

# Archivaria

The Journal of the Association of Canadian Archivists

## “Creating a Community Cloud”

Leveraging Open-Source Software for the Mennonite Archival  
Information Database

CONRAD STOESZ, JASON HILDEBRAND, AND GREG BAK

*Archivaria* 98 (Fall 2024), pp. 42-67

---

### **Cite this article:**

Stoesz, Conrad, Jason Hildebrand, and Greg Bak. “Creating a Community Cloud: Leveraging Open-Source Software for the Mennonite Archival Information Database.” *Archivaria* 98 (Fall 2024): 42-67.

<https://archivaria.ca/index.php/archivaria/article/view/13989>

# Creating a Community Cloud

Leveraging Open-Source  
Software for the Mennonite  
Archival Information Database

CONRAD STOESZ, JASON HILDEBRAND,  
AND GREG BAK

---

**ABSTRACT** Developing and sustaining digital infrastructure is challenging for small community archives. The promise of open-source technologies can seem elusive for those faced with the steep development costs of implementing and configuring new systems and migrating data from legacy systems. When community archives co-operate by forming consortia, the costs and challenges of development, implementation, and migration can be mitigated and shared. We offer a case study of the development of an open-source Access to Memory (AtoM) database among a consortium of Mennonite archives.

---

**RÉSUMÉ** Le développement et le maintien d'infrastructures numériques représentent un défi important pour les petits centres d'archives communautaires. La promesse des technologies libres peut paraître difficile à concevoir étant donné les coûts élevés associés au développement, à l'implantation et à la configuration de nouveaux systèmes, en plus de la migration des données provenant d'anciens systèmes numériques. Quand les centres d'archives communautaires collaborent, par la formation de consortiums, les coûts, les défis de développement et d'implémentation, ainsi que la migration des données, peuvent être mitigés et partagés. Nous offrons une étude de cas sur le développement de la plateforme libre d'accès Acces to Memory (AtoM) chez un consortium de centre d'archives mennonites.

Developing and sustaining digital infrastructure is challenging for small community archives. The promise of open-source technologies can seem elusive for those faced with the steep development costs of implementing and configuring new systems and migrating data from legacy systems.<sup>1</sup> When community archives co-operate by forming consortia, the costs and challenges of development, implementation, and migration can be mitigated and shared.<sup>2</sup>

We describe a consortium of Mennonite archives evolving as an organization as it developed an open-source Access to Memory (AtoM) database to serve member and user needs. While this might be understood as a technology-oriented case study, we contend that its most important aspects are actually about building relationships among consortium members and writing policy through a consensus-based process focused on ensuring that all members of the consortium could participate despite disparities in funding, staffing, and technical knowledge. Ultimately, the consortium was able to resource and direct the development of the database, now known as the Mennonite Archival Information Database (MAID), which was launched in February 2015. Key to this process was a commitment to core values, shared equally by the archival partners and software consultants and service providers, which has resulted in an expanding consortium that continues to add new members and new services, even as the annual costs to each individual member have declined. MAID allows Mennonite archives to serve diverse and geographically disparate Mennonite communities, meeting the terms of their mandates in ways that their founders never could have imagined while strengthening bonds among Mennonites and remaining true to the values of their community.

The development of digital infrastructure is often experienced as necessary but expensive, difficult, and fundamentally isolating as each archives adopts its own digital systems and tools and establishes its own contracts with service providers and technology vendors. In this article, we explore how consortia can turn this experience around, allowing archives to share not only expenses

1 Maria Caravaca and Anne-Marie Viola, "The Costs of a Free, Open-Source Software Implementation: Building ICCROM, a Web-Based Archival Catalogue Using ICA-AtoM," *Comma* 2011, no. 2 (2011): 73–86.

2 Grant Hurley, "Community Archives, Community Clouds: Enabling Digital Preservation for Small Archives," *Archivaria* 81 (Spring 2016): 129–50. While inspired by Hurley's concept of a community cloud, we would like to distinguish between community clouds, such as the system described here, and commercial cloud services such as those offered by Amazon. On the bigger picture of cloud computing, see Tom Nesmith, "The Cloud, the Public Square, and Digital Public Archival Infrastructure," *Archival Science* 23, no. 4 (2023): 501–25.

but also knowledge and experience and to build toward a common, shared future. The Mennonite archivists who envisioned and guide MAID have drawn on a shared cultural context in terms of religious beliefs and a long history of repeated displacements, but they have also built on existing friendships, established through regular meetings of the Mennonite Historical Society of Canada, even as they have continued to welcome new archivists into the circle. Open-source technology was not incidental to the MAID project, but core; it embodies archival values of longevity, openness, and data portability and is entirely compatible with Mennonite values of creating shared, equitably supported services that work for all members of society. The MAID project demonstrates that digital systems development can be unifying and, in the right context, even joyful – or at least a source of relief. Today, the uses and users of MAID continue to proliferate even as the costs of the system are showing a year-over-year reduction as the consortium continues to add new members in Canada, the United States, and the rest of the world.

## Mennonites, History, and Archives

Mennonites in Canada are a diverse people who can be found in all walks of life and throughout society. Traditionally, Mennonites are a Protestant, German-speaking religious group with roots in Switzerland, Germany, and the Netherlands. Emerging from the 16th-century European Reformation, they were first known as *Anabaptists*. Known for adhering to values such as community, Biblical authority, adult baptism, separation of church and state, and non-violence, Mennonites first came to Upper Canada in 1786.<sup>3</sup> A large wave came to Manitoba in the 1870s and another to western Canada and Ontario in the 1920s and 1940s. Today, some wear distinctive clothing, maintain an agrarian lifestyle, and travel by horse and buggy, while others are indistinguishable from non-Mennonite Canadians.<sup>4</sup> There are an estimated 150,000 Canadians who associate with Anabaptist churches and many others who connect to a Mennonite identity but have different or no religious

<sup>3</sup> See Frank H. Epp, *Mennonites in Canada, 1786–1920: The History of a Separate People* (Toronto: Macmillan, 1974); Frank H. Epp, *Mennonites in Canada, 1920–1940: A People's Struggle for Survival* (Toronto: Macmillan, 1982); and T.D. Regehr, *Mennonites in Canada, 1939–1970: A People Transformed* (Toronto: University of Toronto Press, 1996).

<sup>4</sup> Royden Loewen, *Horse and Buggy Genius: Listening to Mennonites Contest the World* (Winnipeg: University of Manitoba Press, 2016).

affiliation. Some from other religious traditions have joined Mennonite congregations.<sup>5</sup> The Mennonite Archival Information Database (MAID) serves this broad constituency in Canada, North America, and beyond.

Mennonites value historical knowledge in connection with faith, family, and personal identities.<sup>6</sup> In their many forced migrations after the Reformation, they carefully protected archival records that documented their origins and experiences and have carefully preserved these as a precious community resource.<sup>7</sup> Mennonite families and community historians often keep their own records, and even small Mennonite communities have often founded archives to preserve and share historical sources and knowledge. Mennonites in Ontario, for example, trace the origins of the Mennonite Archives of Ontario to the 1930s, when Lewis J. Burkholder was gathering documents for his book *A Brief History of the Mennonites in Ontario*.<sup>8</sup> These records had several custodians, including at the Archives of Ontario, before arriving at their permanent home at the Mennonite Archives

- 5 Frank Epp and Leo Driedger, "Mennonites," *The Canadian Encyclopedia*, Historica Canada, accessed April 21, 2020, <https://thecanadianencyclopedia.ca/en/article/mennonites>. In 2021, Statistics Canada reported that 155,095 Canadians self-identified as being of Mennonite ethnic origin and 144,145 identified Anabaptist as their religion. Statistics Canada, *Census Profile, 2021 Census of Population*, November 15, 2023, <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&DGUIDList=2021A000011124&GENDERList=1,2,3&STATISTICList=1,4&HEADERList=0&SearchText=Canada>.
- 6 Nicolien Klassen-Wiebe, "Why Archives Are Important to Our Past . . . and Our Future as a Church," *Canadian Mennonite* 22, no. 6 (March 7, 2018), <https://canadianmennonite.org/stories/preserving-voices-past>.
- 7 Kristine Leheuw discusses Mennonite family and community recordkeeping in chapter 1 of her master's thesis: Kristine Leheuw, "Scribbles in the Archives: Records of Children in Canadian Archives" (MA thesis, University of Manitoba, 2020), <https://mspace.lib.umanitoba.ca/items/d91631cb-2451-4970-b449-ff34588183e8>. A good example of identity-shaping documents important to the community is the *Martyr's Mirror*, first published in 1660 in Dutch and later translated into German and English: Thieleman J. van Braht, *The Bloody Theatre, or Martyrs Mirror of the Defenseless Christians: Who Baptised Only Upon Confession of Faith, and Who Suffered and Died for the Testimony of Jesus, Their Saviour, from the Time of Christ to the Year A.D. 1660* (Waterloo, ON: Herald Press, 1998). Other examples of valued community documents include James W. Lowry, ed., *Documents of Brotherly Love: Dutch Mennonite Aid to Swiss Anabaptists*, volumes 1–3, 1635–1784 (Millersburg, OH: Ohio Amish Library, 2007–2023). When Mennonites moved from Prussia to Russia in the late 1700s and early 1800s, they brought with them Dutch-language records from the Netherlands, preserved by their ancestors. Unfortunately, we know of this only because, as the Russian government began liquidating properties owned by German speakers, Mennonites sent their Dutch-language materials to the Russian government to prove they were not German. See David G. Rempel, *A Mennonite Family in Tsarist Russia and the Soviet Union, 1789–1923* (Toronto: University of Toronto Press, 2002), 161. Another example is the building constructed by 1831 for the sole purpose of housing a document providing specific privileges to the Mennonite community. See Glenn Penner, "Lists of Structure in the Molotschna and Chortitza Mennonite Settlements for 1831," Mennonite Heritage Archives, accessed April 22, 2024, <https://www.mharchives.ca/resources/#1831>.
- 8 Lewis J. Burkholder, *A Brief History of the Mennonites in Ontario* (Toronto: Livingstone Press, 1935).

of Ontario, at Conrad Grebel College.<sup>9</sup> In 1933, the Conference of Mennonites in Canada, meeting in Gnadenthal, Manitoba, passed a resolution: “That the Conference affirm the value of archival collecting, elect an archivist, and encourage the congregations and their leaders to send to him items appropriate for such a collection.”<sup>10</sup> The first archivist of the institution known today as the Mennonite Heritage Archives (MHA), presently located in Winnipeg on the campus of Canadian Mennonite University, was appointed later that same year.

The Mennonite historical endeavour in Canada is aided by an overarching body known as the Mennonite Historical Society of Canada (MHSC). Founded in 1966, it is made up of provincial historical societies, denominations, and historical institutes. It commissioned the writing of the three-volume set *Mennonites in Canada*, a landmark publication that brought rigorous archives-based historical knowledge into the homes of many Canadian Mennonites. MHSC also initiated the *Global Anabaptist Mennonite Encyclopedia Online* and organizes regular historical conferences, which are often held in Winnipeg.”

The MHSC itself typically meets once a year in January in locations that rotate among several provinces. Amid the presentations, roundtable discussions, and formal meetings are informal encounters, in which people from across the country talk about the joys and challenges of Mennonite history. It was at one of these informal meetings during the 2010 conference in Steinbach, Manitoba, that Lauren Harder-Gissing, of the Mennonite Archives of Ontario, and Conrad Stoesz, at the time working as archivist at both the MHA and the Centre for Mennonite Brethren Studies, talked about forming an archives committee to

- 9 These records gathered by Burkholder were placed in a “Mennonite box” and deposited at the Archives of Ontario in Toronto. The box was returned to the community in the 1940s and held at the Golden Rule Bookstore in Kitchener, where it was cared for by store manager and historian for the Mennonite Conference of Ontario, J.C. Fretz. In 1963, Conrad Grebel College began planning to build an archival facility and invited Mennonite groups to deposit archival materials at the college. By 1965, the “Mennonite box,” and the materials added to it along the way, now had a permanent home at the Mennonite Archives of Ontario. Sam Steiner was hired as the first staff person in 1974. See Mennonite Archives of Ontario, Conrad Grebel University College, “History of the Mennonite Archives of Ontario,” accessed April 22, 2024, <https://uwaterloo.ca/mennonite-archives-ontario/about-mennonite-archives-ontario/history-mennonite-archives-ontario>.
- 10 *Die einunddreißigste Allgemeine Konferenz der Mennoniten in Canada, vom 26 bis 28 Juni 1933 in Gnadenthal bei Plum Coulee, Manitoba* (Rosthern, SK: Dietrich H. Epp, 1933), 14.
- 11 Conrad Stoesz, “The *Mennonites in Canada* Series and the Formation of a Mennonite Constituency,” chapter 1 in “The Creation of an Identity: The Conscientious Objector in Canadian Mennonite Memory” (MA thesis, University of Manitoba, 2018); *Global Anabaptist Mennonite Encyclopedia Online* (website), accessed April 24, 2024, <https://www.gameo.org>.

support the work of the various Mennonite archives. Represented at MHSC meetings are Mennonite archives scattered across the country from BC to Quebec, some with professional archivists on staff and dedicated facilities, and many run by volunteers and open only a day or two a week. A proposal, put forward at the annual meeting, for the formation of an archives committee was approved.

## The Archives Database Task Force

At the first meeting of the archives committee, in 2011, participants talked about the challenges they faced in their archival institutions and mused about what they could do to work together and help each other – despite being separated by thousands of kilometres and despite differences in denominations, personnel, and degree of professional knowledge. The committee sought something that might help all Mennonite archives, regardless of their size and level of professionalization. The issue of photographs rose to the top. All Mennonite archives have photograph collections, which are among their most heavily used records. These collections, which are managed with a diversity of systems and methods – from in-house databases and card indexes to physical arrangement in filing cabinets – include images that are important to local populations, such as pictures of local families, but that could be of interest to Mennonites in many places on account of the many migrations and missions in Mennonite history and the resulting interrelationships among far-flung communities. Moreover, photographs are particularly important within a system of community memory, in which they act as memory prompts and mnemonics capable of triggering floods of memory among community members, individually and especially in groups.<sup>12</sup> Preserving, arranging, and providing access to photographs is an important task for any community archives.<sup>13</sup> It was agreed that the newly formed archives committee could have a great impact by creating a shared database to manage digitized photographs and descriptive metadata. Having the database online would not only make it usable by Mennonite archives across

12 Richard Lowell MacDonald, "Going Back in a Heartbeat: Collective Memory and the Online Circulation of Family Photographs," *Photographies* 8, no. 1 (2015): 23–42.

13 Andrew Flinn, "Community Histories, Community Archives: Some Opportunities and Challenges," *Journal of the Society of Archivists* 28, no. 2 (2007): 151–76.

the country but would also make the photographs discoverable by Mennonites and Mennonite historians in local communities across Canada and around the world. By making the database available online, archives could shift photo research from the archivist to the user; this was a particular benefit because photo research can be so time-consuming.

A task force was struck consisting of Conrad Stoesz, Laureen Harder-Gissing, and Alf Redekopp, who represented three of the leading Mennonite archival institutions with professional staff: the Mennonite Heritage Archives, the Mennonite Archives of Ontario, and the Centre for Mennonite Brethren Studies Archives. Korey Dyck joined the task force from 2013 to 2016 as the new director of the MHA after Redekopp's retirement. Each of these archives had a separate photo database, each of which held metadata for 20,000–30,000 items as well as some digitized content. Together, these three databases held 80,000 records. These would serve as the initial records in the new database.

The task force members were veterans in their fields and brought with them deep knowledge of their own holdings, familiarity with database systems and standards-based archival description, and crucial organizational skills in scheduling and running meetings that mixed institutional staff and community volunteers. There was a high degree of trust and camaraderie among the task force members because of the long-standing MHSC annual meetings, where they had met over many years and built relationships. Two core goals guided their work: to help archives manage their photograph collections and to give the Mennonite community public access to archival photographs.

The task force met monthly via conference calls – first by telephone and later by Skype. Before long, the parameters for the database project took shape. The database had to serve not only institutions with professional archivists and managers but also smaller community archives in which there might be only a single volunteer archivist without any formal archival training. This meant that the solution would need a well-developed back end into which volunteers with minimal training could enter metadata and upload scans. Additionally, since this was envisioned as a means for community members to discover photographs without assistance from archival staff or volunteers, the system would have to support a user-friendly front end in which users could run their own searches and discover photographs from any of the collaborating archives. To ensure that all photos were equally discoverable, the descriptive metadata would have to be standardized, regardless of which archives had supplied the metadata

to the database. Since the database was intended to welcome all Mennonite community members, the landing page, search pages, and results pages would have to be immediately recognizable to them. This could be accomplished through customized theming and a landing page that included a selection of photographs. Finally, the various archives had digitized only a tiny minority of the photographs that they held. For the database to be effective as a platform for circulating the photos back into the communities from whence they had come, digitization efforts would have to continue and increase. It was envisioned that the database would provide low-resolution water-marked scans for free; but to support further digitization, higher-resolution scans would be made available for a small, cost-recovery fee.

Once the task force had established these requirements, the next step was to assess which database systems would meet community needs. The three archival institutions represented on the task force pooled funds to hire PeaceWorks Technology Solutions to produce an analysis of software options and development costs. PeaceWorks was chosen not only because it was capable of doing the job but also because there was already a relationship with the company, which specializes in working with the non-profit sector and caters to this sector with reduced rates. The consortium partners valued both the expertise that PeaceWorks brought and its values, which aligned with their own. That said, PeaceWorks needed to become familiar with archival terminology, theory, and processes, while the consortium partners needed to become familiar with the technology options. Both sides needed to approach the project as a collaboration in which their combined knowledge bases were essential. To succeed, the collaboration had to be completely open and rooted in trust and respect.

### **Open-Source and Proprietary Software**

A key early decision was to restrict the selection to open-source systems. While consortium members were aware of the distinction between open-source and proprietary (or closed-source) systems, PeaceWorks helped them see that open-source options aligned with the consortium's values and long-term goals. Source code is the code that is written and maintained by developers using programming languages such as C++ or Python. These languages cannot be directly executed by computers but must instead be translated or rendered into machine-executable code through a process of compilation, interpretation, or assembly to create the binary code that computers can execute. In proprietary software develop-

ment, clients are given access only to the executable code, while the company that developed the software keeps the source code private and confidential. With open-source software, executable code and source code are made available to anyone. Much like the shared heritage of Mennonite communities, open-source software is available to all members of the community that uses it and supports its development.

Proprietary or closed-code software can only be changed by the company that owns the source code, who monetize not only the executable code, generated from the source code, but also the process of updating the source code, since updates can happen only at the discretion of the company and with developers that the company hires. Open-source software projects rely on a community of software developers for their creation and ongoing maintenance. Today, these developers are usually paid by a company with a stake in the open-source project, although altruistic independent developers may also be involved. Although anyone can download the source code and tinker with it, overall direction in an open-source project is usually provided by a foundation or board, which decides whether a particular contribution to an open-source system's source code will either be accepted and integrated into the project's official code repository or will remain an unofficial "flavour" and maintained separately. So, while anyone can make modifications and thereby create their own "flavour" of the source code, not all modifications will be added back into the primary source-code repository.<sup>14</sup>

Despite the romantic view of open source as liberatory computing,<sup>15</sup> the motivations of software development companies that implement and augment open-source software are not exclusively altruistic. The business model they follow is different from that used by proprietary or closed-source software development companies, but profit remains an important objective. Open-source code is open to anyone and is "free" in the sense that anyone can access it without paying a fee and can use it to generate their own executable code. Open-source proponents, however, are quick to point out that open-source code is like free puppies and not like free lunch – in other words, the "free" code inevitably results in devel-

<sup>14</sup> There are many online resources that provide background information on open-source initiatives – for example, Red Hat Inc., "What Is Open Source?" Opensource.com, accessed July 4, 2024, <https://opensource.com/resources/what-open-source>.]

<sup>15</sup> For example, see Samir Chopra and Scott D. Dexter, *Decoding Liberation: The Promise of Free and Open Source Software* (New York: Routledge, 2008).

opment, implementation, and maintenance costs.<sup>16</sup> While organizations may eventually realize cost savings by using open-source software, this should not be the primary factor driving implementation. Rather, the “free” software in open-source development is not free as in a giveaway, but “‘free’ as in freedom” or “‘free’ as in ‘free speech.’”<sup>17</sup> It is the openness of open-source code that makes it valuable. This explanation resonated with the Mennonite consortium. Mennonite history is replete with instances in which Mennonites chose to migrate away from established lands and homes rather than give up their communities’ independence. In this instance, the Mennonite archives would be migrating their data out of proprietary database packages and into an open-source solution in which the consortium itself would control their data and its management.

In presenting options to the Mennonite archives consortium in 2011, PeaceWorks emphasized certain advantages that flow from the freedoms of open-source software. Using open-source software would allow the consortium the freedom to make any changes or additions they wanted in their particular implementation of the software. This would not be possible with proprietary code, where only the controlling company could make these kinds of additions or changes. Even more importantly, choosing open-source software would preserve the freedom to update the software at will, or not at all, or even to exit from the system at any time. The closed nature of proprietary code obscures the specifics of the data model that underlies proprietary systems. This can make it challenging for an organization to remove its data from a proprietary system at the end of its useful life. These challenges can be heightened if the controlling company does not want its clients to leave – or if the controlling company itself goes out of business or decides that it will no longer support the line of business represented by a particular software product. While nobody wants to think about exiting a system before they have even started using it, all archives that aspire to preserve records over decades and centuries need this kind of foresight. No

16 Peter van Garderen, the founder of Artefactual Systems, the private Canadian software company that created the open-source archival systems AtoM and Archivematica, has often said that open-source software is “free as in kittens,” not “free as in beer.” Trevor Owens, Peter van Garderen, and Courtney Mumma, “Archivematica and the Open Source Mindset for Digital Preservation Systems,” *The Signal: Digital Happenings at the Library of Congress*, October 16, 2012, <https://blogs.loc.gov/thesignal/2012/10/archivematica-and-the-open-source-mindset-for-digital-preservation-systems/>.

17 Free Software Foundation, Inc., “What is Free Software?” Gnu Operating System, accessed June 11, 2024 <https://www.gnu.org/philosophy/free-sw.html>.

software, however well written and supported, is likely to be sufficient for even half a century due to the continuing evolution of both digital technologies and the human cultures that create and make use of them. At the very least, there will be significant evolutions, adaptations, and augmentations to the original code base. With proprietary systems, these changes can only occur at the instigation of the controlling company. With open-source systems, these changes can occur through the interventions of the larger community that makes use of the system or through those of individual software users.

Should it become necessary, exiting one system for another is also simpler due to another feature of open-source software. Because such software is developed by many contributors, it is far more likely to rely on open standards to guide its development and to structure its data and services. Developers of proprietary systems may claim that they are compliant with standards, but without access to the source code, it is impossible for users to know how such compliance is achieved. Open-source software often makes standards compliance central to the development of the system as a common point of reference for the various developers who contribute to the source code.

One final important freedom associated with open-source software is the freedom to choose from support options. Users of proprietary software usually must deal with the company that controls the closed code for system updates and maintenance. However, the last two decades have seen a thriving ecosystem of consultancies such as PeaceWorks that work with open-source systems. Should PeaceWorks go out of business or stop supporting a particular open-source system, the consortium could hire a different consultancy at any time to work with them on the project, just as it could for any other reason.

These factors – the same factors that influence companies, organizations, and individual users around the world to choose open-source software like the Linux operating system, applications like VLC Media Player or Firefox, content management systems like Drupal, or repository systems like DSpace or Islandora<sup>18</sup> – influenced the Mennonite archives task force to restrict its search to open-source systems.

<sup>18</sup> Sumana Ganguly, "Best Open Source Software Examples of 2023," DesignRush, updated March 10, 2023, <https://www.designrush.com/agency/software-development/trends/open-source-software-examples>.

### Creating MAID

In presenting its overview of potential systems, PeaceWorks identified another key decision for the archives task force: whether to select a general-purpose content management system and then engineer archival functionalities into it or to go with an archives-specific system and then add non-archival functionalities. To arrive at this decision point, the software developers at PeaceWorks had to become sufficiently educated in archival theory, practice, and standards to reasonably understand the kinds of modifications that would be necessary to “make archival” a general content management system and to understand the kinds of general functionalities that might be missing from an archival system. Based on this learning, PeaceWorks compared two open-source systems: the general-purpose content management system Drupal and the archives-specific AtoM. Each system is well-established, with a broad user base, and modifiable, and both are robust database systems. Drupal would have to be configured to structure content according to archival descriptive standards – specifically, the *Canadian Rules for Archival Description* (RAD) and the *General International Standard Archival Description* (ISAD(G)) – but already had optional functionalities like a carousel of images on its landing page and e-commerce capabilities. AtoM was built from the ground up in compliance with ISAD(G) and RAD, but it lacked an e-commerce module and the necessary functionalities on its landing page. PeaceWorks’ analysis showed that the estimated project costs, including data import, would be similarly priced, in the neighbourhood of \$25,000, using either, but it recommended AtoM due to its centring of archival standards and functionalities.<sup>19</sup> The task force obtained a second quote for the proposed work to ensure that PeaceWorks’ quote was competitive, which it was. The second quote came in at roughly twice the cost, partly on account of PeaceWorks’ special pricing for non-profit organizations like archives.

The task force presented the project to the archives committee of the Mennonite Historical Society of Canada in January 2013 and recommended that PeaceWorks implement and augment AtoM according to the plans laid out in the report. This recommendation was approved. Along with the recommendation was a request for funding for what was originally called the Mennonite Archival Image Database (MAID).

<sup>19</sup> Jason Hildebrand, “Canadian Mennonite Archival Consortium Online Photo Database – Report” (PeaceWorks Technology Solutions, Winnipeg, January 10, 2013).

At this point, the project shifted from the three-institution task force back to the six-institution archives committee. It was understood that the six Mennonite archives on the committee were vastly different.<sup>20</sup> Three were small operations, run by retired volunteers, that were open to the public once or twice a week. They had expert knowledge of their holdings and their communities but their capacity was limited. They lacked familiarity with databases, and they had only a basic understanding of archival description standards. The other three, where members of the task force worked, were archives with professional staff and more capacity to conceptualize an online, multi-repository database system; they also had more funds to support it and the training to use it. Despite these differences, an easy collegiality and understanding among members of the MAID consortium had been built over years through the annual in-person interactions at MHSC meetings, meals, and field trips. This is an important factor in understanding the relationships between the professional and volunteer-run archives in the consortium and the trust demonstrated in this venture.

Since the consortium members did not have the same capacities, the initial development costs of MAID were set on a differential scale. The archives run by volunteers were each asked to pay \$2,000, while archives with paid staff each paid \$3,000, resulting in \$15,000 from the six partner archives. With an additional grant and support from MHSC, \$26,000 was secured for the development of the project. With MHSC's consent, the consortium established a two-tiered funding model for the project going forward – archives with paid staff would collectively pay 70 percent of the annual maintenance costs, while archives that were volunteer based would collectively pay 30 percent – with the flexibility for further adjustments if needed. This decision represents both a policy-level intervention to enable and encourage community participation and a deliberate turn away from a pricing model based on the amount of storage each contributing archives used. Since the overall aim of the project was to circulate archival photographs back into the global Mennonite community, the consortium created policies that would be sustainable and would encourage greater use of the database, recognizing that continually increasing the number of photographs in the database was the best way to encourage its use by community

20 These six included archives named or run by the Mennonite Historical Society of BC, Mennonite Historical Society of Alberta, Mennonite Historical Society of Saskatchewan, Mennonite Heritage Centre, Centre for Mennonite Brethren Studies, and the Mennonite Archives of Ontario.

members. Thus, fees were set at a floating rate, based on a percentage of actual expenses, rather than at a fixed rate or based on the amount of storage used, to encourage members to upload more and more metadata and scanned photographs. Moreover, fees took into account whether an archives was run by volunteers or by a heritage professional. Another policy-level intervention was the decision to channel all cost-recovery fees from the sale of high-resolution scans back to the specific archives that had contributed the particular photograph, rather than to absorb these fees into the overall cost of running the system. This would ensure that scanning could continue at the various archives, resulting in more digitized photographs being made available through the system. The task force decided not to allow advertising from Google on MAID but was willing to give space on the home page to organizations that made annual contributions of \$1,000 – money that would offset annual maintenance and development costs. The non-profit Mennonite Central Committee and the private company Tour-Magination have supported MAID for some years in this way.<sup>21</sup>

From the start, it was hoped that the MAID consortium would continue to grow, adding additional Mennonite archives located in Canada and internationally. Discussions of all policy questions were conducted with this in mind. The consortium also recognized that using the AtoM archival management system as a platform would make it simple to expand – from using it only for managing archival photographs to using it for description of all sorts of archival records, including whole fonds. If the project did develop in this direction, it was intended that its name could be adjusted from Mennonite Archival *Image* Database to Mennonite Archival *Information* Database. While creating an online database that would support Mennonite understanding of the past, the consortium was already looking to the future.

As the MHSC archives committee worked on the policies that would set the terms of the consortium, PeaceWorks began extending AtoM to meet the requirements set by the archives task force. These included branded theming throughout the various front-end pages, including the landing page and search results pages; a system for adding watermarks to thumbnail images; and a text editor for static pages. They also created a carousel of recently added images on the landing page; this was felt to be both an important visual statement to

21 Laureen Harder-Gissing, "MAID Prospectus 2020" (working paper, Mennonite Archival Information Database consortium, 2020).

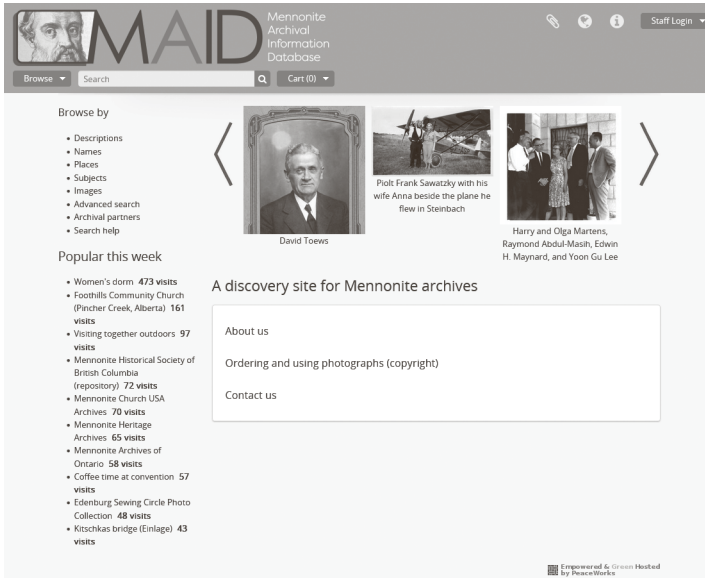


FIGURE 1 Screenshot of the MAID landing page from March 25, 2023, including the Cart button for e-commerce, the Staff Login button to allow archives staff and volunteers to access the back-end forms, and the image carousel.

the community of contributing archives about the value of the images and a means of welcoming members of the wider Mennonite community. The other major addition was the integration into AtoM of e-commerce functionality, including a shopping cart feature, which allowed users to place single orders for images from multiple archives, and a feature that enabled each partner to accept or reject any particular order. PeaceWorks began to configure the core functionalities of the system, with advice from the archives committee. While the original partners in the consortium were most familiar with the Canadian standard for archival description, RAD, they decided to default to the international standard, ISAD(G), so that MAID could more easily expand beyond Canada. This was made considerably easier by core functionality within AtoM that allows back-end users to select which standard they want to use to structure their archival descriptions.

The initial costs of implementing MAID included the cost to transfer legacy data from the photo management databases of the three larger archives within the initial group: the Mennonite Heritage Archives, the Mennonite Archives

of Ontario, and the Centre for Mennonite Brethren Studies Archives. All three institutions had their own internal databases, built in Microsoft Access and only loosely based on archival standards. As internal databases, they were rife with inconsistent use of fields, inconsistent naming and dating conventions, common typos, and other errors. The three databases had a total of 80,000 records for individual photos as well as 13,000 scans of associated photos.

Working with PeaceWorks on the data migration allowed the consortium to rely on computational methods for cleaning and migrating this legacy data. With deep experience in these sorts of projects, PeaceWorks knew that migration is often when “dirty data” issues become apparent. Too often, organizations plan and budget for the implementation of a new system but leave the migration of legacy data as an afterthought. Budgeting time and resources to automate data migration can open up new possibilities for cleaning and transforming data.

For example, the three legacy databases were rife with inexact dates, presented in a range of formats (e.g., “198-,” “19-,” “ca. 1984,” “1950-1960,” “[196?],” and so on). To support searchability, AtoM offers three fields for each date: Date, Start, and End. For an exact date, the Start and End fields are left blank, and the Date field is populated with the exact date, e.g., “Dec. 5, 1942.” For an inexact date, the Start and End fields establish the range. For instance, if the date is given only as “1942,” the AtoM Start field would be populated with “Jan. 1, 1942,” and the End field with “Dec. 31, 1942.” The challenge for PeaceWorks was to create an automated approach that would convert the diverse date formats found in the legacy databases into clean, fully searchable entries in the three date fields in AtoM. As they encountered each date format in the legacy data, PeaceWorks wrote a script to convert it into a format that could be input into AtoM (see table 1).

TABLE 1 *PeaceWorks rules for formatting legacy date data*

| LEGACY VALUE                      | PATTERN                           | RULE NAME     | ATOM VALUE: START                                  | ATOM VALUE: END                                     |
|-----------------------------------|-----------------------------------|---------------|--|---|
| [198-]<br>[198?]<br>1920s         | [NNN-]<br>[NNN?]<br>NNNNs         | Decade Match  | Beginning of decade (e.g., Jan. 1, 1980)           | End of decade (e.g., Dec. 31, 1989)                 |
| [18--]                            | [NN--]                            | Century Match | Beginning of century (e.g., Jan. 1, 1800)          | End of century (e.g., Dec. 31, 1899)                |
| 2000-09<br>1950-1960<br>[1941-45] | NNNN-NN<br>NNNN-NNNN<br>[NNNN-NN] | Year Range    | Jan. 1 of first year in range (e.g., Jan. 1, 2000) | Dec. 31 of last year in range (e.g., Dec. 31, 2009) |

PeaceWorks developed these rules iteratively, on a copy of the extracted data set, stopping whenever they encountered a new date format for which there was no rule or pattern and continuing once the new pattern had been addressed with a new rule. Once they could run through the entire data set, they made the cleaned and transformed data available to the archives consortium on a staging site for quality assurance.

In the end, the total cost of implementing AtoM with theming or branding, integrating the new functionalities, and migrating the data from the three legacy databases came in under budget, for a total cost of \$22,500.

### Launching MAID

The Mennonite Archival Image Database was launched in February 2015 by the consortium of six members. The task force – the three members with professional staff – became the MAID management committee and began to provide training on MAID for the volunteer-run partners within the consortium. A manual was written, and training sessions were held at the annual MHSC gatherings, but it was clear that on-site training would be necessary because not all volunteers in the various archives could attend the MHSC meetings. The D.F. Plett Historical Research Foundation provided a grant of \$4,700, which allowed the committee

to offer on-site training in each province starting in 2016. Alf Redekopp, volunteering on behalf of the MAID management committee, travelled to BC, Alberta, and Saskatchewan to provide training. Redekopp soon realized that participants had questions around archival processes of selection, arrangement, and description in addition to questions that were more specific to the MAID database. In this way, MAID has become the catalyst to ongoing discussions about archival theory and archival practice. As a long-time member of MHSC and the recently retired director of the Mennonite Heritage Archives, Redekopp was well positioned to offer sound advice.

While PeaceWorks was able to automate solutions to many of the problems found in the legacy data, others defied automation. Manual cleanup of these remaining problems – especially harmonizing access points such as name, place, and subject headings – is ongoing. For example, minor differences in how a name is represented result in separate access points in MAID, which can affect what is retrieved in response to user queries and how it is displayed. During the initial migration, PeaceWorks worked with the task force on a partially automated solution for cleaning up place names, which were felt to be a particular priority given the needs of the globally dispersed Mennonite community. In 2018, MAID's site administrator, Laureen Harder-Gissing, undertook an involved process of reviewing and revising language in MAID that described Indigenous Peoples. Based on work by the Association for Manitoba Archives (AMA) working group on Indigenous subject headings,<sup>22</sup> terms in MAID were reviewed for cultural sensitivity, accuracy, and standardization. Where possible, non-Manitoba subject headings were revised in the style of the AMA working group's terms and in accordance with Library of Congress Subject Headings structures.<sup>23</sup> The work is ongoing; concerns remain about the accuracy and context for many photos on MAID with Indigenous subjects, which were created and described from a Mennonite perspective. Through MAID, these images are increasingly being discovered and used by Indigenous researchers.

22 Christine Bone and Brett Loughheed, "Library of Congress Subject Headings Related to Indigenous Peoples: Changing LCSH for Use in a Canadian Archival Context," *Cataloging & Classification Quarterly* 56, no. 1 (2018): 83–95.

23 Laureen Harder-Gissing, "About Language for Indigenous Peoples in MAID," Mennonite Archival Information Database, November 20, 2018, <https://archives.mhsc.ca/news%20and%20events>. See also Laureen Harder-Gissing, "Bloodvein Reserve: A Moment from Yesterday," in *Canadian Mennonite* 22, no. 3 (January 24, 2018), <https://canadianmennonite.org/stories/bloodvein-reserve>.

MAID was a success from the start. The January 2016 MAID management committee report noted that the site had had 41,000 unique visitors since its inception the previous February, with approximately one-third of those visits originating outside of Canada, and that 160 high-resolution images had been sold for \$5 per image.<sup>24</sup> In 2018, the MAID consortium expanded with the addition of two new member archives, one Canadian and one American. In 2019, five more were added, including four more American archives. By 2018, MAID had grown from 80,000 item records and 13,000 digitized photographs to 97,000 item records and 48,000 digitized photos, and cost-recovery sales of high-resolution scans had increased to 390. Also in 2018, the project shifted away from its exclusive focus on photographs to include archival descriptions in general, and the name was changed to Mennonite Archival Information Database, as intended. In 2021, a Mennonite archives in Paraguay joined the consortium, contributing descriptions in German. In 2022, MAID had 266,267 descriptive records and 73,216 digitized images and sold 606 high-resolution cost-recovery scans, bringing in almost \$3,000 for the various partner archives.

With the addition of archival partners outside the Mennonite Historical Society of Canada network, the management committee began hosting “MAID coffee breaks” to build familiarity among the partners and with MAID itself. When the project began, MAID management committee meetings were held using conference calling, and the committee was charged by the minute. By the time the “MAID coffee breaks” began, users were comfortable with Zoom. These meetings were open to any partner within the MAID consortium and were opportunities to put faces to names, learn about and from each other, and offer encouragement and technical support for MAID and other archives-related challenges. They offered a way of building and strengthening community.

The careful planning and policy development of the MAID consortium has paid off, with growth in the consortium along the lines that the consortium had intended and increases in both the number of photographs that are discoverable and accessible through MAID and the number of photos being circulated back into the local and international Mennonite community. New partners in the consortium have further spread out the annual maintenance costs so that, in 2022, archives with paid staff contributed \$337 each, while volunteer-led

<sup>24</sup> Images uploaded to MAID are typically scanned at 300 dpi and in jpg format and are not considered preservation-standard images.

archives contributed \$148 each. These figures speak for themselves: open-source software may well be free like puppies rather than free like lunch, but MAID demonstrates that organizations can realize real savings by forming into consortia and sharing the costs of development and maintenance, particularly once the system is up and running. At this point, the 15 community archives that are members of the MAID consortium have a shared custom digital infrastructure that serves as the primary platform not only for their photographs but also for all of their archival descriptions, at extremely affordable rates.

Governance of the project was formalized early on and has remained stable. Laureen Harder-Gissing of the Mennonite Archives of Ontario has been the site administrator from the start and continues in that role. Her work is guided by the MAID management committee, which includes Laureen as site administrator and four other representatives from member archives. The current management committee members, in addition to Laureen, are Hannah Keeney of the Mennonite Library and Archives at Fresno Pacific University in California; John Thiesen of the Mennonite Church USA Archives at Bethel College in Kansas; Conrad Stoesz (chair) of the Mennonite Heritage Archives in Winnipeg, Manitoba; and Alf Redekopp, now retired from the Mennonite Heritage Archives. As with other Mennonite endeavours like the MHSC, service on the MAID management committee offers another way that Mennonite archivists can get to know each other, building relationships and trust.

MAID has made digitized photographs available for many purposes, including reproduction in publications with an interest in Mennonite history. Seeing the potential of MAID, the bi-weekly magazine *Canadian Mennonite* offered free space for archives to feature one MAID photo per issue, with a 100-word caption alongside each one. Archivists understood this not only as good publicity but also as a platform from which to demonstrate the role of archives in the community, as demonstrated by the photo and caption in figure 2, which appeared in the November 4, 2015, issue.



FIGURE 2 *Image of a men's quartet, published in Canadian Mennonite magazine with the following caption:*

This photo is of a men's quartet singing for a radio broadcast in a Vancouver Mennonite church basement circa the 1960s. Advances in mass communication such as radio were first met with suspicion and in some cases were banned in Mennonite communities warning about worldly influences entering the home and community. Committees were established to consider the best response to these innovations. By the late 1940s, some Canadian Mennonite groups embraced radio and used it to transmit Christian values into the home. Radio became a vehicle to support the faith community and also to facilitate mission to others. Early programs were a mix of German and English and did accelerate the acculturation of the Mennonite communities into Canadian life, the very thing feared by those who were suspicious of radio.

Conrad Stoesz, "1960s Radio Broadcast of a Men's Quartet," *Canadian Mennonite* 19, no. 22 (November 4, 2015), <https://canadianmennonite.org/stories/1960s-radio-broadcast-mens-quartet>. The image appears in MAID as "Item 76 – Vancouver quartet," Centre for Mennonite Brethren Studies, MAID, <https://archives.mhsc.ca/index.php/vancouver-quartet>.

FIGURE 3 Panel from the Mennonite Heritage Village's 2022 exhibition *Leaving Canada*. This panel features three photos from the Mennonite Heritage Archives, which Mennonite Heritage Village staff found on MAID. The images help tell the story of how “the government broke up Mennonite schools and fined them severely – sometimes they took the last meat out of the house to pay the fines.”



### Parting Ways

**BEGINNING IN 1922**, nearly 8,000 Mennonites left Canada for Latin America in the largest mass emigration since Canada became a country in 1867. Laws passed in the 1910s in Manitoba and Saskatchewan used the public school system to shape children from all cultural backgrounds into loyal, English-speaking, British citizens. Under this pressure to assimilate, many Mennonites felt they had to leave Canada.

In the late 1800s, Canada invited immigrants from across Europe to settle on the prairies. Mennonites arrived in 1874 with promises from the federal government that included the right to educate their children according to their traditions. By the time Canada joined the First World War in 1914, Canadian society viewed ethnic minorities as threatening to the national identity. Manitoba and Saskatchewan looked to the public school system to solve this problem by assimilating immigrant children into mainstream “Canadian” culture.

“The government broke up Mennonite schools and fined them severely—sometimes they took the last horse and the last meat out of the house to pay the fines.”

In the early 1900s new education laws were written to promote English, standardize teacher training and curricula, instill patriotism in students, and increase attendance at public schools. While some Mennonites accepted public schools, many traditionalists chose to establish and fund their own German-language religious private schools. The Public Schools Attendance Act of 1916, however, abolished private schooling in Manitoba, requiring children to attend public, English-language schools. Saskatchewan followed with similar legislation the following year.

Many Mennonites resisted the new schools with petitions, appeals, and boycotts resulting in steep government fines. In Saskatchewan, \$26,000 was collected from Mennonites in 1921 alone, at a time when building a new school cost less than \$5,000. In Manitoba and Saskatchewan, failure to pay resulted in property confiscation and even jail time. By 1922, as they lost court battles and were left destitute by fines, many Mennonites left Canada to start new lives in Mexico and later, Paraguay.



Photograph of Mennonite children in front of a school building, 1918. Photo by [unreadable].



Culture and heritage creators have made good use of MAID. Award-winning film producer Andrew Wall, of Refuge 31 Films, has made extensive use of the database. Wall writes that “MAID played a vital role in the making of *The Last Objectors*, *Volendam*, *Conform*, and *Otto’s Passion* – and will continue to in future projects. The Mennonite archives involved with MAID are vital to our current storytelling and . . . a testament of the careful planning and efforts by archival staff and volunteers that have gone on to create such an invaluable tool.”<sup>25</sup> The Mennonite Heritage Village museum, located in Steinbach, Manitoba, routinely makes use of MAID in conducting the historical research that supports its programming and in sourcing photographs to use in exhibits and promotion (see figure 3).

In 2016, MAID was short-listed for the Governor General’s History Award for Excellence in Community Programming. In her letter of reference, Andrea Dyck, senior curator at the Mennonite Heritage Village in Steinbach, explained how MAID has been a game changer for her work:

It streamlined our approach for finding historical images and has made Mennonite archival collections from across the country accessible to us . . . [making our rural location] no longer an impediment to conducting this research. . . . [MAID’s photos] not only helped us to interpret the history of specific Mennonite women . . . but they also suggested and opened new research paths. . . . In this way MAID has become an important research tool.<sup>26</sup>

As important as MAID has been to its constituencies, it has also improved awareness and co-operation between staff and volunteers at partner archives. There have been numerous times when staff or volunteers have reached out to fellow MAID archivists, whose knowledge or networks have been able to advise or help identify photos, people, and events. MAID has not only helped archives manage their records and helped the public gain access to them; it has also brought archivists (professional and volunteer) together to tackle common problems and share expertise, thereby enhancing community. This innovative project provides leadership, structure, training, and an equitable cost-sharing approach that enhances the Mennonite community.

<sup>25</sup> Andrew Wall, email to Conrad Stoesz, April 4, 2024.

<sup>26</sup> Andrea Dyck, letter, “Re: Governor General’s History Award for Community Programming,” June 20, 2016.

## Conclusion

Consortia come with their own challenges. Meetings take up valuable time, and compromises must be made between the individual preferences and needs of each archives and the path that works best for the collectivity. Nonetheless, the experience of the MAID consortium demonstrates that consortia, especially when built within a shared cultural context, can result not only in pooled funds but also in pooled expertise, knowledge, and experience, and that they can serve as strong foundations for developing both a shared digital infrastructure and strong interpersonal relationships. Open and trusting collaboration is key, not only among archival institutions but also with IT service providers, who must understand the long-term vision and mission of the archives and respect long-established archival practices and standards. Open-source systems offer opportunities to align projects with core archival values of longevity, openness, and data portability while also aligning them with community values. Whatever compromises and tensions might arise during the development of the infrastructure, once implemented, open-source systems can lead to declining costs, especially if the consortium can continue to add new members.

Our case study is only superficially about technology. While a shared, online archival database requires digital infrastructure, the consortium was careful to use technology to serve the goals of the consortium itself. Key early decisions, such as the decision to consider only open-source systems, reflect a focus on community building and community control. These values are integral to the policy and governance frameworks that govern the project. Guiding principles, such as collaborating in decision-making and distributing costs and responsibilities according to the relative capacity of each member, are key to having the consortium continue to work for each individual member and for the collectivity.

What will happen next with the MAID consortium? The operation is becoming more sophisticated. At present, the AtoM database is sufficient to manage the descriptive metadata and scanned images that consortium members upload. If MAID is to provide access to significant quantities of born-digital and mass-digitized records, as well as quantities of sound and video files, additional infrastructure is necessary. At present, the Mennonite Heritage Archives in Winnipeg is working on an Islandora implementation, hosted by Canadian Mennonite University, which could serve as a repository for these sorts of files, while the associated archival descriptions remain on MAID, which is hosted

by PeaceWorks. Other consortium members are watching this project with great interest, and one has already approached MHA to find out if they could contribute to and share the Islandora implementation. How might this affect the costs and functions of the consortium? That is still to be worked out, but by following existing practices and established values, members can approach these discussions confidently. Another issue that keeps coming up in discussions is digital preservation. Could MAID serve as the front end to a comprehensive infrastructure for digital archiving, serving an international consortium of small community archives? It is too early to tell, but people are meeting, and discussions are happening. And those are the first steps.

---

**BIOGRAPHY** Conrad Stoesz (BTh, BA, MA) began his archival career in 1999, working as Archivist at both the Centre for Mennonite Brethren Studies and the Mennonite Heritage Archives in Winnipeg, Manitoba. Since 2017, he has worked full time at the Mennonite Heritage Archives. He has published articles in the *Journal of Mennonite Studies*, *Manitoba History*, and *Preservings* and a chapter in *Worth Fighting For: Canada's Tradition of War Resistance from 1812 to the War on Terror* (2015). He has been the chair of the Mennonite Archival Information Database (MAID) management group since its beginning in 2013. He is currently President of the Mennonite Historical Society of Canada and Co-editor of *Mennonite Historian*. His research interests include conscientious objectors, midwives, and Mennonites in Manitoba.

---

**BIOGRAPHY** Jason Hildebrand (BMath Hons) has been a senior consultant and full-stack developer at PeaceWorks Technology Solutions since 2003 and has been Chair of the Board of Directors at Peaceworks for several years. Jason has significant expertise in needs analysis, system design, system integration, and project management and finds joy in implementing sensible, cost-effective solutions.

---

**BIOGRAPHY** Greg Bak (BA, MA, MLIS, PhD) is an associate professor of archival studies at the University of Manitoba and a settler of Polish descent on Treaty One lands and the homeland of the Red River Métis. A Fellow of the Association of Canadian Archivists, his research and teaching focus on archival decolonization, digital archives, and the histories of digital cultures. He is a co-editor of *The Nordic Model of Digital Archiving* (Routledge, 2023) and “All Shook Up”: *The Archival Legacy of Terry Cook* (SAA, 2020), and he has articles in *Archivaria*, *Archival Science*, and *American Archivist*. Prior to 2011, he was a senior digital archivist at Library and Archives Canada. He holds a PhD (history) and an MLIS from Dalhousie University and an MA (history) from the University of Toronto.