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Brent M. Rogers

*University of Nebraska at Lincoln*

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# The Historical Community and the Digital Future

Brent Rogers

*University of Nebraska-Lincoln*

## Abstract

The historical community is undergoing change. Computers, digital tools, the Web, and online resource repositories have created a revolution in teaching, research, scholarship, outreach, and thought. How the digital age impacts history remains a looming concern. This paper will explore the digital age and the serious myriad questions facing the historical community now and in the future. With unfettered access to countless historical resources via online archives and databases, the Web provides an exceptional space for historians to research, discover teaching aides, and develop new thought. Fluid in content and form, the dynamic digital media changes the way we teach, research, and interpret history. Although skepticism currently exists within the historical profession, digital historical scholarship has a unique ability to connect with broader, more diverse audiences. Even with the great and rapid access to digitized documents students and professionals now enjoy, investment in the future to maintain the historical record and provide access to future history remains crucial. Preserving born-digital records represents a tremendous concern as archives and archivists do not have practical methods to maintain those records, raising the probability of losing contemporary documents. Indeed, digital information and the creation of electronic records are rapidly revolutionizing archival work and storing digital information, but there is more at stake for professionals in the humanities and particularly historians. Preserving born-digital records will determine future research and what topics historians can investigate. Important evidentiary pieces, like e-mail and memoranda, created digitally may not survive. There remains a continuing uncertainty about the future of digital information and history, one that if not considered will have a detrimental impact on future teaching, research, scholarship, knowledge, and memory.

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Computers and digital tools available for teaching, research, analysis, and scholarship have increased in importance as part of the historical profession. With digital tools such as databases, interactive maps, word clouds, textual analysis, and audiovisual presentations, the practice of researching, teaching, and presenting the past has transformed dramatically since computers and the World Wide Web entered the lives of historians. Dramatic technological change provides historians rapid access to sources and new mechanisms to perform their craft. Coupled with technological change, historians in this constantly changing historical landscape must also adapt to altering methodologies, reading and researching in digital form, and visualizing new connections as reason and understanding of the past evolves. Even more pertinent for the future of history is maintaining and preserving the records created in the digital age.

More so than ever, humans learn on the web or in digital environments. Surfing online, humans learn ways to piece together bits of information for themselves. As Tim Berners-Lee, creator of the World Wide Web, reveals, the web, through its links, makes the computer behave more like the human brain with an innate ability to link random bits of data.<sup>1</sup> Digital tools assist the human mind intuitively navigate the networked maze that is the Web by helping humans remember connections to otherwise unconnected information. Hyperlinks embedded in web pages open new windows of discovery, thereby tapping into human curiosity.

Computers and the web have a determining impact on cultural values, social structure, research, study and learning habits. Technology, therefore, transforms methods of learning by introducing machine and web-based elements in the classroom. While Power-Point presentations, for example, promote linear learning and may not represent the best use of computing in the classroom, they have become popular for both students and instructors as a way to present information visually.<sup>2</sup>

In this age of media saturation, students expect multimedia integration in the classroom. History resources on the web open new possibilities for historians and history teachers to instruct students through non-traditional, non-linear documents and interpretations.<sup>3</sup> Tools, such as the *Digital History Reader* developed at Virginia Tech University, introduce students to a wide array of primary sources, historiographical trends, and historical methodologies online.<sup>4</sup> Harnessing technology streamlines students' engagement with documentary evidence, allowing instructors to demonstrate more thoughtful and scrupulous historical analysis and interpretation in an interactive media rather than forcing students to absorb information via lectures and textbooks.

Scholars and students alike now have seemingly endless and ready access to a wealth of primary sources, books, and articles related to any subject.<sup>5</sup> Through web-based databases and resource repositories such as Google Scholar, the Library of Congress, WorldCat, EBSCO, America History & Life, JSTOR, and others, historians and humanists find their work processes simplified. Prior to the advent of such digital databases and repositories, accessing historical resources required going to a physical library, locating the source, and slogging through it for even the smallest piece of information. The web cuts that process down substantially as web searches conveniently bring information to one's computer screen saving valuable time and energy. Digital archives, libraries, and databases open up new possibilities for research in historical documents, available for anyone with the appropriate technology for access.<sup>6</sup> Despite the seemingly endless access, students and scholars should not limit themselves to researching in the digital realm because only a small fraction of the historical record is available in digital form.

Regardless, in a self-published article titled "The Pasts and Futures of Digital History," historian Edward L. Ayers asserts, "Digital archives stand as yet another manifestation of new thinking... Such archives take advantage of the mass, multiplicity, speed, reiteration, reflexivity, and precision offered by computers."<sup>7</sup> Digital archives and digitally based research help move historians toward more complex, more literary forms of narrative. Placing specialized source material,

tools, and expertise together in a digital environment aids in the process of intellectual work and the production of new knowledge.<sup>8</sup> By immersion in the digital realm, historians can deal more effectively with multiple sequences, voices, and outcomes to spread contextual wisdom of the interrelatedness of experience. Historians can do more, reach more people, store more data, give readers more varied sources, get more historical materials into classrooms, get students more access, and hear more perspectives in a digital environment.<sup>9</sup>

Digital technology also provides historians with the unique power to arrange ideas and analysis in an unconstrained way. In his article on social and semantic computing for historical scholarship, Daniel J. Cohen asserts that computing allows the sharing and aggregation of hidden enlightenment. By stockpiling that mass of information in a venue and through a suitable media, all readers can visualize interrelationships between information and explore sources a meaningful way. Therefore, digital history will help historians discover new cognition and create new interpretations, which could have large ramifications on the epistemology and pedagogy of the historical field.

With more sources digitized and placed online, not to mention the contemporary sources created and existing in electronic form, researchers require sophisticated digital tools to categorize scholarly resources.<sup>10</sup> Because academics cannot conscientiously keep abreast of current thought even in a restricted field, mechanical aid can assist in comprehending the summation of that knowledge. New tools like Zotero – a tool that helps with collection, management, and citation of research sources – and professional bookmarking tools like del.icio.us – a tool that allows one to gather, organize, and search resources on the web – enable historians to manage information and data more efficiently.<sup>11</sup>

While digital archives and other resource repositories online provide the information, and certainly offer flexibility of research and exploration, digital historical scholarship makes new intellectual connections from that material, thus providing new thought and new comprehension. Computer technology can follow and analyze the tentative connective relationships that define much of our society's workings, unveiling entirely new ways to visualize our world. Histo-

rians can create distinctive, layered, and coherent forms of narrative, analysis, and interpretation that adequately exploit the possibilities offered by technological developments. It is not simply collecting diverse materials on a subject, but making sense of that collected evidence and weaving it together to construct an understandable story.

Digital historical scholarship provides greater transparency in terms of method and source interpretation. The reader no longer has to take the author at their word; through digital historical capabilities, they can access the evidence that they would otherwise never see and inspect it for themselves. At length, historians have attempted to convey complexity through words, footnotes, and appendices in print form. Most historians will concur that print form does not embrace a fraction of the past's complexity.<sup>12</sup> Weaving together text and source, digital history embodies historical complexity on screen and provides a mode to unlock the store of information and human knowledge hidden in archives and books and combine them onto one widely used medium. The "Differences Slavery Made: A Close Analysis of Two American Communities," a digital article of Ayers and William G. Thomas, III unveils this unique form of professional insight on the Web, where primary sources, analysis, and interactive maps intertwine to create a new layer of historical complexity not reproducible on paper.<sup>13</sup> In no book can one make the associational links to disparate information in an understandable form as made possible in digital formats. The digital realm thus provides new avenues for enhanced dialogue and interactivity amongst professional historians and readers, opening professional history to a broader, more diverse audience previously restrained in the confines of print publications.

As the web flourishes and expands, people turn first to the web for information and soon will go nowhere else. Great potential exists for utilizing history within a digital environment to advance and free historical erudition from the bounds of written texts and make it more accessible to broader audiences. The public historical sphere encourages access not simply to existing historical resources, but also to the new modes of thinking, authority, and understanding for a diverse audience. Although historians once enjoyed a broad audience, Edward Ayers notes that most of the academy's best work now

seems disconnected from the desires of the general reading public.<sup>14</sup> Digital history and technological tools can facilitate a re-connection with the public, further indicating the high importance for historians to be at the front of the digital conversation.

Nevertheless, skepticism remains within the historical profession regarding digital scholarship. The historical profession has yet to generate professional and peer review standards for digital scholarship. Digital historians Daniel Cohen and Roy Rosenzweig indicate, "When you move your history online, you are entering a less structured and controlled environment than the history monograph, the scholarly journal, the history museum, or the history classroom."<sup>15</sup> Further, historian Carl Smith asserts, as do many other digital history advocates, that "the only way to see to it that there is serious history on the Web is to put it there ourselves."<sup>16</sup> Those in favor of web-based history advise colleagues to take control and utilize new digital media tools, to have an active hand in creating and maintaining digital history. Historians receive much less encouragement, however, from the historical profession at large because digital history as serious scholarship remains unconsidered for promotion and tenure purposes.

Edward Ayers convinces historians that they need to take on more digital projects to ensure that the profession at large takes seriously this new expert form. According to Ayers, "until we build scholarship that can hold its own with the best work done on paper, tenure and promotion will not follow...Young scholars who dream of new kinds of scholarship can read the situation: Steer clear of the major technological change of our time. Play it safe. Stick to paper."<sup>17</sup> The ubiquity of computers and the displayed power and potential of the Web for historical scholarship suggests that this should not be the message sent, particularly to new historians. The ancient discipline of history has begun to metamorphose, so too must its presentation. Orville Vernon Burton suggests that history "is badly in need of models beyond the monograph ... and where scholarship itself is in need of new genres and new strategies for reaching new audiences."<sup>18</sup> Digital history represents this new genre. Yet in challenging and re-creating the historical discipline, historians as a com-

munity must come to understand digital complexity and discuss it openly in order to assess its enduring value.

Research, teaching, and scholarly analysis are not the only aspects in flux for historians in the digital age; preserving the cache of digital information currently created represents perhaps the most challenging aspect of the digital age. As custodians of memory, archivists, librarians, and other heritage preservationists face the multi-faceted and daunting task of determining how to preserve the surge of electronically generated information for posterity. Whereas parchments, paper documents, and engravings can remain readable for thousands of years and degrade slowly, computer produced electronic records disappear as quickly as created. Contemporary digital records can fail completely with just a single damaged bit, becoming unreadable.<sup>19</sup> Research in digital records reveals an uncertain future. What will historians of the future study and use as an evidentiary base concerning the late 1900s and early 2000s? Without a historical record for this era, how will historians implement the digital tools to form their interpretation and analysis?

The extraordinary facility to organize, save, and circulate information is more easily lost because digital storage methods, while vastly more capacious than the paper they are rapidly replacing, have proved fallible.<sup>20</sup> Commentator Brad Reagan posits, “digital information is so simple to create and store, we naturally think it will be easily and accurately preserved for the future. Nothing could be further from the truth. In fact, our digital information — everything from photos of loved ones to diagrams of Navy ships — is at risk of degrading, becoming unreadable or disappearing altogether.”<sup>21</sup> Lost digital information limits the amount of information available for contemporary and future public use, as nothing tangible will exist for scholarly inquiry.<sup>22</sup>

A fundamental shift in the nature of records requires reassessment of not only, preservation methods, but also how future researchers might use them.<sup>23</sup> Local, state, and federal governments generate complex and voluminous digital information every day. In 2000, the United States National Archives and Records Administration identified more than 4,500 different digital data file types used by



the federal government.<sup>24</sup> Today, more than ever, government documentation originates and spends most of its life cycle in electronic form, typically appearing only on a government Web site and never in print.<sup>25</sup> The state of California, for instance, no longer publishes many of its government documents and reports, including the Roster of Public Officials or the certified lists of candidates for elections, making them available exclusively in digital form.<sup>26</sup>

Personal records, such as letters and diaries, and other non-governmental records remain crucial sources of historical data. Since the advent of e-mail and social networking in a digital environment, people communicate less via pen and paper and more via computer blogs, e-mails, or instant messages. Recently, e-mail preservation has received significant press relating to White House correspondence. Despite recovery efforts, an entire week's worth of vital e-mail from Vice President Dick Cheney's office went missing. A 2005 government analysis estimated that more than 1,000 days of White House e-mail were missing from January 2003 to August 2005.<sup>27</sup> Without those e-mails and other digitally created memoranda, current justice officials cannot adequately complete a probe into the White House's handling of information. Moreover, future researchers will not be able to ascertain much about the White House's day-to-day activities. Although most government agencies started using e-mail and word processing in the mid-1980s, the National Archives still does not require digital records retained in that form and governmental employees profess confusion over whether they should preserve electronic files.<sup>28</sup> Revolutionizing archival work, the proliferating digital information and electronic records pose a tremendous problem for history's future.

Non-government individuals pose an even greater problem in maintaining their personal correspondence for posterity. Even if a person conscientiously saved all of their e-mail or electronic personal papers to a disc, the archives that receives that disc years later probably will not have the technical capabilities to read or access the saved information. The unwarranted assumption that archives can appraise and accession records many years after their creation will not work in the digital era because of digital information's inherent fragility.<sup>29</sup>

In a recent newspaper article, archivist Paul Eisloeffel notes, “There’s going to be a ‘dark age’ for historians from about 1980 on.”<sup>30</sup> Moreover, Minnesota State CIO Peter Quinn states, “this is a significant issue that goes well beyond governments ... If the general populace thought their kids or grandkids couldn’t get at a historical document—like you can walk into a state archive or state library today—I think they’d be pretty incensed.”<sup>31</sup> Government, academic, and historical archives face a significant challenge in preserving these electronic records due to their diverse nature and the large volumes of electronic records already in existence, complicated by the lack of appropriate tools and experience in electronic records management.

The rising problems of electronic records preservation threaten the maintenance of the historical record, a threat that if left unanswered, will have a detrimental impact on future scholarship, teaching, learning, and memory. Preserving digital information remains essential to the maintenance and the public’s accessibility to history, historical documents, and societal operations. The threat of lost or corrupted data faces anyone or organization who relies on digital media to store documents, video, photographs, and other electronic information.<sup>32</sup> In today’s technological culture, virtually everyone faces such a threat. Losing contemporary digital information and government created electronic records will have a prodigious impact on history and availability of historical information to the public now and for posterity creating a gap in historical memory.

Efforts made to save contemporary digital information prove few and lackluster. The Internet Archive, a private organization that began archiving the web in 1996, has become the Web’s largest database and library, offering public access to the collection through the “Wayback Machine.” According to Roy Rosenzweig, by February 2002, “the Internet Archive had gathered a monumental collection of more than 100 terabytes of web data—about 10 billion web pages or five times all the books in the Library of Congress—and was gobbling up 12 terabytes more each month.”<sup>33</sup> The Internet Archive, however, remains far from the complete solution to the problem of digital preservation primarily because it does not deal with the born-digital records that vex the National Archives and other

repositories. While it may save websites, it does not archive much formally published literature, including e-books and journals, gated from public view.<sup>34</sup> Furthermore, the Internet Archive cannot preserve hypertextually linked web pages. As Rosenzweig notes, “to save a single page in its full complexity could ultimately require you to preserve the entire web, because virtually every web page is linked to every other.” Therefore, anyone who searches the Internet Archive regularly encounters such messages as “Not in Archive” and “File Location Error.”<sup>35</sup>

The historical professional landscape is changing. More than a century ago, former American Historical Association president Justin Winsor, pled with the profession to convince Congress to preserve and provide access to existing historical manuscripts for the study of history. That need has risen again. Historians in the digital age need to call again for preservation and access to existing and newly created records to allow historians to engage history broadly with the promises and potential pitfalls of the digital age.<sup>36</sup> Historians may think that the culture of abundance created by ready access to online resources will continue and if preservation in the digital age occurs, the astonishingly rapid accumulation of digital data should cause one to consider that future historians may face information overload.<sup>37</sup> With preservation uncertain, however, historians may face a paradigm shift from ready access and information overload to a historical dark age with little to no evidentiary base. As digital history progresses in its new scholarship stage, only professional historians can decide whether professional history will participate in the immersive, interactive, and intoxicating possibilities available. Already coming to fruition, the inevitability of digital history encourages historians to get involved and embrace the changes to create new modes of historical thought and interpretation while preventing information loss for the future.

## Notes

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- 13 William G. Thomas, III and Edward L. Ayers, "The Differences Slavery Made: A Close Analysis of Two American Communities," available from <http://www.vcdh.virginia.edu/AHR/> (accessed 14 March 2008). The evidentiary base for this digital article comes primarily from the "Valley of the Shadow Project." The Valley Project is a digital archive of primary sources documenting the lives of people in Augusta County, Virginia and Franklin County, Pennsylvania during the United States Civil War era. For more information, see <http://valley.vcdh.virginia.edu/usingvalley/valleyguide.html>.
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