

Confronting Computers: Debates about Computers at the Public Archives of Canada during the 1960s

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RÉSUMÉ Au cours des années 1960, le personnel des Archives publiques du Canada a commencé à faire face à deux aspects de l'informatisation qui sont toujours aussi pertinents aujourd'hui : l'automatisation comme outil de repérage d'information et la préservation des documents informatisés. Ce texte examine les expériences et perceptions initiales de l'usage des ordinateurs aux Archives publiques telles que les révèle le premier projet d'instrument de recherche automatisé et les discussions originelles au sujet de la gestion des documents électroniques. Les idées et réactions des archivistes par rapport aux ordinateurs durant les années 1960 comprenaient un mélange d'enthousiasme et de scepticisme. Le discours de cette première décennie d'usage des ordinateurs sert à nous rappeler les débats intellectuels fondamentaux au sujet des changements technologiques et des archives.

ABSTRACT During the 1960s, staff members of the Public Archives of Canada began to encounter two aspects of computerization that are of continued relevance today: automation as a tool of information retrieval, and the preservation of computer records. This paper explores the initial experiences and perceptions of computer use at the Public Archives through the lens of the institution's first automated finding aid project, and from the perspective of early discussions about electronic records management. Archivists' ideas and responses to computers during the 1960s included a mix of excitement and scepticism. The discourse of this original decade of computer use serves to remind us of the foundational intellectual debates pertaining to technological change and archives.

In 1960, the staff of the Public Archives of Canada (PAC) had not yet encountered computers. A decade later, computers were used for finding aid development, and archivists were beginning to deliberate upon the challenge of acquiring and preserving computer records. The 1960s, in short, was a decade of considerable technological change at the Public Archives of Canada, and the new developments elicited optimism, anxiety, and lively debate. Although the experience took place forty years ago, and technologies were very different from today's, the developments of the 1960s raised questions that twenty-first-century archivists will still find familiar and compelling: Would a move towards computerization compromise the archival profession, undermine

archivists' traditional expertise, or debase the quality of the researchers' experience of archives? By contrast, would computers allow better or continued standards of archival management in an era of unprecedented records growth? If archivists did not adopt the new technological tools, would their profession and institutions continue to flourish into the next decade? A closer look at the Public Archives' initial encounter with computers provides an occasion to explore ongoing questions about information technology and archives.

During the 1960s, computers held a "mystique" among archivists, who found computer jargon and work procedures unfamiliar.¹ If the archivists of the time found computerization to be a little intimidating, they certainly conformed to the national norm. A federal government survey of Canadians' perceptions of computer technology in 1971 reported that many expressed mixed feelings. Canadians' actual experience with computers was relatively modest: only 12.6% reported having had any contact with computers.² Furthermore, users and non-users of computers in Canada had divergent views of the technology. The survey results suggested that computer users tended to be computer advocates, while non-users were generally more skeptical. Computer users were more likely than non-users to express that "Computers are extremely accurate and exact"; "Computers will mean a higher standard of living"; and, "Computers will enable government and business to make better decisions." On the other hand, non-users were more likely to fear that "Computers threaten our family life"; "Computers will cause unemployment"; and, "People are going too far in using computers."³ In explaining Canadians' views of computer technology, the authors of the survey noted:

Attitudes toward the computer held by many Canadians are formed not only by direct knowledge of its capabilities and modes of operation but also second-hand, particularly from the press and from science fiction including such films as *2001: A Space Odyssey*.⁴

The film *2001* was released in 1968. Through the 1960s it had been preceded by a swathe of movie and television programming depicting the possible ill effects of computerization on society. *Star Trek* and *The Twilight Zone*,

1 Katharine Gavrel, *Conceptual Problems posed by Electronic Records: A RAMP Study* (Paris, 1990), p. 6.

2 Information Canada, *Survey of Public Attitudes towards the Computer* (Ottawa, 1973), pp. 5, 9.

3 *Ibid.*, pp. 15–18. This cites those responses with the largest differential between users and non-users of computers (that is, "contact" and "no contact" responses). The responses broke down as follows: "accurate and exact" (70% users, 41% non-users); "higher standard of living" (67% users, 45% non-users); "better decisions" (68% users, 50% non-users); "threaten our family life" (16% users, 42% non-users); "unemployment" (51% users, 73% non-users); "going too far" (30% users, 45% non-users).

4 *Ibid.*, p. 1.

both popular television shows in the 1960s, often featured as stock-in-trade plots the menace of some uncontrollable or malevolently-controlled computer technology. One movie particularly relevant to archivists' workplace perceptions of computers may have been *Desk Set* (1957), starring Katharine Hepburn and Spencer Tracy, in which Tracy played a computer consultant poised to automate Hepburn's library and displace her job. Strong images of computers and their potential consequences in the media reflected and reinforced insecurities within society.

The most prevalent fear among non-users, to which 73% agreed in the 1971 survey, was that "Computers will cause unemployment."⁵ The concern that computers would displace jobs was also reflected in the report of the Royal Commission on Government Organization in 1962. The commissioners stressed to Canada's public sector managers:

The importance of maintaining good staff relations from the earliest stages of computer planning cannot be over-emphasized. Material on experience in industry and in the United States Government is available and should be used wherever suitable. Staff are naturally fearful of the possibility of large-scale redundancy, and ignorance of the facts adds to the fears.⁶

Such fears existed among members of the Canadian archival profession, including the staff of the Public Archives of Canada. At a 1968 conference of the Society of American Archivists (SAA), held in Ottawa, PAC archivist Jay Atherton delivered a paper entitled, "Automation and the Dignity of the Archivist." Atherton was an advocate of using computers to aid in archival work, but he recognized that others in his profession were leery. He addressed his colleagues with the following words:

Automation has in it no more danger to human dignity than did the wheel, the steam engine, or the electric generator. However, it is still obvious that a serious psychological problem exists [within the archival profession] – one which often impedes progress towards automation or anything resembling it. Just to mention the words "computer" or "automation" in some circles is to invite cold suspicious stares of hostility, making one feel as though he had said something dirty.⁷

Atherton proposed his view that automation could be positive to the profession, allowing efficiency in mundane and time-consuming tasks, and freedom

5 Ibid., p. 24.

6 Canada, *Report of the Royal Commission on Government Organization* (Ottawa, 1962), p. 594.

7 Jay Atherton, "Automation and the Dignity of the Archivist," *Canadian Archivist*, vol. 2, no. 1 (1970), p. 56.

to focus on the specialized and analytical aspects of professional work. The sheer quantity of records had stymied archival work in recent years. He felt computerization was a possible solution:

The day will come for all of us when we find that our volume of holdings and rate of accessions make imperative the substitution of new methods for old, in order, simply, to keep our heads above water. In such an event, should the solution lie in automation, it seems to me that it will be potentially more damaging to our dignity not to automate than to do so.⁸

Although Atherton's paper identified a wariness among archivists of computer technology, the paper also reflected the opinion of some archivists – including Atherton himself – that computers were becoming an archival necessity in the 1960s.

Computers were first used by the Public Archives of Canada in 1965, for the development of new finding aids. Support for automation arose because of the particular demands on the institution. This was a period of unprecedented government growth, causing a boom in public records creation. At the same time, tighter records management requirements created an influx of archival acquisitions, and the expansion of post-secondary education programs in Canada heightened researcher demand.⁹

The largest division of the PAC during this period was the Manuscript Division, whose sweeping responsibilities were: to receive as accessions public records and private papers of historical value; to place them in order and provide findings aids for them; and to make them available to government officials, university professors and students, and others engaged in historical research.¹⁰

According to a report comparing the operations of the Manuscript Division in 1959 and 1966, the number of research inquiries shot up threefold, from 1314 inquiries to 4364. The number of registered researchers (480 in 1959, and 2090 in 1966) increased more than four times. Most dramatically, the extent of material acquired jumped an astonishing thirteen times, from 315 feet in 1959 to 4223 feet in 1966.¹¹

One of the great challenges these trends created for the Manuscript Division was information retrieval.¹² The creation of finding aids was a labour-inten-

8 Ibid., p. 58.

9 Library and Archives Canada, Wilfred I. Smith Papers, MG 31, E 96 (hereafter cited as Smith Papers), Volume 14, File 4, Memorandum, 4 January 1966.

10 Smith Papers, Volume 14, File 4, Memorandum from the Manuscript Division, 30 June 1960.

11 Smith Papers, Volume 14, File 3, Manuscript Review: Program Review, 1968/69 to 1972/73, Appendix A.

12 Smith Papers, Volume 14, File 4, Memorandum from the Manuscript Division, 30 June 1960.

sive job. The standard procedure for finding aid development was that a clerk typed onto a draft catalogue card the key information (name of papers, archival location, type of document, date of document, author of document). Subsequently, an archivist reviewed the card and added the relevant subjects relating to each document. When professional description was finished, the clerk sorted the cards in a particular order (by author, for example), and typed a finding aid in that order. The clerk then re-shuffled and re-typed the cards again on the basis of an alternative order. Author, date, and subject-sorted finding aids would be prepared in this way.¹³ A memo from the Manuscript Division in 1960 complained: “Even with 2 archivists and 2 clerks less than 10% of a year’s accessions could be indexed.”¹⁴ (This was in 1960, and over the next ten years annual acquisitions increased tenfold!) With soaring acquisitions and a growing backlog, the information retrieval services at the Manuscript Division were literally overwhelmed.

Consider the Mackenzie King Papers, acquired in 1960, as an example of one set of records in the long queue. These papers were approximately one million pages in extent. According to the division’s estimates in 1963, the King Papers could be indexed by an archivist, with the assistance of a clerk, at a rate of approximately 50,000 pages per year. One archivist and one clerk, working full-time, would require twenty years to prepare a finding aid for these papers.¹⁵

With such a burden on their professional and clerical staff, the division was looking for new ways to manage records and respond to the growing demands of researchers. Automation was one possible solution. In 1964, a group of Manuscript Division archivists, including Atherton, began to study seriously the possibility of using computer technology to create finding aids for the prime ministers’ papers, which were among their most frequently-used records. They began their investigation by visiting the Library of Congress in Washington, which had recently developed computer-generated finding aids for its presidential papers.¹⁶ The PAC officials were impressed by the work at the Library of Congress, but wanted to expand their project even further to include the subject listings found in PAC’s current finding aids. Atherton explained:

13 Jay Atherton, “Mechanization of the Manuscript Catalogue at the Public Archives of Canada,” *American Archivist*, vol. 30, no. 2 (April 1967), pp. 303–9. This is the process that Atherton describes as the manual alternative for creating a finding aid of the Sir John A. Macdonald Papers.

14 Smith Papers, Volume 14, File 4, Memorandum from the Manuscript Division, 30 June 1960.

15 Smith Papers, Volume 14, File 4, Memorandum Re: Additional Staff Requirements, 3 June 1963.

16 Fred Shelley, “The Presidential Papers Program of the Library of Congress,” *American Archivist*, vol. 25, no. 4 (October 1962), pp. 429–33.

One can open the author index to the Abraham Lincoln papers [at the Library of Congress] and find over 500 entries for correspondence from or to William H. Seward, in chronological order but with no subjects indicated anywhere ... As it turns out, most historians using our Prime Ministers' Papers appear to be interested in material related to specific subjects. Therefore the most useful type of finding aid that we could provide obviously would be one either arranged by subject or at least indicating them.¹⁷

The Canadian archivists decided that automated finding aids should contain all the information found in their current typed lists; there was no reason that the use of automation would diminish the content of their finding aids. Having settled this point, Atherton and his colleagues consulted with computer experts within the government to discuss the feasibility and cost of their plan. They contracted with the Taxation Data Centre of the Department of National Revenue to execute the technical aspects of the project. By 1965, the PAC's first automated indexing project had begun.¹⁸

Atherton presented a paper describing the project to the Archives Section of the Canadian Historical Association at their annual conference in June 1965. The paper, "The Application of Mechanization to Manuscript Catalogue Production in the Public Archives of Canada," was published in the *Canadian Archivist* the following year.¹⁹ This was a novel project – and publication – for its time. Professional journals and conferences among American archivists were also just initiating exploration of automation. The earliest relevant paper in the *American Archivist* had been in 1948: "The Machine Age in Historical Research" by Murray G. Lawson.²⁰ Lawson's article celebrated the potential use of computers for both statistical research and tracking of research sources. The article – while fascinating and certainly pioneering – was published well before archivists had access to computer resources; after this, neither the *American Archivist* nor its sponsor, the Society of American Archivists, nor indeed their Canadian counterparts, broached the issue of automation again for some time. Only in 1965 did J.J. Hammit present a paper at the SAA annual meeting stressing the need for scheduling government computer records.²¹ Hammit's paper was published in the *American Archivist* the same year.²² A short article by Morris Reiger, published in the same journal in 1966,

17 Atherton, "Mechanization," p. 303.

18 Ibid.

19 Jay Atherton, "The Application of Mechanization to Manuscript Catalogue Production in the Public Archives of Canada," *Canadian Archivist*, vol. 1, no. 4 (1966), pp. 3–7.

20 Murray G. Lawson, "The Machine Age in Historical Research," *American Archivist*, vol. 11 (1948), pp. 141–49.

21 Thomas Elton Brown, "The Society of American Archivists Confronts the Computer," *American Archivist*, vol. 47, no. 4 (Fall 1984), p. 367.

22 J.J. Hammit, "Government Archives and Records Management," *American Archivist*, vol. 28 (1965), pp. 219–22.

also noted the challenge of computer records and stressed the possibilities of the adoption by libraries of automated information retrieval systems. He claimed, though, that the latter technique had “not yet been employed in archives in the United States at either the national or state level.”²³

Reiger was quickly proven wrong. The following issue of the *American Archivist* described a pilot project at the Herbert Hoover Archives at Stanford University that used computers for the development of a keyword-based finding aid for the Hoover collection.²⁴ The exchange obviously generated interest. At the next SAA general meeting, in Atlanta, Georgia in 1966, five panellists representing various institutions, including the Hoover Archives, each showcased their efforts in automated information retrieval. This meeting reportedly attracted a “standing-room-only crowd,” estimated at 300 people.²⁵ As a result of the panel’s success, the *American Archivist* published the papers in April 1967, and added more contributions to round out a special issue called, “Automation in Archives and Manuscript Collections.” The Public Archives’ project was featured in an article in this special issue by Jay Atherton entitled “Mechanization of the Manuscript Catalogue at the Public Archives of Canada,” a substantially revised and lengthened version of his *Canadian Archivist* paper published the previous year.

In Atherton’s opinion, computers were the answer to the Manuscript Division’s problems of increasing collections and researcher demand. He asked Canadian archivists in 1965:

What will electronic data processing do for such a subject? Stated simply, it will provide us with more accurate and more complete finding aids at lower cost and in a fraction of the time (*literally no time at all*).²⁶

His *American Archivist* article showed similar optimism. Atherton wrote:

The [manual] production of catalogues to the [Sir John A.] Macdonald papers ... would occupy one clerk for 150 months, or 12 years. With two clerks this time would be 6 years, with three it would take 4 years, and even with a half dozen clerks working full time on sorting and typing 2 full years would elapse before we had our three finding aids ready for the use of researchers. By bringing mechanization to bear upon the sorting and printing operations, however, we should be able to produce our three detailed finding aids *within 2 weeks rather than a number of years*.²⁷

23 Morris Reiger, “Archives and Automation,” *American Archivist*, vol. 29, no. 1 (January 1966), p. 110.

24 Rita R. Campbell, “Machine Retrieval in the Herbert Hoover Archives,” *American Archivist*, vol. 29, no. 2 (April 1966), pp. 298–303.

25 Brown, “The Society of American Archivists Confronts the Computer,” pp. 368–69.

26 Atherton, “Application,” p. 4. Emphasis added.

27 Atherton, “Mechanization,” p. 304. Emphasis added.

Atherton's estimate of two weeks (or, the previous year, "no time at all") was an unreasonably short one. Atherton only included computer lab time, without accounting for preparation of materials by clerks for the EDP (Electronic Data Processing) operators. He explained his "no time at all" estimate to Canadian archivists by saying that the conversion to computer media could be done in tandem with the professional description, and the programming completed ahead of time. Once the last professional description was complete, he explained, the finding aids could be printed instantly.

The process, in practice, proved to be very complicated. Time-consuming work was involved in preparation for computer analysis. The draft catalogue cards were prepared in exactly the same manner as in the manual system, including both the clerks' and archivists' role in description. Once completed, these were transposed onto EDP sheets, designed in standard size to feed into a typewriter. On these sheets, the information was represented in the way it should be read by the computer; that is, a clerk indicated what went into each of 80 available columns. At the Taxation Data Centre, keypunch operators transcribed the EDP sheets onto standard IBM computer cards of the era, which held 80 characters of information. It was the tail end of the process that Atherton thought would take two weeks. He described what would happen once the cards were ready:

From cards the information is transferred to tape, to facilitate faster conveyance of the data into the main-frame computer for final sorting. (One can appreciate the significance of this step if he reflects on the fact that we pay for the use of this main-frame computer by the hour, and the hourly rate is \$150!) An immediate runoff of the information as it is received at the Data Centre comes back to the Archives for checking and correction of errors.²⁸

The main economy for the archives, in time and cost, was that the information only needed to be entered once, and then it could be updated and re-sorted for multiple prints. This seemed to be a major improvement over the manual typing of three lists. Atherton's article of April 1967 announced: "The catalogues of the Macdonald Papers are scheduled for completion by July 1, 1967, as a centennial project of the Public Archives."²⁹

The process did not go as smoothly or quickly as had been hoped. By the end of 1965, there were eight archivists and two clerical staff members engaged in the index work. The Manuscript Division appealed to the Dominion Archivist, Kaye Lamb, for more professional and clerical staff. The Chief of the Manuscript Division, Robert Gordon, reported that "impressive gains were achieved" in the preparation of data sheets for the Macdonald, Sir Robert

28 *Ibid.*, p. 308.

29 *Ibid.*, p. 304.

Borden, and Arthur Meighen Papers (these projects were reported to be 82%, 21%, and 21% complete, respectively), but that a considerable extent of work was still required.³⁰

It was the following May that Gordon approached the Dominion Archivist with his aim to complete the Macdonald Papers finding aid by 1 July 1967. Lamb responded that this would be desirable, but hesitated to make a public announcement.³¹ Despite Lamb's hesitation, the Manuscript Division progress reports in October and November 1966 reflected Gordon's optimism that the Macdonald project was on track for completion for the centennial.³² Meeting minutes dated 3 November 1966 indicated that "Mr. Gordon told Mr. Lamb that he was confident that the detailed indices for the Macdonald Papers would be available by July, 1967."³³ The quarterly report ending December 1966 showed that the entire EDP unit had been moved onto the Macdonald project, the work being more labour intensive than expected, but Gordon maintained that, "there is every reason to expect that our deadline of June will be met."³⁴

Nineteen sixty-seven was a disappointing year. The Manuscript Division did not meet its centennial deadline. In June 1967, the Manuscript Division reported that the Macdonald project was 90.7% complete. Even this proved overly optimistic. At this time the transfer of the finding aids for the Borden and Meighen Papers onto EDP sheets was half-complete, and the Sir Charles Tupper Papers, a relatively small and newly acquired manuscript collection, had been identified for the same process.³⁵ A cyclical pattern of optimism and disappointment followed. In September 1967, it was expected that the Macdonald Papers finding aid "will be completed well before the end of the year."³⁶ Progress continued on all of the projects in the next quarter, and the December quarterly report stated that the last three months had been consumed with more editing of the printouts in the Macdonald project. It was reported that:

This procedure was necessary to eliminate ambiguities in subject descriptions, and to identify and list in proper sequence authors who were described under initials, full names or under a combination of initials and full names.³⁷

30 Smith Papers, Volume 14, File 4, Memorandum from R.S. Gordon, Manuscript Division, 4 January 1966.

31 Smith Papers, Volume 12, File 19, Memorandum from Smith to Lamb, 25 May 1966.

32 Smith Papers, Volume 12, File 19, Manuscript Division Monthly Progress Reports, October 1966 and November 1966.

33 Smith Papers, Volume 12, File 19, Memorandum from Smith to Lamb, 3 November 1966.

34 Smith Papers, Volume 12, File 19, Manuscript Division Quarterly Report, December 1966.

35 Ibid., June 1967.

36 Ibid., September 1967.

37 Ibid., December 1967.

Computers had proven much more finicky than expected, and far more difficult to finalize than traditional card indices. The computer printed lists, for example, in unforgiving alphabetical order. Inadvertent spaces at the beginning caused entries to sort to the top of the list, and separate entries resulted from typos (like “Mcdonald”), or permutations on the same name (like “Macdonald, J.”; “Macdonald, J.A.”; “Macdonald, John A.”). Lack of standardization in subject keywords meant that relevant documents were split between subject entries for “Canadian Pacific Railway” and “Railways – Canadian Pacific,” for example, on two different pages of the list.³⁸ These discrepancies were not crucial in manual systems, since the cards could be sorted with the judgment of the clerk. In the computer index there was no margin of error; every discrepancy had to be caught and corrected.

Michael Carroll, one of the staff members involved in the project, concluded a few years later that the archives had learned an important lesson from the experience: “This drawback of the computer,” Carroll instructed at a Public Archives Course in the early 1970s, “has led to the cliché ‘Garbage in, garbage out’.”³⁹ It was not that finding aids were poorly made in manual processes, he qualified, but that they allowed “informality and flexibility” of description since they were read and sorted on the basis of a clerk’s judgment. Carroll retained his belief that large finding aids could be prepared more cheaply and more quickly with the aid of a computer, but stressed that the process had to meet new demands of standardization. Carroll foresaw nonetheless that all finding aids would be computerized in the future. He acknowledged that, within the archival community, some saw this as a “vision” and others as a “nightmare.”⁴⁰

Indeed, the success of the automated finding aid project was receiving a mixed verdict. Robert Gordon, in the September 1967 quarterly report, noted the need for further corrections and changes, but also stated: “The entire [Macdonald] project should be completed by the end of March, and the three finding aids – author, subject, and chronological – are expected to be on the shelf in the Reference Room shortly thereafter.”⁴¹

The summer of 1968 came and went with no completed finding aids. Every quarter of the 1968 reports indicated that the EDP sheets were still in process. During the first half of the year, the Macdonald Papers finding aid was re-edited a number of times for errors. The preliminary EDP sheets for the Borden and Meighen collections were completed by June, but progress on these two

38 Atherton, “Mechanization,” p. 306. The Canadian Pacific Railway is Atherton’s example.

39 Personal Papers of Michael Carroll, in the possession of the creator (hereafter Carroll Papers), M.E. Carroll, “Archives and Automation,” unpublished paper presented to the Archives Course, Public Archives of Canada, 1971 and 1972, pp. 15–7.

40 *Ibid.*, pp. 15–2.

41 Smith Papers, Volume 12, File 19, Manuscript Division Quarterly Report, December 1967.

projects was then effectively halted as staff were diverted to the Macdonald project.⁴² The quarterly report in the fall of 1968 stated of the Macdonald Papers finding aid: “This project is plagued by many spelling and typing mistakes. For some volumes the incidence of error runs as high as 2%. It is now estimated that this project will extend till the end of this year.”⁴³ In fact, the Macdonald Papers finding aid arrived on the reading room shelves in 1970.⁴⁴

The Macdonald project was completed five years after it was begun, showing Atherton’s “no time at all” and “two weeks” estimates to be sorely optimistic. Atherton’s estimate may have generated excitement – it certainly reflected his own hopes about computerization – but it did not prove true.

In addition to the time savings, Atherton’s rationale for computerization included cost savings. In 1967, he calculated that the manual preparation of the Macdonald Papers finding aid would take twelve years of work, at a total labour cost of \$46,500. He compared this to an estimated \$32,000 for automated preparation of the indices, including \$2,000 for programming and approximately \$30,000 for all of the other work combined (“typing the transcription forms, key-punching and verifying, eliminating errors, sorting, formatting and printing”).⁴⁵ Much more than \$32,000, or even \$46,500, was spent; more than twelve person-years of labour was expended on the project at PAC, in addition to costs of programming, keypunching, and computer time. In the end, the automated process was more expensive.

The experience dampened the Public Archives’ enthusiasm for computerization. A speech filed among Assistant Dominion Archivist Wilfred I. Smith’s Papers from circa 1967 was guarded about the possibilities of computers to transform information retrieval at archives. The speaker (likely Smith) noted:

Automation has been used by the Public Archives in the production of finding aids but the archival field does not lend itself to the use of the information retrieval services of computers for reference and research.⁴⁶

By the end of 1968, the PAC had decided to change its approach to computerized finding aids. In light of the extent of work already invested in the Macdonald, Tupper, Borden, and Meighen Papers, these projects would continue as planned. But of the papers for other prime ministers, the Manuscript Division reported:

42 Smith Papers, Volume 12, File 19, Manuscript Division Quarterly Report, March and June 1968.

43 Ibid., October 1968.

44 Smith Papers, Volume 2, File 16, Press Release, 1 June 1970.

45 Atherton, “Mechanization of the Manuscript Catalogue,” p. 305.

46 Smith Papers, Volume 14, File 3, speaking notes, circa 1967.

Following considerable “soul-searching” and evaluation of our present indexing programmes and techniques it was decided not to proceed with our present comprehensive, item-by-item method of indexing beyond the Meighen Papers ... Starting with the Bennett Papers we will employ a more simplified indexing technique ...⁴⁷

Rather than a full item-by-item list, the Bennett Papers finding aid was scaled down to file level descriptions.⁴⁸ The archives had decided to step back from their ambitious computerization projects. The experience of this first project had shown PAC staff that automation was not a panacea for the challenges of information retrieval.

Despite mixed feelings about the project, the press release announcing the release of the Macdonald, Tupper, and Borden Papers finding aids in June 1970 assumed a celebratory tone. The press release boasted:

With computer technology working for historical scholarship, Canada’s past can be ensured of a bright future. It is the first completed computer-processed index of its kind in North America. Computers are used in just about every area that involves massive volumes of information, so it is probably only reasonable that the Public Archives should be able to use the services of electronic data processing.⁴⁹

This press release was characterized by optimism about the ease of automating archival processes that did not reflect the experience of the project. Several aspects of the press release can be viewed critically.

First, the claim that this was the first index of its kind in North America was mistaken. The presidential papers at the Library of Congress had a computer-generated index before this project began. According to a survey of archival institutions and manuscript repositories in North America by the Society of American Archivists in 1967, the PAC was the only archival facility in Canada using electronic computers for their archival or administrative functions, but six in the United States reported doing so.⁵⁰

The press release was misleading in other ways as well. Consistent with common rhetoric of technology and automation, this press release made it sound – “With computer technology working for historical scholarship” – as if the computer did the work. This was not so. The archivists and clerks involved realized that automation did not necessarily make a task easier, faster, or less expensive. The project was hard work, and labour-intensive.

47 Smith Papers, Volume 12, File 19, Manuscript Division Quarterly Report, October 1968.

48 Public Archives of Canada, “Bennett Papers Computerized,” *The Archivist/L’archiviste*, vol. 4, no. 5 (September–October 1977), p. 10.

49 Smith Papers, Volume 2, File 16, Press Release, 1 June 1970.

50 Frank G. Burke, “Report on a Survey of Automation Activities in Archives and Manuscript Repositories in the United States and Canada,” *American Archivist*, vol. 13, no. 2 (April 1968), p. 209.

A final observation to be made about this press release is that it stated that computerization was the “only reasonable” choice to be made by the archives, since computerization was being so widely adopted by others. The idea that technology and computerization necessarily represent progress and improvement reflected a common assumption of the computer age, but is questionable given that the Macdonald project could have been done faster and more cheaply by a manual process.

From a research perspective, the new finding aids also proved contentious. Ted Regehr challenged the utility of computer-generated finding aids in a submission to *Archivaria* in 1976. Although his published challenge occurred some years later, when Regehr was a professor at the University of Saskatchewan, the sentiments may echo scepticism from the Manuscript Division during the years of the early automation projects. Regehr had been an archivist within the Manuscript Division during the 1960s.

As the title of his submission, Regehr asked pointedly: “Do we need new and improved archivists?” He complained that a graduate student from his university had wasted a research trip to the PAC because the student was greeted by a computer-generated finding aid of the Laurier Papers rather than an archivist. As a result, the student’s research was incomplete. Regehr’s synopsis of the situation is lengthy but telling. He wrote:

A [computerized index] increases the problems of the uninitiated researcher. Some of the finding aids and even inventories now in use tell the researcher little or nothing of how the collections were created, how they are arranged, or what kinds of information can or cannot be found in them. The archival profession has long recognized, accepted and sometimes worshipped the principle of provenance. That principle is still accepted insofar as the arrangement of the archival materials is concerned, but it is being abandoned when preparing some kinds of finding aids in order to accommodate the computer. The computer processed indexes which have been prepared for the Prime Ministers’ papers can produce myriad disconnected factual bits and pieces at a moment’s notice. If a researcher wants to know how many of the letters to Sir Wilfrid Laurier mentioned a particular railway all he has to do is turn to the correct location under the alphabet. But if the researcher is concerned with the Prime Minister’s railway policy, rather than with specific references to particular companies, he will soon find the indexes inadequate. Any scholar looking up a subject such as railway policy or patronage is likely to be served no better by these computerized indexes than a literary critic would be consulting the word *love* in a concordance of the works of Shakespeare. The scholar must understand the entire collection, not an assortment of factual bits and pieces. An archival collection, like any other significant creation of human intellect, is more than a mere aggregation of detailed factual tidbits.⁵¹

51 T.D. Regehr, “Do We Need New and Improved Archivists?,” *Archivaria*, vol. 1, no. 3 (Winter 1976–1977), p. 117. Emphasis in original.

Marcel Caya responded, also in *Archivaria*, in a piece entitled: “Do we need new and improved researchers?” Caya countered that computerized finding aids were not meant to replace background research, consultation with an archivist if necessary, and the researchers’ investigation of the *provenance* and organization of the records. Caya’s response also contended that automated finding aid development was necessary in the computer age: “the sheer size of modern record[s],” he wrote, “will force the modern historian to improve his research methods.”⁵²

In short, Regehr lamented that computerized finding aids would debase scholarship by undermining the principle of *provenance*. Context was sacrificed, Regehr feared, by computer-generated finding aids that encouraged use of keyword-out-of-context access points. Caya’s response expressed that these finding aids were both a complement to existing services, and a necessary response to the records explosion. It is a noteworthy addition to this debate that the advent of keyword use in finding aids did not begin with automation, although Regehr obviously associated the two developments. The ease of resorting computer data into different lists and, with later technology, the direct searchability of computer data without review of inventories or finding aids, have indeed facilitated keyword-out-of-context research and been associated with a lack of researcher understanding of documents’ context.

Regehr’s reservations were not isolated within the archival community. This *Archivaria* exchange encapsulated a number of still-poignant debates about computerization at archives. The first computer-assisted finding aid project, it seemed, raised as many questions about automation as it answered.

Another uneasy question in the minds of many archivists by the end of the 1960s concerned the acquisition and preservation of computer records. In fact, the issue of computer records management had been raised in Canada as early as 1962, when the Royal Commission on Government Organization recommended to Parliament that there was an “urgent need for a comprehensive plan to control the products pouring from typewriters, duplicating machines, and high speed printers of electronic computers” – especially in the context of large organizations like the federal government.⁵³ As a result, the 1966 *Public Records Order* had explicitly listed “computer cards” among public record types.⁵⁴ Despite the *Public Records Order*, archivists of the 1960s remained wary of computer records. The Public Archives did not acquire any such records until 1972, when the Historical Branch accessioned the computer cards of the Royal Commission on Bilingualism and Biculturalism.⁵⁵ The

52 Marcel Caya, “Do We Need New and Improved Researchers?,” *Archivaria*, vol. 1, no. 4 (Summer 1977), p. 214.

53 Canada, *Royal Commission on Government Organization*, p. 486.

54 P.C. 1966-1749, 9 September 1966.

55 Canada, *Public Archives Report, 1972/1973* (Ottawa, 1973), p. 14.

1960s saw only preliminary examination of the computer records issue, both at the PAC and in the international archival community.

The early leader among archival institutions in electronic records management was the National Archives and Records Service (NARS) in Washington, in particular archivist Meyer H. Fishbein. He recalls his earliest encounter with computer records:

The first proposal for scheduling the disposition of records on electronic media was serendipitous. In 1962, as a member of the ... National Archives, one of my projects was to draft a plan for the retention of specific classes of records created by the Bureau of the Census. After completing a draft plan, I conducted a survey of the bureau in late 1963 to determine whether the plan was feasible and would ensure the preservation of records of enduring value. A room with a glass front and extensive shelving caught my attention. It was the “tape library,” which contained magnetic wire and magnetic tape with the data from a variety of censuses and surveys from the 1950s.⁵⁶

According to his recollection, Fishbein asked Bureau officials about the disposition of these files, and was told they would be erased for tape re-use. The officials at the Census Bureau thought this was proper procedure, since they believed computer media were, in the Census Bureau’s word, “nonrecords.”⁵⁷ But, at Fishbein’s request, they agreed to delay temporarily any erasure of data. Fishbein began to investigate possibilities for archiving the computer data. He visited a facility at University of Michigan in Ann Arbor that preserved social science research data, and as a result concluded that with proper procedures NARS could – and should – retain computer files within their archival collections. Fishbein revised his plan for Bureau of Census files to include preservation of their computer records and accompanying documentation. The plan was accepted in 1965.⁵⁸

Fishbein consulted with university computer personnel in the mid-1960s when trying to decide how NARS should handle the computerized census files. These were the era’s cutting-edge institutions in electronic data storage and preservation. The first university data archives in North America was established in 1959.⁵⁹ Similar data archives proliferated in tandem with computerized social science methods and projects in the 1960s. Their holdings were maintained with an eye to preserving the data that was collected and

56 Bruce I. Ambacher, ed., *Thirty Years of Electronic Records* (Lanham, MD, 2003), xiv. These were likely magnetic media of the UNIVAC I, the pioneer of magnetic input-output. The US Census Bureau was the first site of installation of the UNIVAC I, in 1951.

57 Ibid., xv.

58 Ibid., xiv, xv.

59 Michael E. Carroll, “The Public Archives of Canada’s experience in establishing a Machine Readable Archives,” in Lionel Bell and Michael Roper, eds., *Proceedings of the International Seminar on Automatic Data Processing in Archives* (London, 1974), p. 122.

coded within research projects, for future research. When government archivists, like Fishbein, began to explore the value of computer records, they routinely sought the advice and collaboration of experienced university data archivists. The procedures of government electronic archives, in the US and Canada, were heavily influenced by their university data archivist predecessors and colleagues. Although there were precedents to draw on in the university community, NARS' interest in computer records was novel among archives.

Computer records were first discussed by the International Council on Archives (ICA) in 1964 at the organization's conference in Belgium. One of the representatives, E. Califano, presented a paper on the topic: "L'introduction et l'adaptation des moyens mécanographiques aux archives."⁶⁰ The subject was new to those in attendance, and the paper garnered little by way of general discussion or response. But it was decided that the subject would be revisited at the meeting of the smaller ICA Roundtable in London the following year. In 1965, seven countries, not including Canada, came back to the forum with some notes for discussion in follow-up to the previous year's report.⁶¹

Morris Reiger of the US National Historical Publications Commission was the American archivist involved in this 1965 roundtable. His submission, prepared on behalf of the SAA, was published as the article "Automation and Archives" in the *American Archivist* the following year. Other tentative steps were also being taken within the United States to advance computer records issues. In 1965, the SAA President – notably Canada's Dominion Archivist Kaye Lamb – restructured the society's committees and gave the Committee on Microfilming a broader mandate as a new Committee on Technical Devices and Systems. This did not reflect however a whole-hearted commitment to the new technological tools or records. Lamb explained that the new committee was to "concern itself, *when the need arises*, with automation, data retrieval, etc."⁶² Despite their mandate, the committee did not broach the issue of automation.⁶³

The US National Archives (NARS) pushed the issue forward in 1966 when it established the Committee on the Disposition of Machine-Readable Records, chaired by Everett O. Alldredge, with Meyer Fishbein and Herbert Angel as the two other members. NARS was spurred to action because the American government was considering the establishment of a Federal Data

60 E. Califano, "L'introduction et l'adaptation des moyens mécanographiques aux archives," *Fifth International Archives Congress* (Brussels, 1964).

61 Robert-Henri Bautier, "Archives and Automation," *Records of the 13th International Conference of the Archival Roundtable: Bonn, 1971* (Paris, 1971), p. 24.

62 Brown, "The Society of American Archivists Confronts the Computer," pp. 367–68. Emphasis added.

63 *Ibid.*, p. 368.

Center, and NARS felt that this should be firmly within its mandate. The relevant Special Committee of the House had proposed a separate institution because, as they recommended, “[NARS] has not been involved in the field of data processing and does not as currently organized have the ability or authority to undertake the task of selecting, monitoring and controlling machine readable data on the scale required.”⁶⁴ The plan for a centralized data centre was stymied by privacy concerns, but the prospect, while it lasted, concerned NARS. In 1968, the NARS Committee on the Disposition of Machine-Readable Records made their recommendations to National Archivist Robert H. Bahmer, who established a dedicated group of Data Archives Staff within NARS’ Office of Records Management that same year.⁶⁵ The NARS Committee also stressed the need for more engagement with the issue among their professional association, the SAA.⁶⁶

Fishbein has described in his memoirs the frustration of efforts to promote concern for computer records at the SAA during this era. “From 1966 to the beginning of the 1970s,” Fishbein remembers, “attempts to arrange discussions at SAA meetings about such records were unsuccessful.”⁶⁷ Nonetheless, the issue did make its mark on the SAA’s agenda during these years. Fishbein presented a paper on computer records appraisal at the SAA annual meeting held in Madison, Wisconsin in 1969, and the same conference included a panel devoted to COM (Computer Output Microform) as a possible media for computer records preservation.⁶⁸

Further to the work of the NARS Committee, the SAA established an Ad Hoc Committee on Machine-Readable Records and Data Archives in 1969. That April, NARS’ Data Archives Staff accessioned their first magnetic tape record.⁶⁹ At the SAA annual meeting in Washington in September 1970, the society’s Committee on Machine Readable Records presented a panel. The resulting publications, Fishbein’s “Appraising Information in Machine-Language Form” and Alldredge’s “Inventorying Magnetic-Media Records,” appeared in the *American Archivist* in 1972.⁷⁰

The Public Archives of Canada was slower to recognize and address these

64 Carroll Papers, M.E. Carroll, “The Challenge of Automation for Archives,” unpublished paper delivered at the annual meeting of the Archives Section of the Canadian Historical Association, Montreal, 7 June 1972.

65 Brown, “The Society of American Archivists Confronts the Computer,” p. 372; Ambacher, *Thirty Years of Electronic Records*, x.

66 Brown, “The Society of American Archivists Confronts the Computer,” p. 372.

67 Ambacher, *Thirty Years of Electronic Records*, xvi.

68 Brown, “The Society of American Archivists Confronts the Computer,” p. 372.

69 Ambacher, *Thirty Years of Electronic Records*, x.

70 Meyer H. Fishbein, “Appraising Information in Machine-Language Form,” *American Archivist*, vol. 35, no. 1 (January 1972), pp. 35–42; Everett O. Alldredge, “Inventorying Magnetic-Media Records,” *American Archivist*, vol. 35, nos. 3–4 (July–October 1972), pp. 337–46.

issues. While NARS established a computer records program in 1968, PAC management still saw little archival value in computerized records. This is illustrated by an exchange in a meeting of the Advisory Council on Public Records in early 1968. J. Cardillo of the Department of National Defence asked whether punch cards, “should be regarded as ‘*computer cards*’ as defined by the *Public Records Order*.”⁷¹ This was an important question, because punch card machines had been a common tool of the federal government – exceeding even computers in federal investment up to the mid-1960s – but by 1968 were gradually beginning to be phased out.⁷² The question of what to do with dormant punch cards needed to be addressed. The *Public Records Order*, which explicitly listed only “computer cards,” provided ambiguous direction.

The discussion at the Advisory Council on Public Records following from Cardillo’s inquiry broached the broader issue of whether machine-readable cards of any variety should be preserved. Dominion Archivist Lamb responded that cards (electronic or non-electronic) were only public records if there was no tabulated printout of the information they contained. Otherwise, he reasoned, they were in the realm of “working papers” and did not need to be archived. The *Public Records Order* stated that public records did not include “... material made or acquired and preserved solely for reference and exhibition purposes, extra copies of records preserved only for convenience or reference, working papers or stocks of publications or printed documents.”⁷³ Lamb believed that machine-readable cards fell into this exemption.⁷⁴ This judgment was later revisited by PAC archivists, who contended in the 1970s that machine-readable raw data could be of recurring and long-term value and often formed a uniquely useful record in itself and not just a preliminary version of a tabulated final statement. If most archivists of the 1960s felt that only the tabulated, printed results of the data could be archivally significant, however, this view stemmed from a legitimate lack of technological understanding and experience. Even those with some experience in relatively simple computerization projects, like the development of the Macdonald Papers finding aid, reasoned from their experience that the utility of machine-readable cards could be exhausted in a few printouts.

Later in 1968, Wilfred I. Smith replaced Lamb as Dominion Archivist. It was during Smith’s tenure, 1968 to 1985, that PAC management gradually changed its position about the potential for archival value in computer

71 LAC, RG 37, Series B, Volume 449, “Advisory Council on Archives,” Minutes of the Advisory Council on Public Records, 30 January 1968. Emphasis in original.

72 Canada, *Royal Commission on Government Organization*, p. 585.

73 P.C. 1966-1749, 9 September 1966.

74 LAC, RG 37, Series B, Volume 449, “Advisory Council on Archives,” Minutes of the Advisory Council on Public Records, 30 January 1968. Emphasis in original.

records. Recognizing the lead of the United States, Smith sent Michael Carroll to visit NARS in 1969 and report on the Americans' computer records program.⁷⁵ This turned out to be a key decision for the PAC. Carroll's interest was piqued. During the early 1970s, he was heavily involved in the development of computer records issues in Canada and internationally. Carroll ultimately became the first head of the Machine Readable Archives, established as a division of the Public Archives in 1973.

At the beginning of the new decade of the 1970s, however, archival conceptions were just beginning to change. Within the ICA, the major turning point was the commissioning and presentation of a study in 1971 called "Automation and Archives," undertaken by Robert-Henri Bautier of France. Bautier assessed the extent of archival automation for information retrieval and administration, and the state of computer records preservation. To do so, he sent questionnaires to member archives across the globe. With the exception of NARS, whose response Bautier published *verbatim* as an example of relatively advanced automation, the author was disappointed by the lack of computerization in archives. Bautier recognized Canada as a relatively computerized society: "Following the example of the United States," he wrote, "Canada has already reached a high degree of information science usage."⁷⁶ Yet Canadian archives, he pointed out, had not begun to address computer records preservation.⁷⁷

Bautier feared that if archives did not incorporate computerized tools and records, they would be displaced as records repositories by EDP centres and university data archives, "leaving the now fossilized archives to care for the routine documents devoid of interest."⁷⁸ Bautier was not alone in his concern. In an April 1971 article in the UK's *Journal of the Society of Archivists*, Kenneth Darwin similarly warned that because of archivists' reluctance in the area of new media, "we are in great danger of failing to do the job that we ought to be doing" and that, "as a result of this we shall be overtaken and made redundant by other professional groups taking over what should be our job."⁷⁹ It was this concern, shared by Bautier and Darwin, that had sparked the American computer records program in 1968. Michael Carroll expressed this sentiment to students of the Public Archives Course in 1971, as the possibility of "being stuffed and exhibited beside the dodo."⁸⁰

Two fears co-existed uneasily among the staff of the Public Archives of Canada during the 1960s. The first was that reliance on automation would

75 Ambacher, *Thirty Years of Electronic Records*, xvi.

76 Bautier, "Archives and Automation," p. 29.

77 *Ibid.*, p. 49.

78 *Ibid.*, p. 80.

79 Carroll Papers, Carroll, "Archives and Automation," pp. 15-9.

80 *Ibid.*

undermine the quality of archival work, fail to capture archivists' expertise, and disrupt researchers' understanding of records. The second was that to shy away from computers would be even more damaging. In the absence of computerization, some feared, archives would be unable to manage the mass of in-pouring paper acquisitions. To lag on the computer records issue, they also warned, would leave archives behind in an era of rapid technological change. The excitement and concerns of early-computer-era archivists continue to be relevant forty years later. In fact, these debates of the 1960s – when computers were new and archivists were strongly divided about their use – continue to echo today.