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We Are All Digital Now: Digital Photography and the Reshaping of Historical Practice

Abstract:

Visiting a reading room in the last five years is a very different experience than what they looked like even fifteen years ago: while a few researchers carefully read archival documents in situ, most are crouched over their archival documents with a smartphone or digital camera in hand, taking thousands of photos that will be analyzed upon return to their home institutions.

With the advent of digital photography and less-restrictive archival policies on digital reproduction for personal use, historical research is now characterized by quick trips to gather thousands of photos. What does this mean for the research and writing of history, however? How do researchers create their corpuses, and on what information? What work takes place before the archival visit, after the archival visit, and how can we better support this sort of work? Drawing on a 2019 survey of 253 historians employed at Canadian universities, this article argues that through specific reference to the use of digital archival photography, we can see the varied ways in which historical work is being adapted to these new and emerging technological circumstances.

Keywords:

digital photography, digital archives, historiography, archives, libraries, digital history

In the 21st century, all historians are digital. That is not to say all historians have consciously adopted the mantle of a "digital historian" – just as we are not all oral, cultural, or demographic historians – but rather to say that new media, new technologies, and emerging computational methods underpin almost all historical research today. Considering the impact of digital technologies cannot just be what some of historians do, as that obscures the degree to which everyday activities – literature reviews, archival research, structuring thoughts, and even publishing – are adapting to new and emergent technologies. In this article, I argue that through specific reference to the use of digital archival photography, we can see the varied ways in which historical work is being adapted to these new and emerging technological circumstances.[1] Whereas historical research previously had more considerable interplay amongst the functions of document selection, reading, reflecting, and writing, we now increasingly see the division of historical labour into two stages: the collecting/processing stage, and then the reading/writing stage.

Consider how different the reading room at Library and Archives Canada today looks. In 1995, at the then National Archives of Canada, it would have been full of historians largely working *in situ*. Some photocopies would be requested, but the cost of processing and photocopying information meant that most historians worked with their sources largely by taking longhand notes. Indeed, in 1995, cameras were explicitly prohibited by archival regulations and photocopying was priced at $0.20/page.[2] Accordingly, then, historians took notes, some transcribed but more often than not summations of the information they were reading. Information was processed as it came in: arguments formed, new lines of inquiry opened, all with an understanding of profound time scarcity. Except for the few, fortunate Ottawa-based historians, taking notes on one box often really meant closing the door on another one, given the sheer time and labour that it took for a historian to explore and understand an archival collection. Research was slower, with implications for both scholarly output as well as work-life balance, as families and home institutions were left behind for weeks or even months at a time.

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[1] In this, it complements Chad Gaffield's essay in this Historical Perspectives section, which looks at other broad questions being raised by our professional encounters with digital technology.

[2] National Archives of Canada, "Regulations Governing the Use of Research Materials and Facilities," revised 1 December 1995. Available via the Internet Archive Wayback Machine at https://web.archive.org/web/19970712095648/http://www.archives.ca/www/regulations.html, accessed 1 April 2019. See also National Archives of Canada, "Obtaining Copies or Reproductions," revised 4 July 1997. Available via the Internet Archive Wayback Machine at https://web.archive.org/web/19970712091925/http://www.archives.ca/www/english/svcs/copies.html, accessed 1 April 2019.

At Library and Archives Canada, everything began to change in November 2005 with the "Self-Serve Digital Copying Pilot Project." Over a six-month period between November 2005 and April 2006, between the main staffed hours of 8:30am to 4:30pm, researchers were invited to bring their own cameras to reproduce materials for research or private study.[3] While there were certainly more regulations that a present-day historian would be used to – researchers would register, have their cameras inspected, sign an application form, receive a placard to place next to them at their desk to signify to staff that they were permitted to use cameras, a neck or wrist strap needed to be used, and a label would be placed on their visible researcher pass – it represented a dramatic shift in how historians and other archival users engaged with collections. The pilot was first extended after April 2006 pending review, and by 2007 was made permanent policy.

Today, when you visit Library and Archives Canada or most other archives, you are more likely than not to see a historian or other patron using a digital camera to reproduce their material. Research timelines are compressed: doctoral research trips that two decades earlier would have required months of sifting through documents in a reading room can now take a week of photographing. The vast balance of research work is now carried out by most at home. Using either a tripod and camera in some places, or holding a smartphone while hunched over an archival document in other cases, historians are able to reproduce box after box of archival material to take home to be processed. Part of a broader shift of the profession towards a "desk" discipline – almost all elements of the historian's workflow are now mediated through computer screens, from the Google search that finds the archival collection to the library search bar that finds more primary sources to Google Books to track down obscure citations – this is a shift that has had dramatic impact on how we can do history.[4]

In short: many historians now collect archival collections at near-industrial scale, then take digital files home to view archival documents on computer screens. While the fundamental relationship of historians to archival documents remains the same – we still travel to archives for the most part, process information there whether by camera, photocopies, or notes, and take the information gained from them to craft our narratives – the workflow of how historians actually

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[3] Library and Archives Canada, "Self-Serve Digital Copying Pilot Project," updated 1 November 2005. Available via the Internet Archive Wayback Machine at https://web.archive.org/web/20060211042512/http://www.collectionscanada.ca/services/005-211-e.html, accessed 1 April 2019.

[4] See also Lara Putnam, "The Transnational and the Text-Searchable: Digitized Sources and the Shadows They Cast," *The American Historical Review* 121, no. 2 (2016): 377–402; Ian Milligan, "Illusionary Order: Online Databases, Optical Character Recognition, and Canadian History, 1997–2010," *Canadian Historical Review* 94, no. 4 (2013): 540–69.

work in the archive has changed. The speed by which we can now process this information means that pivotal decisions – what information will be brought home to view through our monitors – are made when we have the *least* information about the project. We have lost the ability to quickly pivot to consult new lines of inquiry, although return trips are fortunately still relatively common. Grants are now written with the assumption that archival stays will be short and strategic. Time to completion targets are increasingly aggressive (for different reasons) within history doctoral programs, aided in part because the process of data collection has been made so much more efficient. This is not a story of loss: we have gained the ability to research far more efficiently, to spend more time on writing, to produce more research, to complete doctoral programs and books quicker, to spend more time with our families rather than in archival reading rooms. I am not calling for a return to the old days. But we do need to explore the practical implications of this technological shift for historians today. This article explores this in-depth through a survey of 253 Canadian-based historians, discussed in depth below.

The Scholarly Landscape

When faculty are asked about their adoption of digital methods, "using a digital camera" usually does not come to mind. We instead imagine a scholar creating online databases, or setting up a large historical geographic information system project, coding a crawler, or maybe running sophisticated statistical analyses. Indeed, surveys designed to capture this sort of digital activity limit it to those analyzing quantitative data, using models or simulations, writing software or code, carrying out text mining, or GIS.[5] An exception to this approach is ITHAKA S+R, a scholarly think tank that has written several invaluable reports around the changing research practices of various disciplines. In their 2012 study of historians, ITHAKA noted that:

> The most notable development in capturing primary sources materials is the now widespread use of digital cameras in the reading room to photograph sources. Many interviewees reported using digital cameras in the archives, and found them to be incredibly beneficial in terms of efficiency and convenience. Scholars were able to spend time in the reading room photographing the collections, and would often postpone viewing the images until they returned home from the trip. This was notable in that some historians reported that they no longer engage intellectually with the sources while in the archive; these trips have become more of a collection mission.[6]

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[5] Christine Wolff-Eisenberg, "Canadian Association of Research Libraries Faculty Survey" (Canadian Association of Research Libraries/Ithaka S+R, October 4, 2016), https://sr.ithaka.org/publications/canadian-association-of-research-libraries-faculty-survey/.

[6] Jennifer Rutner and Roger C. Schonfeld, "Supporting the Changing Research Practices of Historians" (Ithaka S+R, December 10, 2012),

They additionally highlighted the ability for historians to engage with their sources in new ways, notably at home, rather than being constrained to just consulting them in archives; it aided in balancing the diverse parts of a historian's job. The challenges noted by historians in the report included the difficulty of working with the digital photographs from a technical perspective (how to store them, describe them, associate metadata) as well as more general issues of workflow. Products like Tropy (https://tropy.org), a free-and-open source archival photograph manager supported by the Andrew W. Mellon Foundation, aim to fill the hole left by the former problem. The deeper implications on workflow, however, remain relatively unstudied. While the ITHAKA report is important, it is (as of writing) seven years old – we have now had, in some cases, twice as much professional engagement with digital photography in the archives.

When it comes to guidance for digital photography in the archives, historians are largely on their own. There are a few library guides, such as "Using Digital Tools for Archival Work" published by the University of Illinois Library, which provide suggestions around what kind of camera to purchase, how to ensure high-quality photographs, as well as data management and software suggestions.[7] Based on my survey, however, most historians are not supported. One of the most lopsided questions was "Have you ever received any professional training in the use of a digital camera," to which 96% of my respondents selected "no"; of that group, almost 20% noted that they wished they had received training and 34% would "maybe" appreciate that.

In other words, we can see a dramatic shift in how historians conduct their work – with almost no professional training, support, or even conversation around this shift. To build upon the foundation left by ITHAKA S+R, my goal for this article was to enhance the conversation by reaching out to peers around Canada and garner their thoughts on digital archival photography.

Studying the research practices of historians can be frustrating. Just as former University of California president Clark Kerr described the modern university as (with tongue in cheek) "a series of individual faculty entrepreneurs held together by a common grievance over parking," historical scholarship is largely defined by solitary research and writing.[8] Apart from conferences, most historians work alone in archives, and then alone in front of their computers to analyze and write.

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http://www.sr.ithaka.org/sites/all/modules/contrib/pubdlcnt/pubdlcnt.php?file=http://www.sr.ithaka.org/sites/default/files/reports/supporting-the-changing-research-practices-of-historians.pdf&nid=532.

[7] Scholarly Commons, "Digital Historian Series: Using Digital Tools for Archival Research," University of Illinois Library, February 2019, https://guides.library.illinois.edu/c.php?g=348155&p=2346513.

[8] Clark Kerr, *The Uses of the University* (Cambridge: Harvard University Press, 2001), 5.

Unlike other fields marked by collaboration, with few exceptions historians do not have a tradition of lab-based scholarship, interdisciplinary collaboration, or large teams. Historians thus have less of a need to continually describe and defend research methods, except during their training and very occasionally when engaging with a peer reviewer.

Our scholarship features few explicit methodological discussions. I have earlier argued that our citational practices largely do not even differentiate where we got a primary source from: whether downloaded through ProQuest's historical newspaper databases or consulted in the original, we cite a newspaper article the same way.[9] It goes without saying that our citational practices do not note the process of gathering a digital archival photograph.

Beyond citation practices, in general historians minimize methodological discussions in their published scholarship, with their work focusing on argumentation, narrative, and analysis. A co-authored 2017 white paper by twenty-four historians highlighted that the "experience of workshop participants has been that reviewers and editors frequently insist that methodological sections be cut or shortened to avoid disrupting the narrative."[10] While the primary focus of that document was on digital methods, the authors (of which I was one) do note that a "gap has opened up between the assumed method of historians—consulting archives or published material to find sources and then using close reading to identify evidence for an argument—and their actual research practice."[11] Given the paucity of methodological discussion in print scholarship, I thus needed to reach out to historians directly if I was going to explore emergent research practices.

The Survey

To understand how historians use digital cameras, I surveyed academic historians who work in Canada. In doing so, I ran into an issue that the Canadian Historical Association confronts on a daily basis. I was interested not in Canadian historians, but historians who work in Canada. The Canadian historical profession is part of a globally-integrated historical profession: some members would have stronger research and teaching ties with those in the United States, centered around the American Historical Association or other sub-disciplinary specific organizations, whereas others might look to

[9] Milligan, "Illusionary Order."
[10] Arguing with Digital History working group, "Digital History and Argument" (Roy Rosenzweig Center for History and New Media, November 13, 2017), https://rrchnm.org/argument-white-paper/, 12.
[11] Arguing with Digital History working group, 12.

Europe, Asia, or other parts of the world. In other words: there is no single list-serv, mailing list, or community of historians who happen to be practicing in Canada.

My interest in historians who work in Canada was twofold. First, as a historian based in Canada who works and cares deeply about Canadian memory institutions, understanding the specific challenges, opportunities, and workflows within the national historical profession struck me as a worthwhile endeavor in and of itself. Secondly, it was a pragmatic choice. This scope allowed me to draw discrete boundaries around the group of scholars to whom I reached out. The Canadian historical profession is large – as of 2013/14 there were 1,089 full-time historians surveyed by the Canadian Association of University Teachers – but not so large that a comprehensive survey of them could not be carried out.[12]

I thus reached out to historians based in Canada using a survey e-mailed to all academic historians listed on university department webpages. This required decisions: focusing on universities, not community colleges, and to navigate the landscape of not only "main campus" universities but also affiliated university colleges. All in all, with the help of a research assistant, I created a database of the historians employed at seventy-nine universities. Using a verbose IRB-approved recruitment script, an e-mail was sent out to all e-mail addresses listed on these departmental pages, inviting participants to complete an anonymous survey about the use of digital photography in archives. Some 1,466 invitations were successfully sent and 253 responses were received, for a 17.25% completion rate. Given the length of the invite, the dozens of retired professors who were contacted and who informed me that they were enjoying their retirement, and the busy life of university professors, this was in line with my expected response rate.

There are biases in these responses, some owing to the selection method and some related to who may have answered versus who may have not. On the former, departmental webpages are of uneven quality and currency. While most are current on their full-time tenured and tenure-track members, some list their sessional instructors and some do not; others list their postdoctoral fellows prominently and others do not; and some of them have graduate teaching fellows included and some do not. Cognizant of these limitations, I included all instructors listed on departmental webpages. Graduate students are not usually listed on departmental webpages, so supervisors were asked to

[12] Canadian Association of University Teachers, "CAUT Almanac of Post-Secondary Education in Canada, 2013-2014" https://www.caut.ca/docs/default-source/almanac/almanac_2013-2014_print_finalE20A5E5CA0EA6529968D1CAF.pdf?sfvrsn=2. After the 2013-2014 year, CAUT no longer reported disciplinary specific numbers (history was subsumed under the broader heading of the humanities).

forward the e-mails to them.[13] Secondly, there is bias in who might have completed the survey. A number of participants were confused in their correspondence with me around the distinction between "Canadian historical profession" versus "Canadian historians." Given the lengthy IRB-approved recruitment script, I would expect over-representation of Canadianists. A few confessed that they were too busy to complete the survey given their research, teaching, and administrative duties. Finally, for a small minority of respondents, the concept of digital photography in an archive was completely foreign to them. While I would have appreciated their thoughts, I suspect they did not take the survey. Ultimately, however, I was impressed with the overall level of thoughtfulness, civility, engagement, and charitability, even amongst the people I contacted who were not able to complete the survey. The respondent status-type, seen in Table 1, shows how the recruitment process – based on departmental webpages – tended to favour full-time tenured or tenure-track faculty. Ultimately, however, the survey brought together a wide-array of thoughtful voices on how digital photography is transforming the work they do in archives.

Status	Number	Percentage
Tenured or Tenure-Track Faculty	126	55.51%
Postdoctoral Fellow	12	5.29%
Contingent/Adjunct Faculty	20	8.81%
PhD Candidate or Student	35	15.42%
MA Student	20	8.81%
Independent Researcher	3	1.32%
Other[14]	11	4.85%

Table 1: Status of those who completed the survey. Questions were not mandatory.[15]

WHO IS TAKING PHOTOS, AND HOW MANY?

The survey certainly demonstrated the degree to which the digital camera has transformed historical research. It is a largely universal element of historical practice, as demonstrated by Table 2.

	All Respondents		Tenure-Track and Tenured	
Answer	Number	Percentage	Number	Percentage

[13] Unfortunately, the survey software was a bit overzealous in occasionally preventing a forwarded recipient from completing the survey.

[14] Apart from three retired faculty members, the "other" category largely reflected those in non-traditional academic settings (a dean, a curator, or one adjunct who had just been offered a tenure-track job).

[15] While it is impossible to calculate the denominators for each category – for example, the response rate of full-time faculty versus graduate students – if the number of full-time tenured or tenure-track faculty remains around the 1,089 from the last systematic CAUT survey, that would be a relative response rate of 11.5% versus the overall 17.25% completion rate.

Yes, multiple times	192	84.58%	112	88.89%
Yes, once or twice	15	6.61%	7	5.56%
No	17	7.49%	4	3.17%
The archives I research at do not allow use of digital photography	3	1.32%	3	2.38%

Table 2: Answers to the question "Have you ever used a digital camera when conducting research?"

Notably, respondents are taking a *lot* of photographs. The choices that I gave in the survey (under 50; 50-200; 201-500; 501-749; 750-1000; 1001-1500; 1501-2000; and more than 2000) were insufficient to really capture the sheer number of photos, as Table 3 demonstrates.

Answer	Number	Percentage
Under 50	25	11.68%
50-200	24	11.21%
201-500	21	9.81%
501-749	9	4.21%
750-1000	24	11.21%
1001-1500	17	7.94%
1501-2000	9	4.21%
More than 2000	85	39.72%

Table 3: Number of photographs taken during their last substantive project.

These are thousands of photographs – indeed, if one was to take the *most* conservative estimate of the photographs taken by the respondents in Table 3 (i.e. if the "more than 2000" are estimated at having taken 2,001 photographs), we would have a total of 227,786 photographs. The real number is almost certainly several tens of thousands higher, if not more. The number of photographs is unsurprising. Alongside this survey, my research assistant and I visited the policy websites of eighty-two Canadian archival websites (drawn from the Canadian Archival Information Network); of these websites, almost all made explicit mention of digital photography, and for the most part only small municipal archives expressly banned digital photography of their collections.

Finally, before we get into the qualitative results, it's worth considering some other contextual points. Most historians are using a digital camera (some 60%) but a not insubstantial amount use their smartphones, with some 33% of respondents using those (and several more, not captured in the phone category, using iPads or iPods). Most are personally-purchased devices, with almost 70% using their own device and only a smaller minority of around 24% drawing on university or Tri-Council funding to purchase their device (this suggests that universities need to better support their researchers' increasingly essential equipment). And, as noted above, most have had no professional training or guidance in how to use these cameras which have become so dominant in their practice: 96% of respondents noted that they had not received any professional training, and of those, 18.5% would have liked to receive some and an additional 34% were at least open to the possibility. The survey revealed that at least some are flying a bit by the seat of their pants – one respondent noted that the process of selecting photographs was "fairly random! We'll see if I took the right ones when it comes time to write things up"; another noted their process was "haphazard," mainly being guided by a fellow PhD student having previously used a camera in the archive.

So, to conclude: somewhere between 90 and 95% of practicing historians use digital photography to carry out archival research, and half of the historians surveyed have taken at least a thousand photographs as part of their last research project (and half of those took in excess of two thousand). They are doing so largely with their own personal devices and without training. Now that we have established the quantity of photographs being taken, we should turn to the question of how historians actually use them.

Choosing Sources: Working in the Archives with a Digital Camera

Historians, while expressing measured ambivalence towards the transformative aspects of digital photography, are generally supportive of the changes that it has brought to their work. This is for three main reasons: shorter research trips, quick access to primary documents after the trip, and the overall cost savings from not having to pay photocopy fees.

The major advantage of digital photography, connected to the major disadvantage also identified, is that it leads to shorter research trips. This has several key advantages, primarily in terms of time (more time to spend with family, on other aspects of one's job, or just generally at home) and cost (less time in transient accommodation). Indeed, short research trips have increasingly

become the expectation for archival research, as is reflected in granting agency budgets and graduate supervisory expectations.

The second main benefit recounted by many was that of having the documentary record at one's fingertips. Historians appreciate not only the ability to see the document that's germane to their research topic, but also the ability to easily retrieve documents found in the archive for later consultation. This could include the later use of documents that were incidentally collected over the course of a project for side projects that were not the main focus of collection, but also the ability to verify a quotation or easily defend one's research. A few historians surveyed also noted that they had consciously accumulated tens of thousands of photographs upon which they could base a life's work. Finally, cost – both from shorter research trips as well as saving money on reproduction fees – was critical. It is clear that being able to make quick reference to the photograph is a major advantage, although the prospect of limiting one's research to what they had taken photographs of strikes me as a narrowing of the opportunities open to historians (speaking for myself, I would have had no inkling of what my next book project – or even field or study and archives to consult – would have been five years ago!).

The shorter research trips led to the major shortcoming as identified by several respondents. As noted above, a shorter research trip sees the research process divided into the collection/processing phase at the archives, with the vast majority of the reading and writing happening at home. One scholar is worth quoting at length: "I find it much more productive to make notes on documents as I go, so I can pursue things while I'm in the archives and so I know what I have at any given time. That way, I am constantly shaping my analysis through the research process. The alternative would be to get home from the archives with no idea what I've found, and then have to look through thousands of photos to get anywhere." While they are an outlier in that they do not use a digital camera (and would not if they had the choice), others who took thousands of photographs expressed similar reservations.

One of my main reservations around digital photography coming into this survey was around just how the sources are selected. At an insightful American Historical Association panel we were on, Lara Putnam built on her earlier work with digitized primary sources to note (as a writeup put it) that the "historian's craft is under threat [when scholars] work in a digital environment

without interrogating their sources of processes."[16] To paraphrase from my notes, Putnam worried that scholars might be building their photographic corpora for later study at precisely the moment at which they know least about the project and, in the case of doctoral students researching their dissertations, still at the early stages of understanding historical methods. In other words, one of the most pivotal choices that a historian makes – what primary sources they would consult – would be decided at almost the earliest stages of the project. Yet this comes with benefit too: sources seemingly irrelevant to their current project might form the foundation for future work.

Indeed, the survey demonstrated this to some degree. There are some differences in whether individuals are shifting their acquisition strategy based on their employment categories. It is minor, but tenured and tenure-track faculty discovered content they were not originally expecting to find (and hence might be interesting to follow up on) through their photographs some 93% of the time; whereas others (notably postdoctoral fellows, graduate students, and sessional instructors) did so 89% of the time. While this is a minor difference, Figure 1 shows the breakdown of time spent at an archive doing a given activity. We can see that faculty spent roughly 42% of their time actually reading documents, as compared to 35% of others (or, conversely, faculty spent about 44% of their time taking photographs whereas other categories spent about 51% of their time).

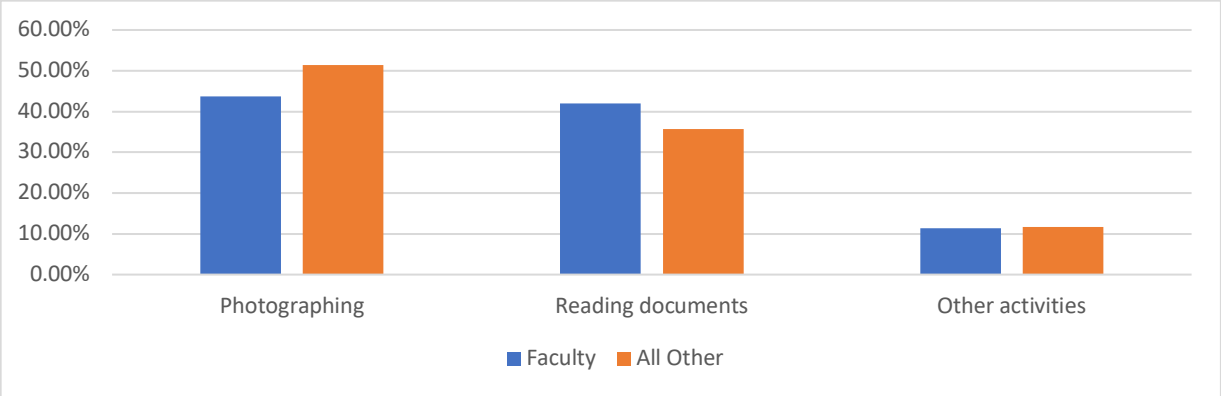

Figure 1: Percentage of Time at the Archive Doing a Given Activity, broken down by Tenured and Tenure-Track Faculty and Other Categories

These results can be read in a few ways. On the one hand, it may suggest that early career researchers have greater constraints on their research time. Building on Putnam's earlier argument,

[16] Stephanie Kingsley Brooks, "Search History: Making Research Transparent in the Digital Age," *Perspectives on History*, March 9, 2018, https://www.historians.org/publications-and-directories/perspectives-on-history/march-2018/search-history-making-research-transparent-in-the-digital-age.

as researchers gain in experience through tenure-track and tenured positions (this is not to say that they are "better" researchers, but do have stability of employment and the ability to professionally develop through dedicated research time), you would expect that they might have a better sense of what to photograph versus what is worth taking the time to read on site. By breaking down the categories even more granularly, we can see that graduate students also spend more time than tenure/tenure-track faculty taking photographs than reading the documents. Time is a scarce commodity, too, of course: only 59% of all respondents felt that they had "sufficient time to take all the pictures [they] had hoped to take," with 18% responding maybe and 22% a firm no. On the other hand, of course, perhaps this data just reflects the material reality of being a graduate student: on average, faculty can spend more time and money than graduate students.

Did respondents wish that they could have taken more photographs? In many cases, respondents were able to return to their archives – some 56% made a return trip to the primary archive (41% of those because they had run out of time on their first visit; others because they discovered other materials they wished to consult, either by reviewing the photographs they had taken (11%) or through consulting other research materials (22%). Of those who did not return, 51% of them felt that they had gathered all of the relevant materials – the rest, however, were not able to make a return trip despite wishing they could have, primarily due to cost. Ultimately, however, almost everybody surveyed who had used digital photography would do it again: 86% said "yes," 13% "maybe," and only 1% a firm "no", intending to switch from digital photography back to traditional methods of access.

Ultimately, then, we have seen a profound reshaping of the historian's experience in the archive. Despite some ambivalence about what digital photography has done to the *in situ* archival experience, there is a clear consensus that shorter research trips bring clear financial and work-life balance advantages, and the ability to instantly recall archival documents in full is advantageous during the writing and revision stage. Crucially, there is more fluidity between collecting and analysis than I had initially speculated going into the survey process. One respondent noted that they were researching as quickly as possible with an impending baby on the horizon, underscoring the accessibility gains brought by the shift towards widespread digital photography. The older model of sitting in an archive for months at a time worked for a minority of well-compensated and funded professionals with perhaps fewer family obligations, but this newer model opens up large-scale archival work to a much larger number of people with a variety of diverse family situations.

The picture is not all ideal, however. Graduate students in particular are spending more time taking photographs as opposed to reading documents, perhaps due to time constraints and overall experience levels. This has implications as they are less likely to be able to make a return trip, and I will return to some of this in the conclusions. However, the most telling finding was that ultimately, despite the understood disadvantages, those who have gone down the road of digital photography would overwhelmingly do so again in the future.

Working at the Desk: Exploring Thousands of Photographs at Home Base

What happens when the scholar returns home and has to process the thousands of photographs that they have taken in the archives? One of the respondents summed up a repeated refrain of the findings when they noted that the "process is anxiety-inducing because of the fear of *not* taking something and then the incredible amount of time it takes to file and organize the material afterward. In many ways the process just shifts the research time from the archives to elsewhere, which ends up being more cost effective in regard to travel but still time-consuming." Or, as another noted, "given the paltry cost of photographing documents, I am delaying the decision about a document's usefulness, leaving the decision for when I get home."

As with the issues raised in the previous section, there are advantages and disadvantages with this new process of doing most of the processing work at home with digital images, rather than ruminating over the sources at the archive itself. First, most scholars engage in sustainable practices around the preservation of their digital photos, in that most of the data is in a sustainable long-term file format and is sharable without software licenses or complicated databases. The advent of cloud-hosting services such as Dropbox, iCloud, or OneDrive – often supported by universities – makes it both easier to create an offsite backup of research materials as well as the ability to consult archival documents from anywhere (years of work can be pulled from the cloud and consulted on the fly on a smartphone). Second, there is a wide array of thoughtful research practices that are developing to incorporate digital archival photos, suggesting that there are many best practices that could be shared around emergent methods. Yet not all is rosy. Many researchers struggle to find the time to process the collected data, and several have their photos locked away in opaque systems that will present research data management challenges.

Yet one of the main benefits of moving to digital research data is that more attention is being paid to how to sustainably steward this material. For example, having photographs or objects placed into a proprietary database might lead to issues down the road in accessing them, whether

due to technological obsolescence or licensing issues. Fortunately, 80% of respondents are using files and folders on their system, with the remainder generally using specialized photo management software or other setups. A few use Tropy (https://tropy.org) or Confero (http://waterlooinnovations.com), specialized software designed for historians using digital photographs, although there are no clear trends here: some use FileMaker databases, others the legacy iPhoto Apple program, or even Excel spreadsheets or creating PDFs of everything.

Most photos taken were usable, although certainly not all. Given the number of respondents using smartphones or digital cameras sans tripod, it is unsurprising that some percentage of photographs would be unusable due to high amounts of blur or other production issues. Only 31% of respondents stated that all their photos were usable, 61% declared that "most" were, and an unfortunate 8% had less than three-quarters of their photographs usable. This represents an unfortunate waste of time and a source of considerable irritation. As one respondent noted, their photographs "were not very good. For the most part they were readable, but not high quality … many of the pictures came out blurry, which required some digital manipulation to make them readable." As memory becomes cheaper, and cloud storage options increasingly mean researchers are not held hostage to physical storage media, higher-resolution photos can now further help with the reading process.

That said, the sheer volume of photos leaves some overwhelmed. One noted: "I have found that I am less efficient at processing the research while at home on the computer and sometimes never do get to that work," whereas another noted that "I did discover that since I took so many photographs, I'm basically overwhelmed by the data and have wound up using very little of it … I think that at the archives where I was not allowed to take photographs, my research is almost better because I could only transcribe the absolutely most relevant bits." This suggests that training and more planning might help mitigate some of these research issues.

While some historians, it seems (not all), would prefer to have the time, circumstances, and funding to linger in an archive for months on end, most have apparently become converts to the digital photography approach, despite the loss of place-and-culture-based research. Some respondents thought that the pre-digital workflow almost seemed absurd:

> One time I was not allowed to bring my cellphone as a digital camera into the archives, as they only permitted the use of a large and heavy traditional camera. While I did enjoy my time spent reading that day, I couldn't help but worry that I had spent thousands of dollars and hundreds of hours only to sit in a silent room on another continent and read documents line by line. This work can be done at home with a coffee and some music!

Being able to work from reproduced originals similarly reduces room for error. A final word can go to this historian: "I have been lucky enough to be researching in the 21st century where cameras have always been accessible to me. I honestly cannot fathom how people did it before."

Supporting the Historian in the 21st Century

There are three main conclusions to be made in this exploration of how digital photography is transforming historical research. The first is that there should be additional policy supports and innovation. This will require alignment between SSHRC, Library and Archives Canada, and other major archival players, but we could in theory begin to leverage all of this collective activity that is happening around digitizing cultural heritage. Secondly, greater education and support is needed for historians as they live through this dramatic transformation. And finally, these findings underscore that "we are all digital now."

One proviso to the recommendations that follow from these conclusions is the rapid pace of technological change. In 2005, when Library and Archives Canada first allowed digital photography in their archives, the idea that within a decade scholars would be using smartphones – and uploading their photographs to cloud-based storage solutions as they work – was unimaginable. Mid-tier digital cameras in 2005 had somewhere between four and six megapixels (the number of pixels in an image); a current-generation iPhone 11 has twelve megapixel cameras on both front and back, meaning that photographs taken on a smartphone have doubled the resolution of these earlier digital cameras. More significantly, software improvements help to reduce noise and keep text straight on pages, improving the overall quality of photographs. Beyond change that has happened, it is hard to predict the future. Certainly, smartphone cameras will continue to improve. Even more exciting, highly-portable scanning solutions – such as the recent Kickstarter-backed piQx xcanex document scanner – provide high-quality, page-by-page scanners that are more akin to the book scanners used by the Internet Archive than a camera.[17] They use software algorithms designed to smooth out digitized papers, providing consistent and high-quality snaps that benefit both researcher and anybody they might want to share it with alike.

With this proviso in mind, let me turn to the implications of this work. First, there is room for policy innovation. One recurrent theme in the surveys relates to the dozens of researchers visiting reading rooms, in some cases photographing the same documents over and over again. As

[17] This is not meant to be an endorsement of the product. For more about this form of technology, see https://www.piqximaging.com.

one historian argued, "it's a waste of time to have all of us photographing over and over and over, none at professional resolution and all for private usage only." While this redundancy is not a new thing – historians have long been consulting the same files as other historians in their research – what has been made possible with digital photography is the prospect of sharing to reduce said redundant labour. Indeed, another theme in the surveys was that archives should try to make use of these photographs and that they should be "uploaded to a repository housed by the archives to facilitate research using these documents." While anecdotally several archives do encourage researchers to provide their digital photographs – and they might in turn share them with other researchers who make inquiries – this does not seem to be a systematically-documented practice.

There are many reasons for the status quo of individual researchers taking photographs for their personal use and study only. These include permissions, copyright, the duty to ensure the stewardship of materials, and the importance of usable metadata. It is not as simple as just taking digitized photographs and uploading them "somewhere" on the Web, even if it is to an institutional repository. Much of the labour of digitizing documents is not the actual scanning of the document, but the description and metadata that makes that document findable and usable for others. In other words, it's not a technical problem (platforms like Omeka or Mukurtu are reasonably easy to deploy and use for a variety of contexts) but one of labour.

A jumble of photographs without context, metadata, and description is just that: a jumble of photographs. While there exist other efforts that have prioritized volume over indexing and description – Canadiana.ca or the Internet Archive, for example – these have the added benefit that their collection scoping is transparent and individual volumes, monographs, and reels are complete. They are also not ideal systems for the discovery of new research questions and inquiries, but rather they facilitate the consultation of consult documents that one knows exists in the context of an existing research project – in the absence of a fond structure, keyword searching can find very specific documents, but any generic research query gets quickly overwhelmed.

Researchers can find their own photographs amidst their Tropy or file folder systems, but this is because they remember why certain photos were selected. Similarly, on rights, while it is true that many of these archival documents are not under copyright due to their age, they have been given to archives to steward their long-term preservation and access. Donors may not be happy that their material is suddenly "out there on the Web" for decontextualized access and consumption.[18]

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[18] Tara Robertson, "Digitization: Just Because You Can, Doesn't Mean You Should," *Tara Robertson* (blog), March 20, 2016, http://tararobertson.ca/2016/oob/.

While this risk assessment may vary depending on the nature of the collection and donor, in an era of a "social media gotcha," many individuals and private organizations or corporations may be understandably wary. Keeping positive relationships between archives and donors is critical to fostering mutual respect. Also, with the archive required to steward the physical copy over the long-term, if access is de-linked from the archived original, there may be thorny institutional issues around demonstrating collection use.

Library and Archives Canada's DigiLab presents an innovative path forward. The DigiLab "is a hands-on facility for users to digitize and contextualize LAC collections of value to their study, work and communities."[19] Both researcher and archive bring something to the DigiLab to help aid in the mass digitization of archival resources for individual researchers and the broader community more generally. DigiLab provides scanners, computers, training, metadata templates, allowing researchers to scan or take photographs of documents and connect their sources to high-quality metadata. LAC thus gets digitized documents with metadata to share with other researchers, and the researchers get high-quality digitized documents made with professional equipment (meaning the photos should all be high quality) alongside great metadata to facilitate future retrieval and contextualization. Already some of the material has made its way into the regular catalogue, although fears around errors are meaning that material will in the future be added to LAC's collaborative crowdsourcing platform Co-Lab for subsequent review and verification before final upload. As of June 2019, some 70 projects have generated 90,000 pages of digitized material.[20]

Yet there are still insufficient incentives for researchers to share their research data (alongside other challenges identified by Peter Baskerville and Kris Inwood elsewhere in this section). It is more time consuming to "properly" digitize them in a place like DigiLab than it would be to take personal-use snapshots instead. While some methodological historians who prefer to associate associate metadata with photographs in the archives may find DigiLab a quicker place to work in, others who focus on taking sheer volumes of photographs to work with entirely at home will find it slower. Given these differences, without incentives, apart from relying on the good citizenship instincts of a few historians (problematic given the unequal working conditions of historians and the various publication pressures we labour under), we simply cannot expect DigiLab to be a magic bullet. As of writing, the incentives for sharing research data simply are not there.

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[19] Library and Archives Canada, "DigiLab," revised 8 June 2017, https://www.bac-lac.gc.ca/eng/services-public/Pages/digilab.aspx, accessed 23 April 2019.

[20] Correspondence with Karine Gélinas, Project Manager of DigiLab; also based on a site visit in 2018.

Properly digitizing resources does take time, resources, and care. In the current situation, a historian can hastily reproduce materials to meet the standards of historical scholarship, without needing to meet this higher standard of formal digitization. There are also further barriers to research data sharing. For example, there is the fear that another researcher could swoop in and "scoop" the work of the person doing the collecting. For a graduate student or early career researcher, this could indeed be disastrous.

While one obvious solution is for the profession to begin to recognize the creation of research datasets as a scholarly contribution, similar to peer-reviewed articles or book chapters, effecting collective change in a profession is difficult. Only when hiring committees and, crucially, the anonymous referees who bolster scholars' cases for tenure and promotion, begin to consistently understand datasets as important work will we begin to see incentives begin to appear from within the profession. To begin this slow process of change, historians should make sure to *cite* the datasets that they are using; to not pretend that they are consulting original documents, but to note that they obtained them via Library and Archives Canada's website thanks to the efforts of colleagues in the DigiLab. In turn, Library and Archives Canada should explore various ways to highlight the discrete contributions of individuals to collection digitization.

The status quo, however, is ludicrous: so much duplicated effort to create middling-quality photographs of archival material. Just as DigiLab offers a way forward, then, so too can other parts of the Canadian research funding system. The foundation of these incentives are already in place. Indeed, research data management is a growing concern. The Social Sciences and Humanities Research Council (SSHRC) now looks for Canadian researchers to highlight their data management plans to steward and share data. Indeed, a strict reading of SSHRC's "Research Data Archiving Policy" suggests that research data such as "still and moving image and sound databases" or "other digital objects used for analytical purposes" would include digital photography as something which should be shared.[21] While at many archives this would collide with conditions of use, perhaps it could incentivize both the use of DigiLab at Library and Archives Canada and the creation of similar co-creation agreements at other institutions.

We have seen SSHRC use their powers to effect change within the historical profession. In 2015, SSHRC announced its open access policy, ensuring that articles based on research funded by

[21] Social Sciences and Humanities Research Council, "Research Data Archiving Policy," SSHRC Website, 9 December 2016, http://www.sshrc-crsh.gc.ca/about-au_sujet/policies-politiques/statements-enonces/edata-donnees_electroniques-eng.aspx, accessed 18 April 2019.

the agency were openly-accessible within one year of publication. This strikes me as a reasonable measure between the default of closed-access publications versus the absolutist open-access mandate of "Plan S."[22] Unlike a funding agency like the United States' National Endowment for the Humanities, SSHRC has dominant power in our profession due to its reasonable success rates and coverage within the humanities. In other words, when SSHRC makes policy, historians have a strong incentive to listen.

If SSHRC was to mandate some sort of research data sharing à la DigiLab – requiring research agreements between researcher and archive – we could begin to see a real leap forward in the realm of self-service archival reproduction. As a starter, I would propose a one or two-year rolling firewall on research data and funding being made available to provide a DigiLab or DigiLab-like experience in medium-sized and large archives around the country.

This would not be a perfect solution, of course, as the labour of digitizing moves towards the users themselves and away from the institutions. In a perfect world, LAC and other cultural institutions would digitize more of their holdings: either proactively based on perceived demand, or if they had the flexibility, in response to researcher requests. Mega-projects like Europe's Time Machine Project, which seeks to build "multidimensional models" spanning centuries – based off of the Venice Time Machine Project (which, unfortunately, is currently suspended as the partners resolve licensing and other data issues) – offers one way forward, yet come with pricetags in the hundreds of thousands of millions or, in the case of the broader European Time Machine Project, is a finalist for funding in the order of a billion euros.[23] Researchers should consider pressuring for investments in large-scale digitization projects, but for a pragmatic and practical approach, we should also begin to work within the resources at hand: leveraging collective digitization.

There is room for more training and education. Recall that 96% of historians had not received training in these practices, and almost half were at least open to the idea. There is profound uncertainty around best practices, marked especially with respect to the learning curve around the number of unusable photographs and about how to store this material. Historians would thus

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[22] Seth Denbo, "Plan S and the Humanities," *Perspectives on History*, March 2019, https://www.historians.org/publications-and-directories/perspectives-on-history/march-2019/plan-s-and-the-humanities-funders-push-harder-on-open-access.

[23] Alison Abbott, "Europe's next €1-billion Science Projects: Six Teams Make it to Final Round," *Nature*, 11 February 2019, https://www.nature.com/articles/d41586-019-00541-y. For more on the Time Machine project see https://www.timemachine.eu/discover/ and the great overview in Alison Abbott, "The 'Time Machine' Reconstructing Ancient Venice's Social Networks," *Nature*, 14 June 2017, https://www.nature.com/news/the-time-machine-reconstructing-ancient-venice-s-social-networks-1.22147.

benefit from a period of instruction, either as part of a research methods course (at the undergraduate as well as graduate level) or a professional development seminar series, covering the following issues:

- *Photography best practices*: There is work to be done on ensuring photographs are usable all of the time, given the amount of time and energy devoted to their creation. Best practices include the use of a tripod (if allowed), a consistent delineated photography canvas, resolution to be used, and device recommendations.
- *Digital organization and preservation best practices*: There are a wide variety of practices out there: from putting photographs into Excel or database software, to file folders and systems, to specialized software like Tropy. Recommendations should be made around the most versatile mechanism that ensures future use, ideally having photos accessible to the file system whether through Tropy or another mechanism. Additionally, photographs should be stored in a sustainable way: not just on a personal hard drive, but in some combination of cloud and local storage.
- *Selection Mechanisms*: A non-trivial number of respondents to this survey spoke of "randomly" taking photographs. While traditional archival research has always involved serendipity, the slower pace of research allowed a researcher to guide their investigations while working in place; it was perhaps not as random or serendipitous as it seemed. Given the pace of digital photography, it may now truly be "random." Given how fundamental digital photography is now to our research practice, this is not ideal. In some cases, a better workflow from finding aids to photographs selected (i.e. crafting an action plan before physically attending the archive) would help. In other cases, problems arise because finding aids are not digitized, a consistent wish of most historians. Scholars should be encouraged to develop realistic and feasible research plans for their time in the archive.

More importantly, this proposed curriculum would bring together scholars in a community of practice, and also recognize that photographing records is a core part of the historian's workflow, rather than an appendage undeserving of specific reflection. Our research process is mediated through these devices, requiring conscious and critical reflection.

CONCLUSION

Historians must recognize that we are *all* digital now. There is a discrete field, Digital History, concerned in part with the impact that new media and emerging technologies are having on

historical practice, but that can obscure the digital transformation our entire profession is undertaking. Just as our work with digitized newspapers, for example, is mediated through search portals, our engagement with archival documents is in turn mediated through the lenses of digital cameras and smartphones. This is not a bad thing, and in many cases it can be clear that it has had tremendous impact not only on how we can recall information during the writing process but also by freeing up the two resources of time and money, but it is a process that needs to be understood.

The last twenty years have seen a dramatic reshaping of historical practice, marked by thousands of photographs, shorter researcher trips, and lots more data; yet some regret in that photographs are occasionally unusable, documents are selected at the very stage in the research process when the researcher might know least about the project, and many scholars confront mountains of files and feel overwhelmed by the sheer scale at work. In sum: advantages and disadvantages. I tend to think that the former far outweigh the latter, but we are seeing a change in how historical research is carried out in the 21st century. The next time we capture documents through the lens of a smartphone or a digital camera, we should at least pause and reflect on just how our research practices have adapted to these new technologies.

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