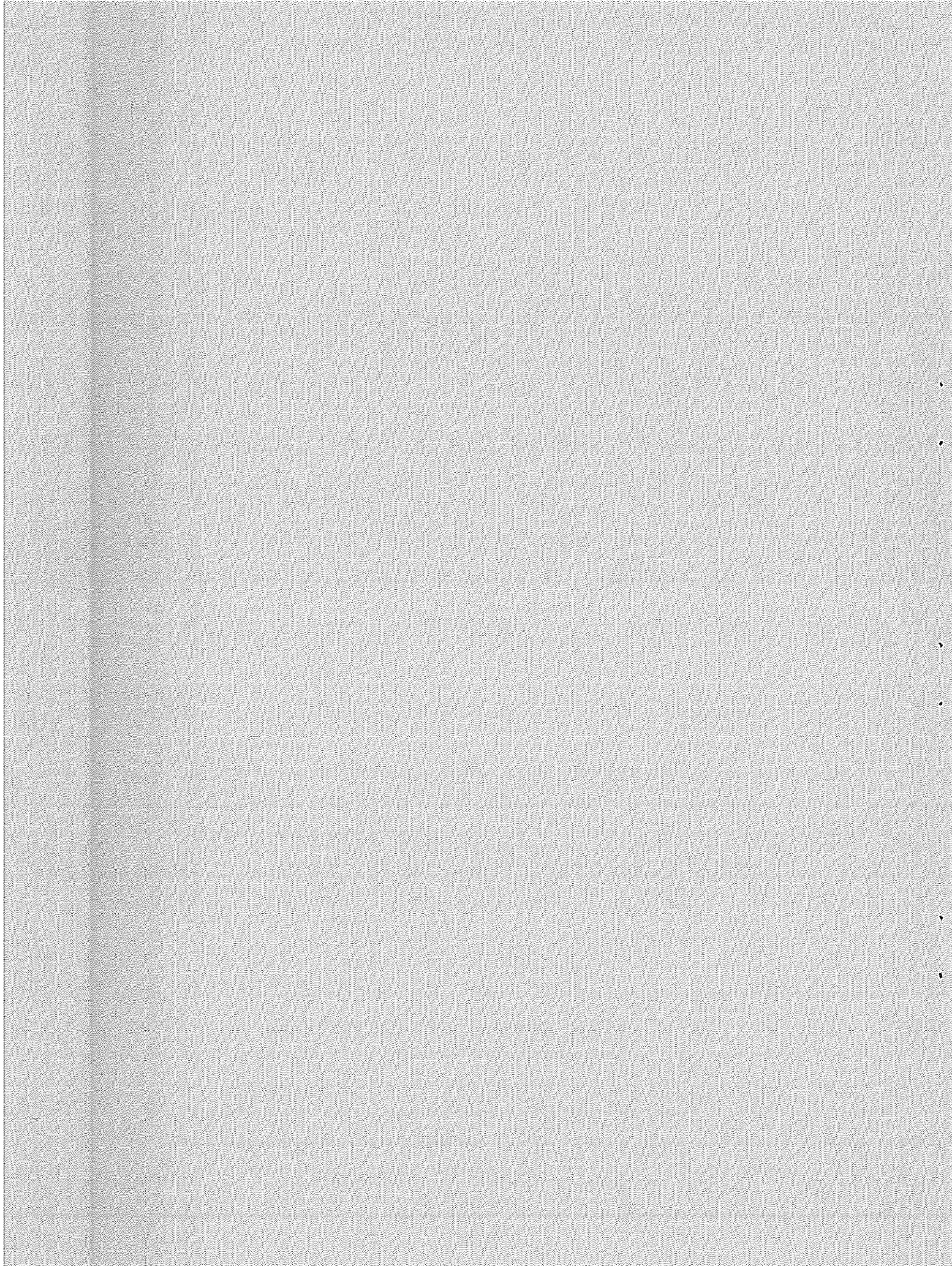

**G.R. Howey, P.A. Ross-Ross,
and J.S. Hewitt**

**THE FORMATIVE
YEARS OF THE
CANADIAN
NUCLEAR SOCIETY
1976–1984**

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The Formative Years of the Canadian Nuclear Society 1976–1984

G.R. Howey, P.A. Ross-Ross, and J.S. Hewitt.

Introduction

The Canadian Nuclear Society/Société Nucléaire Canadienne was born as the 'Technical Society of the Canadian Nuclear Association,' on 11 June 1979, at the Annual Business Meeting of the Canadian Nuclear Association. The Canadian Nuclear Society (CNS) was to be a learned society, with membership open to individuals. The CNS was to be distinct from the Canadian Nuclear Association (CNA) whose membership is composed primarily of industries and institutions, and thereby serves as an industrial forum.

In some respects it was an unlikely time for a learned nuclear society to be formed in Canada. The golden age of free exchange of nuclear information, best represented by the Geneva-type conferences, was over. The slowing of the economy on a worldwide basis was creating a bleak outlook for the nuclear power industry, and the media craved sensation and showed little regard for the real pros and cons of nuclear science and technology and their benefits to the public and the economy.

Two basic factors held the door open for the creation of a learned nuclear society in Canada. The first was CANDU. The second was the early existence of the CNA. Had it not been for CANDU and the CNA, the CNS might already have become another chapter of the American Nuclear Society (ANS). Britain had pursued the gas-cooled type of power reactor, Canada evolved CANDU, and the rest of the Western industrial world, following the American lead, pursued the 'pressure vessel' type. The ANS, one of the best-organized learned societies in the world, became the focal point of learned nuclear society activities in the US. The ANS has been a benevolent giant from which many overseas chapters were formed and from which, in many cases, national societies evolved.

The CNA has also enjoyed good relations with this benevolent giant, and a small chapter of the ANS has operated successfully in Canada for many years. However, the presence of the CNA (established in 1960), whose focal point was CANDU and which has played the dual role of industrial forum and technical

society, countered any strong interest of the ANS to expand into Canada. But the CNA recognized its limitations in trying to serve both institutional interests and the interests of the individual seeking enrichment of his chosen pursuits, hence there was a small group within the CNA and elsewhere that promoted the formation of a learned nuclear society in Canada.

Given the continued existence of a niche for the CNS, a number of factors conspired in a timely way to finally propel it into existence, and later to nurture and sustain it. The story about to be told is one concerning the perception of a need and the identification and marshalling of forces, not all of which were fully evident at the beginning; a story of perseverance, hard work and enthusiasm, and, above all, patience, understanding, and trust on the part of the many individuals and institutions having diverse as well as common interests in the emerging organization.

The present story deals with the formation and the early years (to 1984) of the Canadian Nuclear Society. By 1984, only preliminary consideration had been given to establishing a most important enterprise, namely, the *Nuclear Journal of Canada*. It is apt that this early history of the CNS appear now in the first issue of the *Journal*. The intervening period, from 1984 to the present, during which the *Nuclear Journal of Canada* became a reality and a symbol of achievement by the CNS as a learned society, is left to future authors.

The Learned Society and the CNS in Perspective

The 'learned society' as an organization serving, through orderly deliberation, the intellectual pursuits of its members, and from thence the welfare of society at large, has survived many centuries. In each instance, the creation of a society depended on the motivation of the practitioners of the subject pursued, and its survival depended largely on whether society at large and the prevailing institutions were hostile or supportive concerning the perceived aims of the organization. Thus, in Galileo's time, the Accademia dei Lincei (1603), the first scientific society on record, was suspended because of 'ecclesiastic opposition,' while the Royal Society received external support through its charter, granted by Charles II in 1662.

The many thousands of scientific/technical socie-

ties, including the CNS, have been modelled on such early examples and have had the dual obligations of the advancement of their scientific or technical subject, on the one hand, and service to a larger society, to which they also owe their existence, on the other. An important background point for consideration, as we review the evolution of the CNS, is that the influence of the support group need not compromise the more altruistic aims of the learned society, namely, to advance the understanding of its subject area through the unfettered exchange of ideas among its members. The interest of the state, for example, in benefitting from the Royal Society may not have impeded its contributions to the progress of the scientific and industrial revolutions. Indeed, symbiotic relationships between science and society have historically augmented scientific and technological developments within the wider community.

As we shall see, the CNS evolved with a great deal of support at its foundation from existing bodies, particularly the CNA and the founders' employers. Receipt of this support did not compromise the freedom of the CNS to attain the state of autonomy appropriate to the good health of a learned society. Moreover, its ability to function in the interests of the broader community has been demonstrated.

The Gathering Support for a Canadian Nuclear Society

The earliest active support for a Canadian learned society devoted to the nuclear sciences and their practical applications came from individuals who would eventually become its members. Such individuals would likely already have been members of the American Nuclear Society, as well as of one or more societies for established disciplines based in Canada, the United States, or Europe. They may also have been active in the work of the CNA. For various reasons, relating to the uniqueness of Canadian nuclear development in energy and medicine and to the perceived benefits for the professional development of the subject area and its practitioners, the question of why there was no Canadian nuclear society was frequently asked, privately, in the course of everyday activity in industry, university, and college.

Such discussion, in the late 1950s, led to the formation, in 1960, of the CNA. [1] Although this organization was established as a corporate-based association of Canadian nuclear industries, with a primary objective of advancing nuclear energy based on the CANDU development, a number of features of its organization and its activities over the years betrayed the breadth of aspiration of its founders. One such activity was organizing the series of technical sessions held, on a fairly regular basis, at the annual CNA conferences in the years immediately before the CNS assumed, in 1980, the responsibility for such sessions.

The first such technical programs were organized by A.A. Harms for the 1973 conference in Toronto. W.B. Lewis was the session chairman. Similar events, elaborated to include multiple parallel sessions, were organized in later years, by W. Paskievici (with A. Wyatt), J. Howieson (with L. Bennett), and D. Meneley, for the 'Third Day' at the CNA Annual Conferences in, respectively, Montreal (1977), Ottawa (1978), and Toronto (1979). Over the years since its founding in 1960, the CNA had also sponsored and organized numerous conferences and seminars on special topics, as well as the annual student conferences.

In the meantime, the American Nuclear Society had held its 1976 Summer Meeting in Toronto, jointly with the 1976 CNA International Annual Conference. The ANS had established, many years previously, the ANS Niagara-Finger Lakes Section, catering to ANS members in Southern Ontario, as well as ANS student chapters at the Ecole Polytechnique and the University of Toronto. At the time of the joint ANS/CNA conference in 1976, the possibility of promoting full-scale Canadian sections of the ANS was raised, particularly by the ANS, but Camille Dagenais, CNA President at that time, identified the importance of exploring the possibility of a Canadian-based nuclear society, rather than supporting development of a Canadian arm of a foreign-based organization. [2]

A number of individuals felt strongly about forming a Canadian nuclear society and at various times committed their thoughts to writing. [3] A letter, from G. Howey, Chairman of the CNA Education and Manpower Committee, soliciting the support of his sponsoring director in working towards an 'autonomous body either within the CNA or totally independent of it,' was particularly perceptive of the need for the new organization.

For several years the Education & Manpower Committee of the CNA has been concerned about the need for a professional scientific/engineering society for the nuclear community in Canada. Such a society would provide an opportunity for the scientist at university or industrial R&D and the engineer associated in some way with the nuclear power program (mining, fuel processing, design, construction, manufacturing, operation or regulation) to share technical ideas, to deliver learned papers and to participate in professional argument and criticism ...

The two former options [of participating in the CNA seminars/conferences or the technical/scientific sessions of CNA annual conferences] tend to be based on a broad range of participant interest and do not lend themselves to very detailed levels of scientific or technical debate. The latter [option of presenting or publishing through numerous existing learned societies in Canada] permits the desired level of detail and depth but does not provide the breadth and overlap needed to keep a subject in perspective. Indeed, dependence on these other Canadian professional associa-

tions tends to dilute the topic and the expertise and does not provide a single Canadian focal point. As a result, serious minded Canadian scientists and engineers who desire true professional recognition of their work in the nuclear power area are obliged, in the absence of a single Canadian agency, to seek some forum outside of Canada such as the American Nuclear Society. [4]

The sponsoring director, R. Langlois, Dean of the Ecole Polytechnique, was later to be appointed Chairman of the CNA Scientific/Technical Task Force, which would eventually make specific recommendations to the CNA Board of Directors on the creation of the new technical society. As it turned out, the enabling legislation was presented at the CNA annual general meeting two and a half years later, in 1979, at which time individuals were invited to become charter members. The course of events during this period is somewhat complex, but bears recounting, to illustrate the convergence of the various interests which propelled the CNS into existence.

The Langlois Task Force

The first formal meeting dedicated to considering the development of a Canadian nuclear society took place in July 1977. The ten-member *ad hoc* committee consisted mainly of members of the CNA Education and Manpower Committee and the CNA Technology Committee. A few weeks earlier, on 8 June 1977, at the CNA Annual Conference, the Third Day Program, under the direction of W. Paskievici and A. Wyatt, had been eminently successful, with 80 papers presented in five parallel sessions, drawing a total of 300 attendees. Soon after the close of the conference, a Technical Sessions Steering Committee was established to assure the continuance of the Third Day Program. The Steering Committee, which formed the nucleus of the subsequent ten-member committee, consisted of G. Howey, R. Harrison, and J. Hewitt of the CNA Education and Manpower Committee, and W. Tarasuk, D. Evans, and D. Meneley of the CNA Technical Committee. Among the additional persons attending the *ad hoc* meeting were A. Harms, an early advocate of the formation of a nuclear society and a former member of the Education and Manpower Committee, and J. Weller of the CNA.

The deliberations of the *ad hoc* committee led to the proposal that the question of a Canadian nuclear society be considered by an on-going task force under the chairmanship of R. Langlois. Members of the Task Force were identical to those of the Steering Committee mentioned above, with the exception that J. Howieson had replaced D. Evans.

At its first meeting in January 1978, the Task Force undertook the preparation of a Prospectus on a 'Professional Association of Individuals Working Within the Canadian Industry' that outlined the needs, objec-

tives, and constraints for such an organization. The Prospectus stressed the need for improved communications at the scientific and technical level through publication, peer-review, public exchange of information, and debate. The Prospectus also included a recommendation for 'the society [to] be allowed to evolve naturally,' without predetermined or rigidly imposed notions of 'structure, objectives, roles, organization, etc.' The Task Force would 'provide guidance and leadership to the process.'

In keeping with its recommendations, the Prospectus included some modest proposals, such as (1) that an 'Individual Members Section' be formed under a standing committee of CNA; (2) that the Section be responsible for the Third Day Program at the CNA annual conferences; (3) that there be no plans, initially, for the publication of journals; and (4) that the Standing Committee of the Individual Members Section form the executive of the new organization.

Although it described an organization that, in profile, fell short of what the Society actually became a few years later, the Prospectus in many ways set the tone for the evolution of the Society. Specifically, the Society did build on its established base each step of the way and did respond to the various interests that influenced its development. More importantly, the Prospectus was circulated just before the 1978 CNA Annual Conference, with a questionnaire to middle management personnel in the nuclear industry. Of the 140 responses, 80% were in strong support of the proposals of the Prospectus. The results of the questionnaire were used as the basis of an open discussion after the Third Day luncheon at the 1978 Annual Conference in Ottawa. P. Ross-Ross, who had had many years of experience in the development of the Engineering Institute of Canada, and who would later play several key roles in CNS development, led the discussion following his luncheon address.

At the Langlois Task Force meeting of 17 August 1978, following a review of the questionnaire, many members expressed the view that, while there was an important role to be played by the new society in the area of 'authoritative' public relations with respect to nuclear technology, the greater emphasis should be placed initially on developing learned society traits. With the benefit of hindsight, this discussion must be considered ironic, because at the 26 February 1979 meeting of the Task Force, in which representatives of the CNA Public Affairs Committee were included, the case was made, that if the new society were to have local chapters or branches, individual members could play an important role in addressing local public nuclear issues. This activity would substitute for that of CNA Chapters, which were being proposed by the CNA Public Affairs Committee on the recommendation of its consultant Charles Yulish. Moreover, a particular individual member of the new society could be

perceived, by the public, as having less of a vested interest than the same individual might acting as a representative of the CNA!

The Langlois Task Force completed its work before adjournment of the 26 February meeting. It undertook to request, through its chairman, that the CNA Board of Directors establish a professional society (later referred to as a Technical Society) within the CNA. The Society was to be organized both regionally and nationally. [2] It was also agreed to ask the Board of Directors to nominate a small task force to develop the structure of the proposed society with a view to presenting the details to the CNA membership at the upcoming 1979 CNA Annual Meeting in Toronto. The CNA Board of Directors accepted these recommendations at its 13 March 1979 meeting, and promptly prepared to announce the existence of the 'Technical Society of the Canadian Nuclear Association' at the annual conference, to distribute early membership information, and to solicit individual memberships for the year 1980 at a \$20.00 membership fee.

The membership information contained a statement of objectives and organization for the Society reflecting the recommendations of the Task Force. It also contained the names of the members of the Organizing Committee for the New Society. This committee would be charged with the task of completing the details of organizing the Society and to act as the Council, until such time as the Technical Society were able to hold elections, as set out in a constitution that it would prepare immediately.

The Langlois Task Force and the CNA Board of Directors had performed their respective tasks, and, as of 11 June 1979, the Canadian Nuclear Society at this point existed in all fundamental respects but that of its name.

The *Pro Tem* Council, 1979–80

Creation

The Organizing Committee of the Technical Society of the CNA, as named by the CNA Board at the time of the 1979 Annual Council, consisted of the following: W. MacOwan, CNA President; J.S. Foster, W. Bulger, N. Ediger, R. Langlois, and W.J. Smith of the CNA Board of Directors; J. Hewitt, G. Howey, and W. Paskievici of the CNA Education and Manpower Committee; D. Meneley of the CNA Technology Committee; and J.A. Weller, CNA General Manager.

The Organizing Committee met on 27 August 1979, under the chairmanship of W. MacOwan. The official name of the new Society was now to become: The Canadian Nuclear Society – The Technical Society of the Canadian Nuclear Association. The following were nominated and accepted as executive of the Organizing Committee, and therefore as officers of the *Pro Tem* Council of the new Society:

G. Howey, President

J. Hewitt, Vice President

D. Meneley, Secretary-Treasurer

It was understood that the *Pro Tem* Council would aim to have essential elements of the new Society in place (namely, its constitution, the assignment of its committee members, its membership eligibility, branch organization, and its 1980 budget) by 30 September 1979. The Organizing Committee then adjourned and did not subsequently need to reconvene as a full committee. Rather, the *Pro Tem* Council carried on the active business of the Society until the first Council was duly elected the following June.

The newly appointed executive met immediately in what was later referred to as the first meeting of the CNS Council. By the second meeting of the CNS Council on 11 September 1979, the membership consisted of: G. Howey, President; J. Hewitt, Vice President; D. Meneley, Secretary-Treasurer; W. Paskievici, Program Chairman; R. Harrison, Member-at-Large; and J. Weller, General Manager. P. Ross-Ross, who had participated in many of the earlier preparations, was added a short time later as Membership Chairman.

Accomplishments

The President and Vice President revised the earlier draft version of the Constitution and By-Laws to reflect the new circumstances. After approval by Council, the document was presented to the CNA Board on 25 October 1979. By 14 September 1979, Dan Meneley had prepared a budget for fiscal year 1980 (1 February 1980 to 31 January 1981). The budget was for \$7,500. Membership fees for 1980 had already been set at \$20. The need to keep separate CNS accounts was recognized, as there would be a finite period of CNA subsidy for the new Society.

In the early Council meetings, careful discussion took place in establishing necessities such as the logo and letterhead. Membership was the key item, and membership brochures, application forms, and a membership drive were needed. A branch structure was essential as a means of soliciting membership. Membership eligibility received careful attention. (The CNS is not a 'professional' society in the restricted sense; membership is not tied to educational qualifications. Rather, membership is open to individuals who are contributing, in a positive way, to the advancement of nuclear science and technology.) Those who joined before the end of 1980 are identified as 'Charter Members' of the Society. J. Hewitt took the lead role in preparing a membership brochure, and 2,000 were available for distribution in early 1980.

Policies, procedures, and guidelines were needed, and Phil Ross-Ross, with his wealth of experience from the EIC and CSME, took a lead role in preparing policy

statements. At this stage 'enabling legislation' was needed and duly prepared.

The evolution of the CNS would inevitably give rise to adjustments in the CNA. Jim Weller, in his dual role of General Manager of both the CNS and the CNA, kept the *Pro Tem* Council aware of CNA positions and interests. Lines of communication with the Board of Directors, however, were not always adequate in the circumstances. Although the Board's representation on the Organizing Committee, and hence on the Council, had discretely retired, there was some concern by the Board as to just what Council was doing. The one and only meeting at which the CNS found it necessary to explain its position to the CNA was held on 18 January 1980. Howey, Hewitt, Meneley, and Weller met with Bill MacOwan, Chairman of the Board of Directors. Concerns about membership, the relationship between the CNS and CNA, the independence of the CNS, conference responsibilities, and other miscellaneous matters were amicably resolved. To assure communications, and in keeping with the original intent, the CNS President was invited to attend *ex officio*, subsequent CNA Board of Directors meetings. Also, the newly appointed CNA President, Norm Aspin, attended Council in February 1980, and was constantly supportive of CNS affairs.

The 'Third Day', the day of specialized technical papers at the CNA Annual Conference, and one of the considerations in the formation of the Technical Society, had been placed by the CNA in the hands of the *Pro Tem* Council. Council was now faced with creating a set of new precedents. Decisions regarding calls for papers, instructions for authors, paper selection, camera-ready mats, and publication of proceedings would have to be made; such decisions would set many of the standards for CNS conferences in years to come. Council thus found itself heavily involved as 'the conference committee' for the first annual conference at a time when it really had expected to concentrate on organizing the Society. Fortunately, Wladimir Paskievici, who had been heavily involved in the 1977 CNA Annual Conference, did a noble job as the CNS's first conference chairman. Organizing the First Annual Conference put extreme demands on Wladimir's time and energy, particularly as he was also the Technical/Scientific Chairman of the CNA Conference. As there was initially some difficulty in having the Third Day actually identified as the CNS First Annual Conference, to don later a badge sporting both the CNS and CNA logos at the jointly arranged Annual Conference was a source of quiet pleasure to all those who had worked on the creation of the CNS and on the Conference.

Another major task of the *Pro Tem* Council was to produce a newsletter for disseminating information to members. John Hewitt was the key figure in creating the 'CNS-Bulletin-SNC.' The first 'Bulletin' was issued

in May 1980. The cover page was printed on CNS letterhead; the contents were mostly oriented to the First Annual Conference of the CNS, to membership, election procedures, and general news on progress of the Society.

The CNS First Annual Conference was finally held in conjunction with the 20th Annual International Conference of the CNA in the Queen Elizabeth Hotel in Montreal on 18 June 1980. Forty-four papers were presented in eight sessions, and there was a closing panel session. 'The Three Mile Island Accident – The Canadian Perspective.' The guest speaker at the CNS luncheon was, fittingly, Prof. M. Tubiana, past-president of the Société Française de l'Énergie Nucléaire, a distinguished radiation scientist and physician.

The first Annual General Meeting of the CNS was held after the conference luncheon. George Howey, Interim President of the new society, could be justifiably proud of the achievements of the *Pro Tem* Council. The conference was a success, and the year had been very productive. Basic policies and procedures were in place, membership stood at 370, the first 'CNS-Bulletin-SNC' had been issued, and work was progressing to create branches to serve members locally and to establish divisions to meet the scientific and technical interests of the members. The nominating committee, chaired by Bob Harrison, presented a slate of officers selected to ensure reasonable continuity and also a reasonable geographic and technical representation. With no further nominations from the floor, the first Council, elected by acclamation, took office.

The Council consisted of George Howey, President; John Hewitt, Vice President; Bob James, Secretary-Treasurer; Ernie Card, Tony Colenbrander, Tom Gellatly, Joe Howieson, Wladimir Paskievici, Phil Ross-Ross and Tom Schur, Members-at-large; and Jim Weller, General Manager.

The First Elected Council, 1980–81

The first meeting of the new, duly elected Council, (also the 11th meeting of the CNS Council) was held on 18 July. One of the first items of business was the approval of the 'Guidelines for CNS Committees' prepared by Phil Ross-Ross. Five standing committees were formed: Communications, Program, Technical Divisions, Membership, and Finance and Administration. The chairmen of these new committees were Hewitt, Ross-Ross, Howieson, Colenbrander, and James, respectively. During the autumn of 1980, the creation of branches (under Tony Colenbrander) and divisions (under Joe Howieson) was high on the priority list.

Branch Steering Committees were formed in five locales: Ottawa (Joe Howieson), Manitoba (Ernie Card), Montreal (Michel Therrien), Chalk River (Ian Hastings), and Toronto (Arthur Guthrie). The Ottawa



Figure 1 The first elected Council of the Canadian Nuclear Society, June 1980. Seated left to right: W. Paskievici; J.S. Hewitt, Vice President; G.R. Howey, President; R. James, Secretary-Treasurer. Standing left to right: J.A. Weller, CNA; T. Schur; E. Card; P. Ross-Ross; A.H. Colenbrander.

Branch, although not yet formally constituted, was first off the mark, holding a meeting on 4 February 1981, with Ron Hodge, as guest speaker, addressing a group of thirty on the 'Canadian Coast Guard's Nuclear Ice-Breaker Project.' The Manitoba Branch was the first constituted (approved by Council on 30 January 1981) and held its first meeting in Winnipeg on 23 February, with guest speaker John Boulton giving a talk on 'Nuclear Fuel Waste Management in Canada.' Requests for formation of branches in Ottawa (Joe Howieson), Chalk River (Ian Hastings), and Toronto (Arthur Guthrie) were approved by Council on 23 April 1981. The request from the Quebec Branch (Jan Charuk) was approved on 26 June 1981.

Branches are important to a society as a means of involving members in activities such as meeting with guest speakers, hosting technical conferences, field trips, and social events. In the early days of the CNS emphasis was placed on securing new members through the branches, and Tony Colenbrander contributed greatly in supplying the guidelines and background information to get branches operating and membership drives underway. As more members were enlisted into committees and activities, there was a need for a who's who (and where); the first issue of the booklet 'Membership List' was published in mid-1980.

The heart of a learned society is, of course, its scientific and technical structure. Joe Howieson was the key man. He presented a 'Policy Statement on the Formation of Technical Divisions' to Council in November 1980. The various areas of interest were grouped into four divisions:

Nuclear Science
Design and Materials
Mining, Manufacturing and Operations
Environment, Health and Public Affairs

Committees for each division were set up, and took lead roles in the development of the division. Questionnaires were sent out to establish the areas of interest of the members, and hence to complete the matrix approach of having each member identified with one branch and at least one division.

The division committees began to work on establishing how they wanted to govern themselves (within the guidelines provided by the society), how their interests would relate to those of the CNA Technology Committee, and how to get into the symposia, seminar, or conference arena. Some prepared 'Constitutions' designed specifically to govern the division's activities. Radioactive waste management was a topic that received much attention at this time, and this was a likely topic for the first major international conference of the new Society. In late May 1981, when Tom Drolet, Chairman of the Environment, Health and Public Affairs Division, announced plans to hold the conference in Winnipeg in 1982 in a convention centre still under construction, a few Councillors were apprehensive. The case was well presented, however, and Council, true to its policies on passing enabling legislation and planning for new activities, gave the organizing committee the go-ahead.

Although CNS membership was small, many of those who joined had contacts with other societies and specialist groups, and soon the CNS was being asked to co-sponsor (by lending its name) other conferences. The CNS immediately became a co-sponsor of the Eighth Annual Simulation Symposium in Toronto, March 1981; the Sixth International Conference on Modern Trends in Activation Analysis in Toronto, June 1981; 'Materials in Nuclear Energy' in Huntsville, September 1981 (Can. ASM); and 'Decontamination of Nuclear Facilities' in Niagara Falls, September 1982 (ANS, CNA).

The Program Committee (Ross-Ross) was putting together policy statements and guidelines related to planning, sponsoring, and running conferences. The CNS Second Annual Conference, held in Ottawa on 10 June 1981, in conjunction with the 21st Annual International Conference of the CNA, was organized under the able chairmanship of Frank McDonnell. He was well supported by members in the Ottawa Branch. They relieved Council of direct responsibility for the conference, and did much to develop the CNS's capability to run a first class conference. There were 65 papers in 13 sessions. The luncheon guest was Milt Levenson, speaking on the consequences of nuclear accidents. Levenson was later, as ANS President, to play a key role in formalizing CNS / ANS co-operation.

The Communications Committee (John Hewitt) edited and produced the CNS-Bulletin-SNC on a reasonably regular basis. It was proving to be extremely valuable as a means of informing members of CNS progress, and of upcoming conferences. In April of 1981, David Mosey relieved John Hewitt as editor of the Bulletin. Subsequently, Hugues Bonin became Associate Editor and Dave McArthur became Production Editor.

Bob James, as Secretary-Treasurer, worked with the staff of the CNA to establish procedures for handling the work of servicing the membership and the Council, and on the financial arrangements of the CNS. Headquarters was already well experienced in handling CNA activities and the CNS affairs presented new challenges which were met admirably by the staff of the CNA / CNS office.

By the end of the second year with George Howey as President, the CNS had the framework for the Society fairly well established. Branches and divisions had been formed, guidelines were in place, headquarters had been set up to handle a society of individuals, and the Bulletin was providing a means of communication between the society and its members. Membership was over 500, and over 50 were now serving on the various committees of the Society. The Society was now ready to start serving its members and the Canadian interest, both at home and abroad, in nuclear science and technology.

The Adolescence, 1981-1984

At the Second Annual General Meeting of the Society, the Council elected for 81/82 was Phil Ross-Ross, President; John Hewitt, Vice-President; Peter Stevens-Guille, Secretary-Treasurer; Ernie Card, Tony Colenbrander, Tom Drolet, Antoine Duchesne, Walter Harrison, Joe Howieson and Wladimir Paskievici, Members-at-Large; George Howey, Past-President; and Jim Weller, General Manager.

One should look at this period over the longer term. A great deal of stability had been achieved; there was a gradual turnover in Council membership, and the formation of branches and divisions had provided a source of dedicated members from which future councillors and presidents would emerge.

Although Ross-Ross and the Council were not generally in favour of a president serving two successive terms, the events of the time made his continuation highly desirable, and he agreed to stand for a second term.

There follows a record of Council membership for 1982-83 and 1983-84: for 1982-83, Phil Ross-Ross, President; John Hewitt, Vice President; Peter Stevens-Guille, Secretary-Treasurer; Ernie Card, Tony Colenbrander, Tom Drolet, Jan Charuk, George Bereznai, Joe Howieson, Irwin Itzkovitch, Members-at-Large; plus G. Howey and J. Weller. For 1983-84, John Hewitt, President; Peter Stevens-Guille, Vice Presi-

dent; Tony Colenbrander, Secretary-Treasurer; George Bereznai, Richard Bolton, Ernie Card, Jan Charuk, Irwin Itzkovitch, Gerry Lynch, Nabila Yousef, Members-at-Large; plus Ross-Ross and J. Weller.

Advances in the various areas of endeavour during the adolescence of the CNS will now be sketched under separate headings.

A Long-Term Plan

The first period of forward planning of the CNS occurred during the Task Force years. During those years, Phil Ross-Ross, John Hewitt and George Howey, all of them living in Deep River, formulated together the various guidelines and policy statements that had a fair influence on the organization of the CNS as it stood at the end of its second year of operation.

When Ross-Ross became President in June 1981, he prepared a document with the aid of Council entitled, 'The CNS of Tomorrow.' The document covered goals, organization, services to members, strengths and weaknesses of learned societies in Canada, strengths and weaknesses of CNS / CNA relations, and many other topics. It served as a guide for priorities and direction for the next few years. The key points of 'The CNS of Tomorrow' were as follows:

- 1 It is very difficult for any small Canadian learned society to work in the shadow of a corresponding giant to the south. That the ANS is a very well-organized society with well-developed conference and publication programs, heightens this concern.
- 2 The CNS needs visibility.
- 3 A conference program is good for visibility, and conferences should always be designed to earn revenue for the Society.
- 4 The CNS will have a journal one day, but not now. Journals can be a burden on a society in terms of resources and finances.
- 5 Someday the CNS may be an independent society. Meanwhile, the CNS should be run on an independent basis and should move towards paying for services received from the CNA.

Building strong membership in a technical society is a universal and difficult challenge. For CNS, superimposed on this challenge was an identity problem. The CNS was often inadvertently referred to as the CNA, and though one could point out the differences, the fact that the CNS was the Technical Society of the CNA still left some doubt and confusion. Identity was essential. To overcome these limitations the CNS would have to become well recognized within Canada, if only to facilitate building its program and membership, and also to become recognized internationally. The plan called for careful attention to be given to making the Society visible, and to earning the respect of the nuclear community everywhere. Three main avenues were open: (1) through a technical program of confer-

ences and seminars; (2) through first rate publications; (3) through active involvement in international affairs. As will be seen, progress was made on all counts over the next few years.

International CNS Developments

Establishing the CNS internationally was essential. The world was experiencing a proliferation of nuclear conferences, and the ANS and ENS (European Nuclear Society) were well entrenched. Lead times of three to five years on conferences are not unusual. The CNS would, in some sense, have to pry its way in if it were to run an international conference program without severe scheduling conflicts.

Canada has, for many years, contributed its fair share to the conferences and publications of other societies throughout the world, and the contributions have been of high quality. Canada has benefitted, and will continue to benefit from this exchange. Through an international conference program, the CNS hopes to make it easier for Canadian experts to exchange information with their peers from abroad. Through CNS proceedings, and through a journal, the CNS hoped not only to provide another vehicle for exchange, but to concentrate papers from Canadian programs under a Canadian label and thereby better identify Canadian contributions.

Although the CNA had carried the torch in these endeavours for many years, and could well have continued, many international technical conferences were run by the technical societies and the CNS was better suited to negotiate with its direct counterparts. So, in late 1981, riding on the coat-tails of the CNA and a well-established national nuclear program, the CNS began to move into the international scene. The move occurred at an opportune moment, owing to a combination of developments in the nuclear world at the time. The circumstances bear closer examination.

The ANS and ENS, the latter composed of a consortium of many European national societies, dominated the international scene, and the ANS had in addition very strong international committees. With the emergence of nuclear power and new national societies, the ANS was looking for some means of bringing the learned nuclear societies together to improve communication. Two main concerns were the proliferation of conferences and the world-wide spread of the anti-nuclear movement. In the late 70s, after a number of attempts, efforts were focused on the creation of an 'International Union of Nuclear Societies.' Rik Bonalumi and Jim Weller attended a formation meeting in Washington as CNS representatives in November 1980. Prior to this, W.B. Lewis, well known as the CANDU pioneer and promoter, and as a former ANS president, had been invited to a similar meeting a year earlier. Jim Weller had attended on behalf of the Canadian interest.

By 1981 the IUNS was developing into a cumbersome

organization (in some ways paralleling the IAEA) and the promoters needed a means of easing into a less formal organization. In November of 1981 Weller and Ross-Ross attended a formation meeting in San Francisco and contributed significantly to the discussions that, essentially, abandoned the IUNS and led to the formation of the International Nuclear Societies Group (INSNG). The INSNG became a very loosely structured informal organization, composed of 12 delegates representing four areas: three from Europe (ENS), three from Asia (Japan, China, Korea), three from Latin America (Argentina, Brazil, Mexico) and three from North America (two from the ANS and one from the CNS). Although only delegates vote, observers from many other countries and institutions (e.g. IAEA) attend and participate in discussions. In 1982 Ross-Ross attended meetings held in conjunction with major conferences in Brussels (ENS as host) and Washington (ANS as host). The CNS was an accepted partner in these and subsequent meetings.

Ross-Ross later contributed to the progress of the INSNG by chairing the third meeting of that organization in Vancouver, in September 1983, in conjunction with the fourth Pacific Basin Nuclear Conference. This was the first to be held outside the ANS/ENS jurisdiction. Canada and the CNS were in a unique position; although the CNS was a young emerging society, it was backed by a fully established national nuclear program. The CNS was in a good position to speak on behalf of the old established, as well as the new emerging societies, and the Canadian voice was heard. Ross-Ross later drafted the charter for the INSNG. The INSNG served well as a means of giving the CNS identity and visibility. Most nuclear societies, including the ANS and ENS, as well as Latin American and Asian societies, now knew there was a CNS as well as a CNA, both distinct from the ANS.

In early 1983, Muntzing of the ANS, supported by Zaleski of the ENS, placed before the INSNG a proposal to form an International Institute on Nuclear Safety. The Institute would be composed of experts named by the learned societies (free of political and institutional impediments) who together could act as a prestigious group on a range of subjects, from a uniform nuclear safety philosophy to recommendations on codes, risk assessment methods, source terms, and other topics. A Special Committee of the INSNG was formed under Prof. Zangger of Switzerland. Dan Meneley, with assistance from Gary Vivian and others, represented the CNS. The proposal was very ambitious, and there were many practical considerations needing attention. Many of the objectives overlapped with the IAEA's established role. The end result was a special advisory group to the Director General of the IAEA called the International Nuclear Safety Advisory Group (INSAG). Dan Meneley continues as the Canadian representative on INSAG.

The Third International Conference on Nuclear

Technology Transfer (ICONTT-III) is an excellent example of the CNS presence leading to a large and important Canadian participation in a conference, because it helped to plan the conference at a very early stage. The CNS was known to the other key partners in the ICONTT organization through INSG, and succeeded in obtaining CNS representation on the Program (T. Carter, N. Yousef) and Steering (J. Hewitt, J. Boulton) Committees. Not only did the CNS secure a large number of opportunities for paper contributions to the conference, it was recognized with the ANS and ENS as having had a special role in organizing the conference.

During this period Ed Hennelly, Manning Muntzing, and Milt Levenson (one-time presidents of the ANS) were the INSG delegates and key people in international affairs. Ross-Ross had the opportunity to talk with them about ANS/CNS co-ordination and co-operation, and he drafted the 'Agreement of Co-operation Between the Canadian Nuclear Society and the American Nuclear Society.' The agreement was approved by both societies in June 1983 and formally signed in Vancouver in September 1983. The agreement helped open the lines of communication between the two societies and included a number of benefits to members. The CNS now had more opportunity to participate on ANS committees, and vice versa. Of particular importance were the various committees dealing with technical programs. Rudi Sligl and Peter Stevens-Guille became the first CNS representatives on the ANS Program Committee and the ANS Power Reactor Division Committee, respectively.

As a result of INSG participation and the CNS/ANS Agreement, the CNS was now better positioned to co-ordinate its conference program with the international scene. Of importance was the potential for avoiding conflict through co-operation in establishing conference topics, dates, and locales at an early planning stage, and through the co-sponsoring of conferences to achieve broader publicity and attendance.

China, a country emerging from many years of isolation, was seeking to improve its participation in the world of technology transfer. Through the INSG, the Chinese Nuclear Society approached the CNS, in 1983, concerning an agreement of co-operation. Such an agreement between the two was ceremoniously signed in Toronto in November 1984, following a year of preparation by Presidents Hewitt and Stevens-Guille, with President Jang of the Chinese Nuclear Society.

On his retirement as CNS president in 1983, Phil Ross-Ross became the first incumbent appointed to the position of CNS International Delegate. The position later became an *ex officio* position on the CNS Council.

Conferences

As indicated in the description of the *Pro Tem* Council, the CNS did not delay getting its conference program

underway. Thanks to the efforts of Tom Drolet, Eva Rosinger, Mel Feraday, Nabila Yousef, Ernie Card, and others, the first totally CNS-planned flagship event was an outstanding success. The International Conference on Radioactive Waste Management was held in September 1982 in Winnipeg, in conjunction with the Annual Information Meeting of the Canadian Nuclear Fuel Waste Management Program. About 240 attended the three-day conference for which 90 papers were selected. Of these, over one third were from abroad. The conference earned a surplus of over \$20,000 – just what the Society needed. The Waste Management Conference set a standard for all future conferences.

The four Technical Divisions were effective in sustaining both the annual international-type of conference, and a series of seminars and symposia. The conferences organized by the CNS during its adolescence involved many individuals, all experts in the topic at the conference or seminar they organized.

With the limited space available here, only conference chairpersons are named, and events are listed only where the CNS was the principal organizer. Numerical Methods in Nuclear Engineering, September 1983 (Rik Bonalumi); Applications of Robotics and Remote Handling in the Nuclear Industry, September 1983 (Hugh Irvine); Containment Design, June 1984 (Nabila Yousef); Simulation Symposium, May 1982 (Rik Bonalumi); Commissioning Symposium, May 1983 (Brian Harling); CNA / CNS Student Conference, March 1984 (Eva Hampton, John Marczak, Archie Harms); Simulation Symposium, April 1984 (Neil Craik); CNS Annual Conference, June 1982 (D. Meneley); CNS Annual Conference, June 1983 (Jan Charuk); CNS Annual Conference, June 1984 (Irwin Itzkovitch).

Internal CNS Development

To help maintain a sense of common purpose among active members of the CNS, Ross-Ross introduced the concept of the Officers' Seminar, an idea borrowed from the ASME. The first such seminar for the CNS was held on 23 September 1982. All members of Council, Branch, Division, and other committees are invited to meet once a year to get up-to-date on the affairs of the Society. The seminar provides an opportunity to be reminded of who's who in the CNS; the aims, objectives, and services of the Society; and how the policies, procedures, and guidelines can help the officers in their specific roles. The Officers' Seminar has become a tradition.

By the end of the CNS's adolescence, the Technical Divisions had reached a degree of maturity, and constitutional changes were made so that, from July 1984, each Technical Division would be represented on the Council by its chairperson. Thus, the Technical Divisions Committee now became obsolete after having contributed much to the development of the Society. Also during this period, the position of Branch Activity Chairman was established on the

Council. The position was ably filled in the first instance by Ernie Card, the founder of the first CNS Branch.

CNS Publications

The CNS-Bulletin-SNC became a typeset newsletter in the fall of 1983. Also, a typeset technical supplement to the Bulletin was introduced at the suggestion of Joe Howieson in 1983–84. The feature of each supplement was a technical paper on a subject of current interest. At this point, the Bulletin had become an informative and entertaining newsletter with a serious technical dimension, thanks to the creative wit of its editors.

Also during 1983–84, the CNS undertook to develop an international market for its conference proceedings, both of the many conferences that had already taken place, and of future conferences organized by the Society. The favourable response to this offering of CNS publications was a good omen for the introduction of a CNS-published journal.

Early in the adolescent period, a segment of Council, including Hewitt, Howieson, Bereznai, and others, wrestled with the question of establishing the *Nuclear Journal of Canada*. Although most members considered a journal as a clearly desirable element of a learned society, it was difficult to put together a business plan to show that the journal would neither drain society funds nor burden the individual member through annual increases in membership fees to offset the conceivable losses.

In the autumn of 1983, the Council sought professional advice and commissioned Alan Wyatt to study the matter and report. Wyatt's proposal for a 'Canadian Nuclear Journal,' dated 18 February, was received by Council on 7 March 1984. Wyatt was authorized to recommend the next step.

By mid-1984, the CNS was a well-recognized society, the reserve fund was healthy, and it appeared as if the Canadian Nuclear Society could seriously consider launching the *Nuclear Journal of Canada*. At this writing, it is evident that the *Journal* is now launched, but the details are appropriately left to the sequel of the present historical account.

Concluding Remarks

In the present account, the evolution of the CNS has been traced from its early conception, through its formation, birth, and adolescence, to the stage of affirming many of the attributes of a mature scientific and technical society. That the CNS has achieved such a sound and visible stature, in so few years after the first co-ordinated steps were taken, is remarkable.

It will be evident from the foregoing account that the CNS was not simply 'willed' into existence. Rather, the founders took account of the prevailing circumstances, so that the CNS was indeed, in the words of the Langlois Task Force, 'allowed to evolve naturally.'

Thus, the emerging Society was able to draw on the best of its environment to lay a sound foundation, to grow quickly, and to stand tall, strong, and self-directing among the nuclear societies serving the common good through the advancement of nuclear science and technology. Whether an earlier genesis would have produced such a viable creature is, at this point, immaterial. What is important is that the CNS remain self-sustaining and purposeful in the changing environment of the years to come. To succeed in the future, the Canadian Nuclear Society/Société Nucléaire Canadienne has only to remember and preserve its early genetic rapport with its environment as it tackles the many new challenges ahead.

Acknowledgements

During the first five years of its evolution, the CNS was able to plan and develop its future in an atmosphere free of the sporadic financing forced on societies primarily dependent on membership fees. Council was very conscious of financial matters and distributed funds with care. The Council's approach to finance was to keep membership fees low, put the profits from special events (conferences) into a reserve fund, steadily reduce the subsidy from the CNA, and launch new projects (e.g., the *Journal*) out of the reserve funds when the benefits and risks were properly defined. In this context, thanks are extended to President Norm Aspin, the Board of Directors, and Lloyd Secord, the long-time and capable treasurer of the CNA. Secord, more than anyone, was aware that, not only did the CNS receive a subsidy in the form of CNA headquarters support, but also had inherited responsibility for a conference program that had formerly been a source of funds for the CNA. Secord, annually (usually when discussing the sharing of the proceeds of the CNA/CNS annual conference) would give that friendly nudge to remind the CNS that the treasury of the CNA, as well as the CNS, looked forward to the day when the CNS would no longer be financially dependent on the CNA. One must assume that the Board was well satisfied with CNS progress, for they did not once interfere in Society affairs.

A special tribute is owed to Jim Weller and his staff. Jim, as General Manager of both the CNS and the CNA, was the Great Facilitator who somehow managed to get everything to work.

Another special tribute is paid to all who served on Branch, Division, and Conference Committees. Their diligence and eagerness to see the CNS succeed was indispensable to the well-being of the fledgling organization.

The support and patience of the first CNS members, including those who were unable to make an active contribution within the organization, was vital to the formation and development of the Society.

Finally, the authors, as the Society's first three

presidents, take this opportunity to thank the individuals of the CNS and its supporting institutions for the rewarding opportunity of serving a noble cause, and to offer best wishes for the success of the *Nuclear Journal of Canada*. May the *Journal* long serve to expand the objectives of the Canadian Nuclear Society/Société Nucléaire Canadienne.

Appendix: Chronology of Events Spanning the Formation and Early Years of the Canadian Nuclear Society

1960	Inauguration of the Canadian Nuclear Association (CNA)
1973-06	Technical Papers Program at the CNA Annual Conference
1976-06	Canadian Nuclear Association / American Nuclear Society Joint Conference in Toronto
1976-11-12	Letter from G. Howey to R. Langlois calling for the formation of a Canadian nuclear society
1977-06	First of a series of 'Third Day' Technical Programs organized by Standing Committees of the CNA for the CNA Annual Conferences in 1977, 1978, and 1979.
1977-07	Technical Society Steering Committee recommends ongoing Task Force.
1978-01	Langlois Task Force, first meeting
1978-06	Open discussion on a technical society at the Third Day Luncheon of the CNA Annual Conference
1979-02-26	Langlois Task Force makes recommendations to the CNA Board on the nature and establishment of the new Society, at its final meeting
1979-06-11	The Technical Society of the CNA formally established at CNA Annual Conference
1979-07-31	Meeting of the Technical Society Organizing Committee. The full name of the society as the Canadian Nuclear Society - The Technical Society of the Canadian Nuclear Association and the officers of the <i>Pro Tem</i> Council are confirmed
1979-07-31	First meeting of the CNS Council (<i>Pro Tem</i>)
1979-10-25	The CNS Council presents the draft CNS Constitution and By-Laws to the CNA Board
1980-05	CNS-Bulletin-SNC first issued
1980-06-18	First Annual CNS Conference, held in

conjunction with the twentieth CNA Annual Conference in Montreal

1980-11-25	First technical publication of the CNS available as the full proceedings of the First CNS Annual Conference
1980-1981	CNS branches established for Manitoba, Ottawa, Chalk River, Toronto, and Quebec
1980	CNS Membership List first published
1981	Planning document 'The CNS of Tomorrow' tabled
1982-09	CNS holds its first major international conference, on Radioactive Waste Management, in Winnipeg
1983-09	CNS hosts meeting of the International Nuclear Societies Group (INSRG) at the Pacific Basin Nuclear Conference in Vancouver and is heavily involved with the ANS and the ENS in INSRG formation and development
1983-09	CNS/ANS Agreement of Co-operation formally signed at Vancouver
1983	CNS participates, through the INSRG, in the formation of the International Nuclear Safety Advisory Committee (INSAG)
1984-10-29	CNS contributes a major formal submission to the Interfaith Program for Public Awareness of Nuclear Issues (IPPAI)
1984-11	CNS and the Chinese (PRC) Nuclear Society formally sign an Agreement of Co-operation in Toronto
1984	CNS commissions a study and receives a formal proposal for the <i>Nuclear Journal of Canada</i>

Notes and References

1. Minutes of the CNA Education and Manpower Committee, 2 March 1978. (Attributed to D.G. Andrews.)
2. Weller JA. Background paper of 24 July 1979. Attachment to agenda for the 27 August 1979 session of the Organizing Meeting of the Technical Society of the Canadian Nuclear Association.
3. Individuals who were early promoters of the concept of a Canadian nuclear society included D.G. Andrews, S. Banerjee, A.A. Harms, G.R. Howey, J.S. Hewitt, and W. Paskievici.
4. Letter from G.R. Howey to Roger Langlois, 12 November 1976. Appended to the minutes of the CNA Education and Manpower Committee, 13 January 1977.

