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"The Canadian Science and Technology Historical Association"

by Andrew H. Wilson

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CSME History Committee

WORKING PAPER 14/1998

THE CANADIAN SCIENCE AND TECHNOLOGY HISTORICAL ASSOCIATION

by

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July 1998

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Abstract

The Canadian Science and Technology Historical Association (CSTHA) was formed late in 1980 and has been prominent ever since as a forum for the encouragement of research, teaching and communication in this relatively new field and for its publication as part of a growing literature that is belatedly receiving just a little recognition from the more conventional practioners of historical research. Each CSTHA conference also provides a meeting place for discussions between academics and non-academics and for those whose enthusiasm for the history of science, technology and engineering begins in Canada. The main purpose of this Paper is to examine the scholarly and institutional antecedents that led to the forming of CSTHA, and to situate the history activities of the Canadian Society for Mechanical Engineering in relation to them.

This Paper was presented by the author at the CSME History Seminar at Ryerson Polytechnic University on 22 May 1998.

About the Author

Andrew H. Wilson is a graduate mechanical engineer whose educational background includes some economics and a little history. He has followed all three fields at various times throughout a career that began in the mid-1940s and continues today. His contributions to the history of engineering have been made principally through CSME and the Engineering Institute of Canada. He has been a member of CSTHA from the beginning.

About the Working Paper Series

In June 1991, the Board of Directors of CSME agreed that its History Committee should be responsible for the production of a series of Working Papers on topics related to the history of engineering generally and to the mechanical discipline in particular. The Papers may or may not be authored by members of the Committee or the Society. They may also be published again later, in whole or in part, in other vehicles, but this cannot be done wothout the expressed permission of the Canadian Society for mechanical Engineering. The Papers will have limited initial distribution, but CSME Headquarters in Ottawa will maintain a supply for distribution on request.

The opinions expressed in the Papers are those of the authors and are not necessarily shared by the Society.

The development of the study of the history of engineering in Canada owes a great deal to the often-maligned 1970s, when some of the men amongst us wore wildly checked suits with flared pant legs, coloured shirts with large pointed collars, big broad ties with squiggly designs on them, and long hair. And although the Canadian Science and Technology Historical Association (CSTHA), which is the subject of this Working Paper, was not technically 'born' in the 1970s, its antecedents were in place by then - and these are among of the topics of my discussion.

From the time it was formed late in 1980, CSTHA played an important role in the encouragement of research, teaching and communication in regard to the history of science, technology and engineering (ST&E) in Canada. So I would like to say something about this role, as revealed during the almost 20 years or so of the Association's existence.

And although it is not truly an antecedent of CSTHA, but was influenced in some ways by it and by its members, I want to situate the beginnings of CSME in relation to the Association's time frame.

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The first of the CSTHA antecedents is the Institute for the History and Philosophy of Science and Technology at the University of Toronto - otherwise known as IHPST. It actually goes back to the 1960s. As was noted in a recent UofT Graduate Handbook:

> The formation of IHPST reflected a long-standing interest at the University of Toronto in the discipline. In 1963, Claude Bissell, then President of the University, appointed an advisory committee on the history and philosophy of science. Its recommendations led to a series of lectures by distinguished visitors, appointments in the field, and the introduction of graduate and undergraduate courses, all in the Department of History. In 1967, the IHPST was established, with Professor John W. Abrams as its first Director...

IHPST therefore became a separate unit, outside the History Department, and its first director - John Abrams - was originally a professor of industrial engineering. Not surprisingly, the environment within this Institute has remained academic. IHPST continues today to contribute significantly to research, teaching and communication in the field.

Around this same time a second antecedent, the graduate-level Institute for the History and Sociology of Science was established at the University of Montreal, where it flourished until a few years ago. It no longer exists, its remaining staff having been re-assigned to other departments.

I should make the point in connection with these institutes that many of the academics who are presently active in CSTHA and the ST&E field passed through one or both of them at some time during their careers. Also, the emphasis in both has been on the history and philosophy of science, although technology and engineering have by no means been neglected.

But several points should also be made in connection with the Canadian universities and the academic status of the history and philosophy of science, technology and engineering over the past 30 years.

The first is that few universities other than Toronto and Montreal - but notably Queen's, York, Western Ontario and, more recently, Waterloo - have established graduate or undergraduate courses in these fields, and their contributions to research and publication have, in most cases, been linked to individual professors. The second is that, from 1971 on, thanks to the establishment then of the Jason A. Hannah Chairs set up in five Ontario universities, the history of medicine has garnered some encouragement from the academic community. And the third is that little, if any, distinction was made until quite recently by researchers and writers in this field between 'technology' and 'engineering.'

But it should be added, in a non-academic context, that in the early 1970s interest began to develop in North America the study of the new discipline of industrial archaeology (increasingly referred to nowadays as 'industrial heritage'). While most of this interest was directed towards the usually longer-lasting civil engineering sites, such as canals, railways, waterworks, and so on, there was also some interest in the mechanical engineering aspects of the industrial revolution. In institutional terms, the first North American one was the Society for Industrial Archeology (SIA) in the United States, formed in 1972. Its meetings and tours of inspection of sites helped to popularize the new field.

In Canada, the early enthiusiasts belonged mostly to 'public history' agencies, such as Parks Canada. The SIA, for its part, has organized a number of Canadian tours and, quite recently, held two of its annual meetings in Quebec City and Toronto. But a number of domestic organizations developed to deal with the study of industrial archaeology/heritage in Canada. An early one, in the 1970s, was the Canadian Engineering Heritage Record - a joint venture between the federal Department of Indian and Northern Affairs and the Engineering Institute of Canada. There has also been the Ontario Society for Industrial Archaeology (OSIA), l'Association québécoise pour le patrimoine industriel, the Canadian Society for Industrial Heritage (CSIH) and, most recently, Industrial Heritage Nova Scotia. These organizations have had varying degrees of success - and staying power.

Two ways in which the (small) industrial archaeology/heritage

community in Canada may have influenced CSTHA should be mentioned. One is that, although organizations such as SIA, OSIA and CSIH may have lacked scholarly respectability, both academics and non-academics were to be found among their members. The other is that members of the Canadian organizations in the field began joining CSTHA when it was formed.

To return to the CSTHA story: in 1972, at the meeting of the Canadian Historical Association (CHA) in Montreal an experimental session on the history of science was organized. It coincided with an increase in the numbers of graduate students entering the special institutes at Toronto and Montreal. While the CHA did not repeat the experiment, a Canadian Society for the History and Philosophy of Science (CSHPS) was formed and, from 1973 onwards, has held sessions of its own during the annual meetings of the Learned Societies, of which it became one. But in spite of this, there were problems raising the activity levels in the history and philosophy of science in Canada. This was in part because CSHPS saw its subject area as embracing science internationally, while some of its members concluded that Canadian science was not receiving sufficient work or encouragement. In other words, there were some unhappy 'Canadianists' among the CSHPS members.

As if to reinforce this view, two books appeared in 1974, both published by the Oxford University Press in Toronto, and both representing a serious effort to examine systematically the history of Canadian science and technology in a social context.

The first, A Curious Field-book: Science & Society in Canadian History, was edited by Trevor Levere of IHPST and Richard Jarrell of York University. The bulk of this 230-page book reprints papers, articles, extracts and other relevant material, while the remainder of it consists of essays written by the editors. The book as a whole, in the words of the back cover, "explores the seminal and ever-increasing role of science in the development of Canadian society..."

The second book was the Field-book's 300-page companion volume, Let Us be Honest and Modest: Technology and Society in Canadian History, edited by Bruce Sinclair, Norman Ball and J.O. Petersen, all of IHPST. Again there are essays, articles and extracts - although many more of them than in the Field-book - linked by shorter introductory sections written by the editors. This book, as the back cover states, "presents a selection of documents to illustrate the interrelationship between technology and society in Canada from the earliest settlement to the period before the Second World War."

At the mid-1976 meeting of the Learned Societies at Université Laval, a key move was made by a group of historians and archivists attending the CHA and CSHPS sessions. The group met informally to discuss what appeared to be the lack of a suitable organization for

what, to them, was an emerging Canadian discipline. There were two main results from these discussions.

One was the decision to publish a quarterly national newspaper, the HSTC Bulletin, that could become a catalyst in the development of the study of the history of science and technology in Canada. The first issue of it appeared in November 1976. The editors were Richard Jarrell of York University and Norman Ball, then on the staff of Parks Canada but shortly to become the science and engineering archivist at the National Archives in Ottawa. This Bulletin began life as a self-financed, donation-supported, non-profit endeavour, without a parent association or affiliation. It was run from Jarrell's office at York. The early issues carried news of CSHPS and other national and international activities in the field, plus educational programs, bibliographies and library collections, lists of completed theses and dissertations, and recent books and other publications. It also paid particular attention to the sources of government funding in support of academic research in the history of ST&E.

As an amateur/non-academic in the field, I must have asked to join in the support of the HSTC Bulletin because my name is among the 45 or so listed in the 'Directory of Historians' given in the second issue in February 1977. Of them, 17 had university affiliations and 20 were employed by government agencies - principally Parks Canada and the federal Department of Indian and Northern Affairs. A handful were associated with the history of medicine, and another handful were engineers.

The other post-Laval result was a meeting of 23 of professional/academic and amateur/non-academic historians of science organized by Donald Phillipson and Alfred Tickner and held in Ottawa in April 1977. It was notable for revealing differences of opinion on the need for a new 'infrastructure' to stimulate work in this field. In fact, according to the report in the May 1977 issue of the HSTC Bulletin, the opinions expressed on new initiatives appear to have been generally negative, in view of which it is just a little surprising that the CSTHA was formed just over two years later. But on a positive note, it was decided at this April meeting that another one would be held in Ottawa to which archivists would be invited.

But let us go back for a moment to September 1971. It was then that the American Society of Mechanical Engineers (ASME) reactivated its History and Heritage Program and the committee that looked after it. By 1975, President George Aldworth of CSME had become aware of the vigour with which ASME was pursuing history and heritage activities and decided that an equivalent Canadian group was needed. In this conclusion, he had the strong support of Past President Fred Rimrott, with his breadth of view and practical approach, and of Ernie Zucker, whose work for Stelco and connections with CSME activities in Hamilton helped him develop

enthusiasm for matters engineering and historical. CSME's Council was persuaded. By this time George, having dialogued the subject with me on more than one occasion, was persuaded that I had an 'inclination' towards the forming of a CSME History and Heritage Committee and invited me to chair it, which I accepted to do in late 1975.

The CSME History Committee, therefore, came into being before CSTHA. Its story has been told in an essay I wrote for the Society's book, From Steam to Space..., so I will not elaborate on it in this present Paper.(1) Interestingly, the May 1977 issue of the HSTC Bulletin carried an item announcing the launching of the CSME 'history project' and inviting participation in it. As I recall, only a few enquired about it, probably because it appeared from the item that I was looking for engineers rather than historians. (I was simply looking for help!) In any event, it took until 1978 to assemble the Committee, develop its terms of reference, make contact with helpful institutions and individuals (such as the HSTC people, Norman Ball, and the ASME's H&H Committee), and get some research and publication under way.

Let me, for the record, insert here a piece of 'associated' CSME information. In the late 1970s, our colleagues in the American Society of Mechanical Engineers commissioned Professor Bruce Sinclair, a historian of North American technology and at the time the Director of IHPST at the University of Toronto, to write the memorial volume commemorating the centennial of their Society. Bruce was an American, and later returned to the U.S. to teach, but the graduate student who assisted him, James P. Hull, was a Canadian, and the book itself was published by the University of Toronto Press. Bruce was, and Jim still is, a member of CSTHA.(2)

Now back again to CSTHA. In its August 1977 issue, the HSTC Bulletin carried an article on sources for the study of the history of Canadian science and engineering - significantly engineering not technology. In it, Norman Ball wrote:

> One of the reasons for the founding of this Bulletin was the conviction that there was far more activity than any of us dared suspect, but that it was fragmented. The same might be said about sources in the history of engineering and science in Canada. There is a great deal to be done, both in terms of the work of archivists as well as historians, but at the same time much has been written and preserved. Much is being done right now, but few are aware of it. Hence the start of what will be a regular column in this newsletter devoted less to listing articles than to the discussion of general sources....

While the regularity part of this promise may not have been fulfilled, both the Bulletin and later the CSTHA itself contributed to the identification of archives and potential study sources and

the compilation of bibliographies.

The second Ottawa meeting, to which I referred above, was to be principally about archival matters. It was again organized by Donald Phillipson and Alfred Tickner, along with Norman Ball. It was held in September 1977 and was attended by 33 people. From the report, which appeared in the November 1977 issue of the HSTC Bulletin, it is clear that much of interest and concern was discussed about the problems of archiving history of science and technology material and about the funding of these activities. But perhaps the most important result was the setting up of a steering committee to organize a conference to coincide with the Learned Societies in May 1978.

However, this initiative evolved into the organization of a more broadly based national conference to discuss needs and opportunities for the study of the history of science and technology in Canada. The HSTC Bulletin listed the following objectives for it:

> - to give a broad picture of the curent work in the field and the future opportunities;
>
> - to review what is being done to communicate the subject matter to students and the general public;
>
> - to discuss the availability of sources for research;
>
> - to identify problems in the foregoing and work out solutions.

This conference took place in November 1978 at Queen's University. It was billed as "the first conference on the study of the history of Canadian science and technology." It was supported by financial and other contributions from Queen's University, the Social Sciences and Humanities Research Council, the National Research Council, the Science Council of Canada, the National Museums of Canada, the Hannah Institute for the History of Medicince, Atomic Energy of Canada Ltd., and the Aluminum Company of Canada. It had around 150 participants (including myself, apparently) and its Proceedings were published two years later in the form of a book, Science, Technology and Canadian History, edited by Richard Jarrell and Norman Ball. And so were born the Kingston Conferences, which have been continued biennially to this day by CSTHA.

Of this First Kingston Conference, C.E.S (Ned) Franks wrote in his introductory essay in the Proceedings:

> The great strength of the conference was that it brought together such an enormous range of individuals interested in the history of Canadian science and technology. We now have met each other, and can look for support in a

> Canada-wide 'invisible university.' The challenge now is for us to produce worthwhile scholarship. There will be two aspects to research: on the one hand study of the development of ideas and knowledge; on the other hand study of the impact of ideas and knowledge on Canadian society.

By this time it had been pretty well agreed by those interested that CSHPS could not provide a permanent, or even semi-permanent, umbrella organization for Canadian studies of the history of science and technology. Nevertheless, discussions continued since many of those active in this field were still CSHPS members. For its part, and to improve communications with its members, CSHPS began publishing own newsletter, which it called Communiqué, in May 1979, and it has appeared since then roughly every four months. Its content has been directed to the needs of academics in history and philosophy, and its coverage has included the international academic scene. The fourth issue, dated May 1980, included a membership list with around 180 names. Most were from departments of philosophy and history. Around 40-45 were identifiable as non-academics, many from government departments. Some of the names had appeared in the earlier HSTC list, and a small handful (including myself) were engineers.

In June 1980, the HSTC Bulletin carried the announcement that it would cease publication as a newsletter and be re-launched as a bilingual scholarly journal - with news items. Those behind this project felt that it was time to move up. The newsletter's readership had risen to over 100 in the three-and-a-half years since it first appeared - a circulation that owed much to Richard Jarrell's determination that it should succeed. Naturally, he was behind the switch and continued as senior editor and publisher of the new journal. But unlike the newsletter, the new Bulletin would be available only through annual subscription.

The first issue appeared in January 1981. It included three substantial articles, several book reviews, notes of recent publications, and items that would have appeared in its newsletter predecessor. But more important, it carried the announcement that, in December 1980, a group of those associated with its publication had launched the bilingual Canadian Science and Technology Historical Association/Association pour l'histoire de la science et de la technologie du Canada (CSTHA/AHSTC), which would henceforth be devoted to encouraging research, teaching, discussion and preservation of Canada's scientific and technological heritage.

One of the principal points of departure for the establishment of this new association was the success of the First Kingston Conference in 1978, which had demonstrated the need for such a forum for this growing field of study. Another was the fact that the Canadian Historical Association had largely ignored science and

technology, while the Canadian Museums Association, the Association for Canadian Studies - and CSHPS - had each devoted only a little attention to science and technology.

In an editorial in the February 1981 issue of Communiqué, the writer commented that CSTHA could be its colleague or its rival. It worried that CSTHA would further fragment what was a small community of scholars - before CSHPS had begun to reach its full development. In the years that preceded the founding of CSTHA there had been talk that the history element (without the philosophy) and the emphasis on Canadian studies might be accommodated within CSHPS. Obviously, said the writer, those who were behind the founding had decided to wait and see no longer. Essentially, the field was now clear for CSTHA to get on with its business. And there was nothing to say that individuals could not belong to both associations. Quite a few did.

For its part, CSTHA would be open to all who were interested in its subject area, without qualification, and this was a very important point since it would provide engineers and other amateurs/non-academics in the field with opportunities to meet, learn from, and even influence the professional historians, archivists, museum workers and others who earned their livings teaching and researching in its field. The Association would also be organized along simple and efficient lines. The HSTC Bulletin would be its official journal, and the annual membership dues would include a subscription to it.

CSTHA's first major event was the Second Kingston Conference, held at Queen's University in November 1981, to discuss "critical issues in the history of Canadian science, technology and medicine" by means of papers, work-in-progress sessions, and historiographical workshops. The first business meeting of the Association was also held. The Proceedings were again published bilingually in book form, with the same title as the conference. The editors were Richard Jarrell and Arnold Roos. In their foreword, they wrote in part:

> In 1978 we were described as outsiders (by Ned Franks, in his essay). Now there is a core of insiders focusing on the study of the History of Canadian Science and Technology. The papers in this volume show the progress that has been made...
>
> ...the most vivid impression that comes from these papers is the dynamism of nineteenth century industry in Canada. Street railways transformed Toronto. Hamilton became a centre for the steel industry. A family in a small Ontario town utilized a concrete block-making technology so successfully that they have left a visual legacy in the buildings of many counties. A group of greedy entrepreneurs in Montreal drained so much water from the

Lachine canal that navigation was difficult, but this water power provided the energy which made the city into an industrial centre.

But the papers show it was not all a success story...

This was the last time that the Proceedings of a CSTHA Kingston Conference were published in book form. Later ones relied on the HSTC Bulletin, but by no means all of the presented papers appeared in it. The Kingston Conferences and the Association's General Meetings have been held every two years since 1981, mostly at Queen's, but also in Ottawa - for example, in 1991, to help celebrate the 75th Anniversary of the founding of the National Research Council.

That same year, 1981, was also the only one in which I made 'physical' contact with CSHPS, when I attended its sessions as part of the 1981 Learned Societies Meeting in Halifax and presented a paper that had much more to do with the history of engineering and much less about the kinds of historical arguments than this Society's members were accustomed to hearing. The only positive result was an invitation - taken up in 1982 - to read a paper on the history of Canadian engineering to a seminar in the Department of History at the University of Victoria. This particular effort was well enough received but, whether through lack of follow up on my part, or lack of real interest on the Department's, nothing further came of it.

Now that we have got CSTHA into the 1980s, let us move rapidly up to the present time, mentioning only - and briefly - the principal developments that have affected the Association.

In September 1983 the last issue of the HSTC Bulletin appeared. The following June it reappeared as Scientia Canadensis. The feeling was that the 'HSTC' acronym had outlived its usefulness. This change also meant two issues a year instead of three, and the introduction of word-processed texts in both official languages. The contents remained much the same: articles; book reviews; news; and recent publications; together with a new section on research notes. Richard Jarrell was the Editor.

In 1984 the first separate Membership Directory was published, compiled by Richard Jarrell, with translations by Raymond Duchesne. This particular issue included sections on the aims of the Association and its history, and listed the funded research of over 30 members, as well as theses and dissertations completed, courses taught, and recent graduates in the history of Canadian science and technology. Later directories have appeared roughly every two years and have included much the same material along with the Minutes of the last-held Biennial General Meeting. The Aims of the Asssociation, as given in the 1996 Directory, were these:

> The Canadian Science and Technology Historical Association was founded to link people across Canada and in other countries who have an interest in our scientific and technological heritage. The CSTHA brings together people from many professions and disciplines at its biennial conferences, encourages research and writing and the preservation of our material history.
>
> The Association's official journal, Scientia Canadensis, publishes articles, research notes, book reviews, news and bibliography. Anyone who shares an interest in the history of Canadian science and technology is cordially invited to join. CSTHA is a registered charity and a non-profit organization.

In the fall of 1985 a new CSTHA newsletter called Clavis was published for the first time. It offered news items and comment and was originally timed to appear in between the issues of Scientia Canadensis. It was intended for wide circulation within the history of science and technology communities and was made possible by a grant from a federal agency. Clavis, unfortunately, soon dropped from sight. Efforts were made to revive it, but none succeeded. However, in 1993 it was decided to attempt once again to publish a bilingual newsletter funded by the Association, and Bill Rawling was appointed to edit it. This vehicle has appeared from time to time since then, and now carries the title Dialogues.

With regard to publications, in 1994 the Association published a 270-page book, Dominions Apart: Reflections on the Culture of Science and Technology in Canada and Australia 1850-1945, in place of the two issues of Scientia Canadensis due (as Volume 17, Nos. 1 & 2) for publication a year earlier. Edited by Roy MacLeod (Australia) and Richard Jarrell (Canada), it included the essays read before a workshop attended by six Canadians and six Australians at the University of Victoria in July 1990.

In 1995, CSTHA published A Bibliography of the History of Canadian Science and Technology, compiled by Arnold Roos. It contained over 9,000 references and was the compiler's personal collection over a period of 25 years. When published, it was the largest bibliography in the field in Canada.

By 1989, government support for Canadian universities and university research was declining and began to affect the activities of the academic members of CSTHA and their ability to attend the biennial conferences, as well as to continue their research. These reductions also affected the graduate student body and the kinds of choices its members had to make while in university with regard to their careers, with the result that the numbers in the history of science and technology declined. However, the Association's membership - which had grown from 134 in 1984 - remained high until the early 1990s, but it declined thereafter

from 186 in 1992 to 131 in 1996. Attendance at the Kingston Conferences, which exceeded 100 in the 1980s, has fallen to 70 and below in the 1990s. But by 1997, CSTHA - like most other learned associations and societies - was linked by e-mail to many of its members and was in the process of developing its own home page on the Internet.

It is interesting to note that, in the 1990s, CSHPS has been having similar experience with declining membership and support for its conferences. It is also interesting that several senior officers of CSTHA over the years have also served on the Council of CSHPS.

By way of conclusion, I would argue broadly and from an engineering point of view that:

- on the positive side, it is a good thing that CSTHA exists as a forum for the discussion of the history of Canadian science, technology and engineering and that it admits to membership those with an interest in this field rather than only those who may have academic qualifications to participate in it;

- also on the positive side, it is a good thing that CSTHA has regular conferences and publications that appear, perhaps irregularly, but provide for communications between members;

- on the negative side, it is unfortunate that academics in departments of history have not taken more interest in the field, but the same may be said for engineers as a group of professionals;

- also on the negative side, it is unfortunate that financial support for the academic community began to falter just as the Association was needing it to grow to its next stage of development; and

- in the middle, so to speak, it does not appear to have hurt the Association that it is not a member of the Learned Societies since, within its own academic membership, it has unofficial ambasssadors to them.

Lastly, it is significant that it was John Abrams who began the process I have described in this paper that led to the founding of CSTHA, and beyond. He was an engineer...

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Principal Sources:

Let us be Honest and Modest, edited by Sinclair, Ball and Petersen (University of Oxford Press, Toronto, 1974); various issues of the HSTC Bulletin, and Scientia Canadiensis, published by CSTHA, and of Communiqué, published by CSHPS; and the two introductory essays by Jarrell and Ball and Franks in Science, Technology and Canadian History, edited by Jarrell and Ball (Wilfred Laurier University Press, 1980).

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(1) Andrew H. Wilson (Editor), From Steam to Space: Contributions of Mechanical Engineering to Canadian Development, Canadian Society for Mechanical Engineering, Ottawa, 1996.

(2) Bruce Sinclair, A Centennial History of the American Society of Mechanical Engineers 1880-1980, University of Toronto Press, Toronto, 1980.

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