the Journal, the final commitments have now been made based on a comprehensive business plan. The first meeting of the Editorial Board was held Wednesday, June 11. The call for papers has been issued and Alan Wyatt, our editor, needs a good response from you, the membership at large, to that call. This Journal should be your primary target for peer reviewed papers from now on. The first issue of the Journal is scheduled for the first quarter of 1987.

I want to express my sincere appreciation to the CNA Office staff — Norm Aspin, Jim Weller, David McArthur, Diane Waechter, Shirley McDonough and Jean Balaban who have helped in so many ways.

I also want to thank all the members of Council for their support. If I do not mention you by name, it is not because your efforts are unappreciated — it is because of lack of space. I'll start by thanking Gil Phillips — who is our unsung Secretary and Rudi Abel — our able treasurer.

The Society owes a lot to my Vice President of the past year and your new President — Nabila Yousef. She has been my eyes and ears in Toronto, organized the Officers' meeting in September and the membership survey in March, and lead the CNA negotiations. I should note that her election represents the first time a woman has held such a senior position in Canada's Nuclear Industry. It puts the Society in the same status as the APEO.

John Boulton has organized this year's Annual Meeting and has maintained the high standards of technical excellence and smoothness of operations.

Peter Stevens-Guille has ably worn many hats for the Society this year. Past President, International Delegate, CNA negotiation team, and organizer of a major symposium.

Irwin Itzkovitch has been Program Chairman. The conferences held this year were limited to the Student Conference and the Simulation Symposium, though CNS did co-sponsor 2 others. The Program Committee has been expanded and the planning process is fruitful. Five major conferences, two local ones and 7 co-sponsored events are scheduled for the next year and plans are now being laid for 1989.

Beyond the ranks of Council I would like to mention Dan Meneley's contributions. In addition to representing CNS on the IAEA's Nuclear Safety Committee and holding the Student Conference in Fredericton, the New Brunswick branch has been formed and promises to be quite active. The Toronto Branch has under the leader-

ship of Troy Lassau set an example for the other branches to follow.

I would also like to thank Phil Ross-Ross for his continued interest in and help to the Society. Phil and John Melvin both did a great job on the two briefs which were presented to Ontario's Select Committee hearings on the Darlington plant and on the Ontario Hydro Supply and Demand study. Thanks also are due to David Mosey and Hugues Bonin for the continuing high quality production of the Bulletin.

At last year's conference we had just learned of the financial cutbacks to AECL's research budget. Nuclear power in Canada now appears to have absorbed this shock only to have Chernobyl replace it as the primary topic at this conference.

Last year, I indicated that the industry could become stronger as a result of the cutbacks and I believe it has. This year I think there is reason to hope that Chernobyl will have a similar strengthening effect. This accident was about the worst possible one yet it seems to show that the resulting damage is significantly less than what had been predicted by Western safety analysis.

Finally I would like to wish the new Council and the Society continued growth and success in the coming years.

J. Howieson

CNS Conference Highlights

The Canadian Nuclear Society held its 7th Annual Conference at the Royal York Hotel in Toronto, June 7—10, 1986, in conjunction with the 26th Annual International Conference of the Canadian Nuclear Association, with nearly 500 delegates attending. The CNA Symposium on Advanced Nuclear Services was also incorporated into the event, taking place on June 11.

As noted elsewhere in this issue, the CNS Council changed. On June 10, a luncheon hosted by the CNS heard an address by Stan Hatcher on the new direction of AECL's research and development work and the organization which has been put in place to implement that direction. CNA Panel sessions also dealt with nuclear industry restructuring, as well as implications of the Chernobyl accident.

Octave du Temple, Secretary of the American Nuclear Society, presented an historical site plaque to Harry Collins in honor of the NRX reactor at Chalk River Nuclear Laboratories. In the aftermath of Chernobyl, Octave du Temple reminded the audience that the accident at NRX in 1952 provided a springboard to CANDU rather than putting an end to the program as was feared at the time.

CNS technical sessions were well attended, and proceedings are due to be published this October.

Sam Horton, Executive Vice President, Engineering and Services with Ontario Hydro became the new Chairman of the Canadian Nuclear Association, replacing

Gavin Warnock of Acres International. Winner of the CNA 1986 Ian McRae Award of Merit was Arthur J. O'Connor of the New Brunswick Electric Power Commission. Winner of the 1986 W.B. Lewis Medal was Eugene Critoph of AECL Research Co. The CNA also signed an agreement of cooperation with the Korea Atomic Industrial Forum at the conference. **Staff**

The Nuclear Journal of Canada

After several years of gestation within Council, the Nuclear Journal of Canada has recently emerged with an approved objective, organization and budgets ready to start its life as the technical journal of the Canadian Nuclear Society/Société Nucléaire Canadienne.

The primary objective of the journal is to present technical articles of an international standard on all aspects of uranium and nuclear science, engineering and technology, in a Canadian context.

The expectation is that it will become the primary reference for all articles on uranium and nuclear technology affecting Canada. We do have a great deal to be proud of in the development and application of nuclear related science, from the research, development and construction to the operation of the unique CANDU reactor, from the production to the application of radioisotopes, and from the mining of uranium to the disposal of radioactive wastes. To date, reports on these achievements have been distributed directly from the company involved in proceedings of technical meetings and occasionally in international peer reviewed journals of various specialties.

Our journal should help inform the public, our peers, our customers and potential customers, both in Canada and the rest of the world, of the depth and breadth of the technology behind these achievements.

The journal will be a quarterly publication containing approximately 15 papers per issue. It will also contain regular correspondence and book review sections and occasional editorial comment. The first issue is scheduled for publication by March 1987.

The organization set up for this publication includes a Journal Management Board (twelve members mainly from Council), an Editorial Board (up to thirty members selected for their technical excellence and reputation) and the key man, the Editor. Mr. Alan Wyatt has agreed to take on the Editor's job with its wide responsibilities for ensuring the quality and scheduling of the journal.

This undertaking is being approached like any other small business. An extensive business plan was prepared with considerable evaluation of the financial aspects. It is intended that the journal will be distributed to all CNS/SNC members as each issue should have some articles of interest to every member. This will require a further increase of membership fees of



Seated, left to right: I. Itzkovitch (Vice President), N. Yousef (President), J. Howieson (Immed. Past President). Standing, left to right: G. Phillips (Secretary), R. Abel (Treasurer), A. Pasanen, T. Lassau, J. Weller. Not present: K. Talbot, A. Lane, H. Bonin, D. Primeau, A. Wight, E. Price, E. Rosinger, P. Stevens-Guille (International Delegate), J. Sommerville.

about \$10 a year. The main income, however, will come from library subscriptions. With the median financial forecast, the journal should become a source of income to the Society within five years. However, the startup costs will be significant and will require the investment of about \$30,000 from our assets (currently about \$80,000).

This is a major and ongoing commitment by the Society. It is being undertaken for the benefit of our members and with the support of the majority of our membership. It will involve you, the members, much more in the activities of the Society as you will be encouraged to submit papers and also be asked to help in the reviewing process. Working together we can ensure that this venture will be a technical, political and financial success.

J. Howieson

New Associate Editor for Bulletin

Keith Weaver has joined the *CNS Bulletin* editorial staff as Associate Editor. Associated with the Canadian nuclear industry for the last 11 years, before entering private consultancy in 1982, Mr. Weaver worked with AECL's Safety Engineering Group (1975-8) and then moved to Vienna for two years to serve as editor of the *IAEA Bulletin*. Mr. Weaver's experience includes an exchange program with the British Atomic Energy Research Establishment at Harwell and work with the Information Department of the Electricity Council. Mr. Weaver notes that either as a cause, or effect, of this catholic job history, he has interests too varied and arcane to list.

CNS Branch Programs

Formation of New Brunswick Branch

The CNS Council, at its 50th meeting on 26 March 1986, has approved the formation of a New Brunswick Branch of the Canadian Nuclear Society. New Brunswick is the home of many professionals and students involved in nuclear science, technology and engineering, as well as other related fields. The creation of this branch is an opportunity for members to promote and share their interests through branch activities and communication.

The Branch is currently chaired by J.F. Lafortune (UNB, Department of Chemical Engineering, P.O. Box 4400, Fredericton, N.B.E3B 5A3, (506) 453-4520), and members are still being recruited to help form the first executive. Since its formation, the branch has already organized two seminars, presented by Dr. D. Meneley, on the Chernobyl accident. However, its main activity has been to inform and to recruit new members. So far, the response has been very encouraging. Furthermore, the branch is also attracting new members to the Canadian Nuclear Society. Future activities planned include a "meet and greet" for the members of this new branch, to be held in the near future, as well as an executive election. Some highly motivated people have already joined, and branch activities should prove to be as varied as interesting. All persons interested in joining or learning more about the branch should contact J.F. Lafortune.

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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 \$40.00 annually, (\$5.00 to students).

La SNC procure aux Canadiens intéressés à l'énergie nucléaire un forum où ils peuvent participer à des discussions de nature technique. Pour tous renseignements concernant les inscriptions, veuillez bien entrer en contact avec le bureau de la SNC, les membres du Conseil ou les responsables locaux. La cotisation annuelle est de \$40.00 (\$5.00 pour les étudiants).

Editor / Rédacteur

David Mosey (416) 592-6023

Associate Editor / Rédacteur associé

Hughes Bonin (613) 545-7613

Keith Weaver (416) 592-6025

Production Editor / Rédacteur, production

David McArthur (416) 977-6152

Conferences & Meetings

Second International Conference on Radioactive Waste Management

Sponsored by CNS, cosponsored by ANS, to be held Sept. 7-11, 1986 in Winnipeg, Manitoba. For information contact: T.S. Drolet, Conference Registration Chairman, CFFTP, 2700 Lakeshore Rd. W., Mississauga, Ontario. L5J 1K3.

International Topical Meeting on Waste Management and Decontamination and Decommissioning

Sponsored by ANS, cosponsored by CNS, US DOE, et al., to be held Sept. 14-18, 1986 in Niagara Falls, NY. For information contact: Eva Rosinger, AECL, 275 Slater St., Ottawa, ON K1A0S4.

Topical Meeting on Advances in Reactor Physics and Safety

Sponsored by ANS, EPRI, NRC, CNS et al., to be held Sept. 17-19, 1986 in Saratoga Springs, NY. For information contact: D.R. Harris, Department of Nuclear Engineering, Rensselaer Polytechnic Institute, Troy, NY 12180-3590.

President / Président	
Nabila Yousef	(416) 592-3861
Vice-President / Vice-Président	
Irwin Itzkovitch	(613) 238-5222
Immediate Past President / Président sortant	
Joe Howieson	(613) 995-1118
International Liaison / Liaison internationale	
Peter Stevens-Guille	(416) 595-5211
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Branch Activities Chairman / Président du Comité des activités des sections locales de la SNC	
Troy Lassau	(416) 822-4111
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• Nuclear Science & Engineering / Science et ingénierie nucléaires	
Al Wight	(416) 592-7284
• Design & Materials / Conception et matériaux	
Ed Price	(416) 823-9040
• Mining, Manufacturing & Operations / Exploitation minière, fabrication, exploitation des centrales	
Ken Talbot	(416) 839-1151
• Waste Management and Environmental Affairs / Gestion des déchets radioactifs et environnement	
Eva Rosinger	(613) 237-3270
Members-at-Large / Membres en général	
Al Lane	(613) 687-5581
Arthur Pasanen	(613) 584-3311
CNS 1987 Annual Conference Chairman / Président de la conférence annuelle de la SNC (1987)	
John Sommerville	(506) 659-2150
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Jim Weller	(416) 977-6152
CNS Branch Chairmen / Responsables locaux de la SNC	
Chalk River	Iain Crocker (613) 687-5581
Quebec	Jan-G. Charuk (514) 871-1116
Ottawa	John Hewitt (613) 236-3920
Toronto	Troy Lassau (416) 822-4111
Manitoba	Ernie Card (204) 956-0980
New Brunswick	J. LaFortune (506) 453-4520

International Topical Meeting on Operability of Nuclear Power Systems in Normal and Adverse Environments

Sponsored by ANS, cosponsored by CNS et al., to be held **Sept. 29 — Oct. 3, 1986** in Albuquerque, NM. For information contact: L.L. Bonzon, Division 6446, Sandia National Laboratories, P.O. Box 5800, Albuquerque, NM 87185.

International Conference on CANDU Fuel

Sponsored by CNS, to be held **Oct. 6—8, 1986** in Chalk River, Ontario. For information contact: **Dr. I.J. Hastings, AECL**

Research Co., Chalk River, Ontario, K0J 1J0.

CNS 2nd International Conference on Simulation Methods in Nuclear Engineering

Sponsored by CNS NSED, to be held **Oct. 14—16, 1986** in Montréal. For information contact: **D. Rozon, GAN, Ecole Polytechnique, 6600 Cote-des-Neiges, Suite 215, Montréal, Québec, H3S 2A9, (514) 340-4201.**

The Unfashionable Side

Darlington, I Presume (Part 2)

The intrepid underwater ornithologist and part time journalist George Bauer has penetrated the secrets of the Darlington complex. What lies before him? Read on....

Recalling it all later, it seemed absurd, surrealistic, an Alex Colville in aspic. Wilkinson stood to one side, hands clasped behind his back, while the Gang of Fourteen tried not to huddle, smiling uncertainly, their heads, heavy with amassed wisdom, nodding like anemones. We moved further into the hut but I was still reeling, caught off balance. 'Think!' came the stern injunction through the fog.

Wilkinson was consolidating his advantage; the noble visage and piercing gaze swept obstacles aside.

"Surely you haven't dragged me out here to adjudicate a beauty contest!" My most resonant Dylan Thomas sounded more like Tiny Tim bidding farewell at Tyburn.

The eminent fourteen retreated a pace but Wilkinson advanced, his forefinger prodding the air.

"You are here because we need you." Simple and soft spoken. The blue eyes. I can see them yet. Ralph Richardson, where are you!

"For fifteen months we have laboured. Now we are near our goal and it's time to go to the people. These men have done sterling service that now requires its proper recognition and the sound judgement of the common man!" His voice rose in magnificent resonance; his arm swept past the eminent fourteen and for an instant he was Caesar in the forum, resplendent in toga.

Colour rose to the cheeks of the fourteen and, emboldened by Wilkinson's rhetoric, they advanced.

My notebook snapped shut with the crack of a Walther PPK and they immediately staged a strategic withdrawal. "True journalists survive only on a diet of fact," I ventured with stunning audacity. "Thus far you have offered vague promises and generalizations too cheap to meter. Your

colleagues have offered nothing."

After a brief pause to let the meaning penetrate, I continued quietly.

"Manton. If we are to help each other, you must tell me of your success, in your own terms, as a scientist, that I may relate it faithfully to my public."

A light flickered and glowed brightly behind the azure eyes. Wilkinson nodded once, directed his gaze to a space above the fourteen and, in a voice choked with emotion, said "Gentlemen, we have chosen our man well."

My memory of the next hour remains vague to this day. They descended on me like a cloud of locusts. Legion facts were recounted; scientific difficulties reived. We toured a vast cavern beneath the Quonset huts while notebooks were brought before me. Modified liquid drop models, nuclear shell calculations and theories of controlled nuclear spallation were all related at breathtaking speed. Gauge theory and the problems of artificial gluon production were outlined. At length, Wilkinson's voice rose above the Babel and he beckoned me deeper into the cavern.

"Now that you have mastered the theoretical side, we can inspect the hardware."

At the focus of the hardware was an eighteen inch diameter pipe leading back through the tunnel to the nuclear plant. Close approach to it was impeded by a jungle of vacuum pumps, cooling lines and heavy shielding. Banks of coils and instrumentation festooned it at intervals and at the Quonset hut end was a large piece of equipment that hummed powerfully. Wilkinson conducted the tour and explained it all with infinite patience.

The air was one of a carnival but it was becoming clear what had happened. A new Faustian bargain had been struck, only this time Lucifer had been driven to the wall. It was greyness at noon; a pale midnight; the ultimate oxymoron.

Wilkinson had succeeded in producing the four quark neutron.

The significance was clear. All existing nuclear power programs had become irrelevant; they were space age dinosaurs on life support. Low power reactors were all that was now required. Although short lived, the four quark neutron could be manipulated by electromagnetic fields and its energy extracted directly. Neutrons, and not petroleum or electricity, would now feed our neuroses. All nuclear secondary sides could henceforth be scrapped and the proceeds donated to the Sadie Carnot Memorial Fund.

Back in the Lagonda, I realized that despite the cool April weather I was drenched in sweat and my hands trembled on the wheel. My scoop was stupendous, an exclusive beyond all expectation, yet I was filled with unarticulated doubt. Dark ominous clouds were building in the west, reflecting my mood. Perhaps they had a silver lining but I couldn't find it.

George Bauer