

## **Digitization – Is It a Viable Preservation Alternative?**

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The 1990s have been defined as the “decade of digitization” (Lee 31), which has been hailed by its proponents as a true “cause for celebration” (Lee 31). Yet, other voices have warned of the “very real threat,” which digitization, and more specifically the problem of digital preservation, entails – “widespread ‘information wipe-out’” and thus losing much of our collective memory (Sanders 48). The question then arises—why is there such a wide divergence of opinions? In an attempt to answer the question, this paper will consider some of the main advantages and disadvantages of the new digital technologies and will examine their implications for the traditional roles of the institutions which preserve our collective memory: libraries and archives. Furthermore, some aspects of the digital William Blake Archive will be analyzed as an illustration of a successful application of digitization in the Humanities.

Digitization is a complex phenomenon, a testimony for which is the existence of various definitions for it. In a strict sense “digitization” is the conversion of analog materials, that is, printed text, visual materials, audio and video tape, into digital form, which is why “digitization” and “conversion” are often used synonymously (Lee 29). Yet, judging by the main projects that have taken place in the 1990s, as Stuart Lee, a specialist in computer services at Oxford University informs us, most people equate digitization with digital imaging—that is, “the creation of a still digital facsimile of a source item,” such as a rare manuscript, painting, photograph, slide, and so on (29). The 1990s were also known as the time of experimentation with imaging technologies, which in many ways appeared to be revolutionary. For example, digital technology has allowed people to generate, process, reformat, and share data in new, creative, flexible, and easy ways, which, in turn, has led to transforming the ways they communicate, learn, and even think, according to Smith (Smith 3). The technologies have also altered and will continue to alter the way we preserve information, as Walters points out, and “how we perceive preservation in the larger schemes of archival management and information management” (Walters 484). The way library is being perceived as a “library without walls” constitutes the new model of library operation. Here Walters is amazingly accurate in his prediction back in 1995 that the library “will deliver information via computer networks to users distributed across distant locations. The same distributed access to distant users can happen for archives,” he concludes (484).

When these effects are evaluated, however, it is “easy to overstate—and to underestimate,” as Smith underscores, “the transformative power of a new technology, especially when we do not yet understand the full implications of its many applications” (Smith 3).

Nevertheless, she continues, “people have embraced this technology enthusiastically” as if conversion to digital form “per se were a self-evident good” (1999, 3). Yet, Smith further admonishes, if this technology does, indeed, prove to be revolutionary, we cannot predict its full impact, and we should be cautious about its limitations as well (1999, 3). Lee expresses the same concern, utilizing the vivid metaphor of the story of “The Emperor’s New Clothes”—just because “the crowd seemingly agrees on something does not necessarily makes it correct” (Lee 29). Thus, it is all the more important, Smith asserts, to make an early assessment of the impacts of digital technologies on the traditional functions of libraries and archives such as “collecting, preserving, and making information accessible”( 3), so that false expectations and illusions are avoided (2), moreover, a ”critical mass of experience” has been accumulated among large and small institutions alike, digitizing their collections – from the Library of Congress and the National Archives to Huntington and Denver Public libraries, she further states (3).

Digital information, by its very nature, is flexible. Digital texts, unlike texts printed on paper, are fixed “neither in essence nor in form” (Smith 3). Thus they can be easily manipulated, changed without trace of emendations, or compressed for storage. For example, voluminous encyclopedias can be scanned and easily stored on a computer drive from where they can be searched and retrieved in many ways that would have been impossible to achieve from an analog copy, be it on paper or microfilm. Digital surrogates of images are also easy to manipulate in terms of size, grouping, placement, color and shades, among other properties. Another advantage of digital documents is that they can be copied and distributed endless number of times without any degradation in quality on account of the act of copying, which is often the case with analog materials (Smith 4).

By far the most obvious benefit of digitization is the extraordinary possibility it provides for access to information products and cultural works. Traditionally, Schwartz acknowledges, “visual materials research, like any other historical research, involves long hours in an archives, where, in fact, paintings and photographs are far less accessible—cannot be viewed at all times, cannot be viewed without supervision, ... and often must be consulted only in special vaults or viewing spaces” (114). An additional impediment is posed if the materials are located in remote places and the researcher has to travel to consult them, which may involve travel, time, and/or expenses (Lee 30). By contrast, enabled by the new technologies, including networked information systems such as the Internet, researchers can view digital facsimiles of the artifacts, from the comfort of their homes, can make comparisons, collate their own collections, and can develop effective and efficient research strategies (30).

Moreover, very often the quality of the digital surrogate is good enough, so that there is no need to consult the original. In fact, the quality of the digital facsimile can even be higher than that of the original, as reported by the Cornell group (including the Cornell University and eleven research libraries in the state of New York), which carried out one of the pilot projects in the early 1990s, in order to “test and evaluate the use of digital image technology to preserve a wide array of archival material” (quoted in Walters 482). The report further claims that “the

digitally-produced paper reproductions ‘rendered a high degree of legibility and fidelity to the originals.’” As Walters asserts, “pilot projects like this one are important as demonstrations of the plausibility of digital imaging in archives” (482).

Thus, the clear benefit of such a system, is that both the researcher and the artifact are liberated from the limitations of traditional access methods (Lee 30). This leads us to the other traditional role of libraries and archives that is being transformed by the new digital technologies—preservation. For Walters, “the most intriguing area” for developments in preservation revolved around “the use of digital technology in preservation reformatting” (Walters 480). On the basis of the optimistic findings of several other pilot projects during the period 1992-1994, Walters further declares that “experimentation in the digital capture of information may one day provide another archival quality preservation option for the archivist’s tool box” (480). Similar optimism is expressed by Conway: “Indeed, one of the principle reasons that preservation specialists in the early 1990s were able to accept the risks of newly marketed digital-imaging technologies was the promise of a much higher level of reproduction quality than other well-established, standards-compliant technologies” (Conway, 2010, 70). This optimism, however, coexisted with the awareness that there were some obstacles to be surmounted “before imaging for preservation can become as viable a reformatting technique as microfilming,” as some of the participants in those early projects acknowledged: obsolescence of hardware and software – both are required so that access to the digital information, which is not eye-legible, is ensured; incompatibility—these systems are often in proprietary forms, that is, produced by different corporations, which means that they “cannot yet interface and transfer data seamlessly” (Walters 480); as well as the lack of standards for imaging systems and data transmission (481).

There are other voices, however, which are much more skeptical of the “promise” of the new digital technology, which can render digital documents unreadable, unless they are refreshed, ““every time there’s a change in technology—or every 18 months, whichever comes first,”” according to Peter Lyman, former University of California, Berkeley librarian (quoted in Brand 46). Obviously, hardly any comparison can be stood with the well tested and tried preservation reformatting media: acid-free paper and microfilm, both projected to last about 500 years if kept in a stable environment, not to mention materials such as stone, clay, and parchment, which have preserved information recorded on them hundreds, even thousands years ago (Brand 46-47). Hence, the prognosis of the supercomputer designer Danny Hillis, that “we are now in a period that may be a maddening blank to future historians—a Dark Age—because nearly all of our art, science, news, and other records are being created and stored on media that we know can’t outlast even our lifetimes” (Brand 47) might well be warranted.

Charles Dollar, in his book *Archival Theory and Information Technologies: The impact of Information Technologies on Archival Principles and Methods*, as early as 1992, even redefines the very concept of preservation. According to Dollar the permanent preservation of recorded information is “an impossible goal to achieve;” instead, he replaces the principle of

“permanent value” with the principle of “continuing value,” which recognizes the possibility for some records, including electronic ones, to lose their value over time. Dollar concludes that “the emphasis of traditional records preservation on the physical carrier on information provides little guidance for dealing with such critical issues as technology obsolescence and access to electronic records” (quoted in Walters 484). Thus, he proposes a new definition of preservation of electronic records, which accentuates their “technical readability and intelligibility to humans over time and across technologies,” according to Walters (484). To put it in Smith’s words, “ensuring continued access to digital data” becomes critical for the preservation of digital materials (Smith 5). Such definition is also in accordance with Conway’s observation from 1996: “The digital world transforms traditional preservation concepts from protecting the physical integrity of the object to specifying the creation and maintenance of the object whose intellectual integrity is its primary characteristic” (Conway, 1996, 3). This shift is explained by the already mentioned fact that “digital information does not have a fixed physical form in the ordinary sense” (Smith, 2006, 217). Nevertheless, when the artifact is reformatted and copied its intellectual content is preserved (Smith, 2006, 217). Smith compares this process with translating from one language to another. “A good translation,” she argues, “like good recopying, is one that loses the least amount of original content and intent” (217).

Thus, the traditional notion of preservation is seriously challenged not only technically, but also conceptually. Smith rightly observes, that although from the creator’s viewpoint the plasticity of the digital information may be a chief asset, from the perspective of a library or archives, whose mandate granted by society is to collect and preserve documents that are final and definitive, this causes significant complications – which version of the computer file should be archived? What is more, the very idea of permanence is fundamentally challenged, and hence, the role of archives and libraries, which “were created to collect and make available that which has long-term value” (Smith 4).

Smith further emphasizes the existence of other important aspects of preservation, which have also been seriously undermined by the digital technology: the work’s provenance, authenticity and integrity. Unless the authenticity of any kind of material in digital form is ascertained, digitization, cannot be called preservation (Smith 5). Thus, she concludes, “digital resources are at their best when facilitating access to information and weakest when assigned ... the responsibility of preservation” (5). She further clarifies that “because digitization is a type of reformatting, like microfilming, it is often confused with preservation microfilming and seen as a superior, if as yet more expensive, form of preservation reformatting” (5).

Cost is another tangled issue with regard to digitization. Although estimates have been made, comparing, for example, digitization with photocopying as a means of preservation and access, demonstrating that, “if the technology is all in place to digitize the item and deliver it across networks, and if the item is in reasonable demand, in most cases, digitization and delivery of the source item by electronic means quickly becomes cost-effective” (Lee 30), the number of variables involved in the formation of the total costs are “bewildering,” to quote Lee again (29).

If all factors are taken into full account, the real unit cost could be “three to four times” the cost of conversion only (30). The issue can become even more “contentious,” when digitization is compared with acquisition. Lee argues that, very often, because of the “perceived ‘prestige,’” institutions have chosen the venture of having a digitization project without ever asking if they were receiving better value from it when compared with traditional collection development activities (30). Instead, he suggests, when decisions regarding digitization are to be made, institutions should focus on the question: which would be the most useful to their patrons? Here a possible dilemma might be: to concentrate on rare or unique items which will be of interest to a small group of scholars, or to cater for the needs of a bigger audience. Lee’s cautious advice is to judge the worth of the projects on “a case-by-case basis,” without forgetting that the primary aim of institutions like libraries and archives is “to meet the requirements of the readers and to provide them with the resources they really need to use” (31).

So far, it has become evident that digitization used for preservation purposes is a very complex issue indeed, stemming from the complex nature of the digital information itself, which is inextricably intertwined with both technology, that is, obsolescence of digital formats and platforms, and the human factor. It is somewhat alarming to read the conclusion of the computer designer Hillis, still back in 1998 at a conference on “Digital Continuity” [note the title of this conference!], that “the real problem is not technological. We have the technical understanding to solve problems such as digital degradation,” with which Brand agrees as well, asserting that what needs to be done is to “convert the design of software from brittle to resilient, from heedlessly headlong to responsible, and from time-corrupted to time-embracing” (Brand 48). “What we don’t have yet in our digital culture,” Hillis continues, “is the habit of long-term thinking that supports preservation.” He further emphasizes that it is important that people realize that in early 2000s we are at the beginning of something, not at the end. Once this idea is accepted, “the engineers who are thinking about the next digital medium will naturally think about how it lasts.” (quoted in Brand 48). Brand himself, on a more pessimistic note, adds that “it will take insistent, knowledgeable, unremitting demand from librarians and archivists for long-lived digital media, or the engineers will never take the problem seriously enough” (48), stressing that because digital preservation requires “constant effort and expense, ... there is no business case for archives;” hence, the creators of digital data “rarely have the incentive—or skills, or continuity—to preserve their material. It’s a task for long-lived nonprofit organizations such as libraries, universities, and government agencies, which may or may not have the mandate and funding to do the job” (47).

On the other hand, it is encouraging to see that some progress has been made since the publication of Brand’s article in 1999. In 2003 similar concerns were raised on an international level by the National Library of Australia, which were subsequently included in the Charter on the Preservation of Digital Heritage adopted by UNESCO in the same year, specifically in Article 3, which points out not only the technical factors that endanger the life of digital materials, but more importantly the “uncertainties about resources, responsibilities, and methods

for maintenance and preservation, and the lack of supportive legislation” (Lusenet 165). Change of attitude on “advocacy, policies, and legal framework” has been recommended (165). There has also been a strong realization that governmental support is crucial, particularly for publicly funded national heritage institutions, so that these institutions can act from a strong position when involved in “the design of information systems for record-creating agencies” (Lusenet 166). This in turn is important because digital preservation “begins with the design of reliable systems and procedures which will produce authentic and stable digital objects,” as stated in Article 5 of the UNESCO Charter (166). As a standard-setting instrument, the ultimate aim of this document is to encourage member states to take the necessary action to prompt their governments to adopt appropriate legislation on a national preservation policy (166).

In terms of legislation, real headway was made on a national level when the US Congress passed a law and provided funding for the first systematic digital preservation program—the National Digital Information Infrastructure and Preservation Program (NDIIPP), established by the Library of Congress in 2003. Realizing the real need for cooperative approaches, the program has encouraged “federal, research, non-profit, philanthropic, library, and business organizations” to create and maintain alliances, cooperatives, and initiatives in an effort to form a “national network of partners collaborating on digital preservation” (Skinner and Halbert 381). A good example of such collaborative venture is the MetaArchive Initiative. Set up in 2004 by eight universities, three years later it “transitioned from a project to a program with the founding of the MetaArchive Cooperative in 2007,” (371), which is a testimony to its successful operation. The participants in the Collaborative have emphasized that their “ongoing relationship with the Library of Congress and other NDIIPP-supported groups” is among the key factors for the success of their work (Skinner and Halbert 380).

Another example of an extremely successful cooperative work for digital preservation is the electronic William Blake Archive launched in 1996 as one of the first comprehensive, free on-line projects, aiming at collecting, preserving, and making accessible to a degree so far impossible the reunified corpus of Blake’s oeuvre. The fact that 14 years later, in 2010 the project has entered the fourth phase of its development, constantly being updated with new materials and features testifies to its viability and worth as an archival (preservation), scholarly and educational tool.

Similarly to the MetaArchive Initiative, a crucial factor for the success of this hypermedia archive is the continuing support of the Library of Congress and the National Endowment for the Humanities, as well as the support of philanthropic and charity institutions, corporate companies, and three academic and research institutions, among which is the Institute for Advanced Technology in the Humanities at the University of Virginia, whose technical support in the early years of the project was/proved to be vital. Furthermore, the cooperation of the international group of 27 libraries, galleries and museums from three continents as well as private collectors, who have given the editors their permission to reproduce and display their holdings free of charge over the World Wide Web, is truly remarkable. In fact, the Archive is

praised as a model for “academic humanists searching for the broadened financial and educational support” that is required if humanities are to play the role they “*should*” play in the twenty-first century society (Kroeber 125) [*italics in the original*].

This model works well because it is a “contemporary response” to the needs of a widespread and diverse audience as well as to the “corresponding” needs of the collections where Blake’s originals are held. Both the audience and the institutions, Viscomi, one of the editors, claims, “share a strong interest in the accessibility and the preservation of Blake’s works” (Viscomi 32). Thus, the Blake Archive “attempts to serve both sets of needs at once,” Viscomi continues, “by providing free access to its Web site,” where users enjoy unique access to Blake’s artistic heritage, a substantial part of which have been displayed for the first time to such wide audience, and at the same time carefully regulating usage in terms of copyright and fair use. Public heritage institutions and the private collectors, on the other hand, have benefitted greatly from the outreach they have achieved as partners in the project, which “fulfils their primary obligations in ways that would be difficult for them to duplicate, because the Archive functions as a kind of open-ended, world-wide scholarly focus-group” (Kroeber 124).

A distinctive feature of the Blake Archive is the editors’ commitment to exceptionally high scholarly, editorial, and technical standards and quality. It is worth noting here that “computers have been intruding into literary criticism for about forty years now,” as Kroeber reminds us (123). For this reason, the Blake Archive, can adequately be evaluated only against the background of other similar projects. A particularly useful point of departure in the analysis is the Iowa Blake Videodisc Project, which was conducted in the early 1980s at the University of Iowa, and which sadly failed. Some of the main reasons for this outcome are the same ones which have plagued the digital world for decades: quick obsolescence of proprietary hardware and software; the small user base; and the lack of a long, sustained commitment to maintaining the project: “project development is glamorous; routine maintenance is not,” as Mary Lynn Johnson, one of the creators, observes (quoted in Eaves 136).

The editors of the Blake Archive project, however, have seemed determined to avoid the pitfalls of the Iowa Project, which is apparent from the sound general principles on which they have build up the Blake Archive. These principles are neatly summarized by Steven Jones: “ the pursuit of platform-independent robustness and persistence, using recognized community standards and technical grammars, and the focus on the serious scholar as the primary end-user, though with an open door for general users anywhere on the Web” (Jones 416). Further, the project has shown an attitude of openness and sensitivity with regard to technical standards (hence its preparedness to accommodate for unforeseeable innovations) and the standards of scholarly community (416).

Therefore, since the archive was conceived and constructed primarily as a resource for scholars, fidelity to the originals is the editors’ “top priority” (Eaves 229). While admitting that reproductions can never be perfect, they are nevertheless, determined to provide an indispensable

tool for sustained research, whose quality scholars can trust. What is more, assisted by the contemporary digital technology, the editors have managed to produce images (digital facsimiles) that are not only accurate enough, but also “more faithful to the originals in scale, color, and texture than the best photomechanical (printed) images,” and to provide “more detail than even unmagnified originals,” as Viscomi emphasizes (32). Furthermore, the Archive was envisioned as a “unique resource unlike any other currently available—a hybrid all-in-one edition, catalogue, database, and a set of scholarly tools,” (Eaves 136): edited texts (transcriptions); contextual information; innovative features such as ImageSizer, allowing the user to display images at actual, enlarged or reduced sizes, and Inote for annotating and comparing images, among other features (Eaves 229-231). Last but not least, these are the incredible options users can avail of for generating information that is relevant to their specific research by collating various texts, conducting cross-searches on images and texts through controlled vocabulary, using information provided by the editors, which can lead them to additional information and new combinations and discoveries (Eaves 231), which, in turn could further bring them to Blake’s original intentions. All these manipulations could be seen, as Jones claims, states, “as a way of empowering the user to construct [or reconstruct] the meanings of the Blake’s work” (Jones 413). Thus, it becomes clear that the opportunities provided by the new digital medium for innovative research are unparalleled. This kind of experience is also referred to as “functionality”, an “added value” that computing power brings in terms of “extraordinary computational capabilities, convenience, and, in effect, new information” (Smith, 2006, 220). Thus, Smith continues, “static pages are transformed into searchable texts. Visual, textual, and aural information can be delivered simultaneously” (Smith, 2006, 219). Such capabilities, in fact, are all the more fitting when we analyze a poet, artist, print-maker, and book-designer like Blake, one of whose great strengths lay, as Viscomi observes, “in his ability to mix it up within one media” and “to work simultaneously in various media that seem mutually exclusive” (Kraus 169). Hence, “working on metal with the tools of poet and painter enabled Blake to create a multi-media space, a “site” where poetry, painting, and print-making came together” in original ways (Viscomi 27). His original printing method allowed the artist to create multiple copies of the same work. They often vary in significant ways, usually in color, or in some cases in the order of individual plates or pages (Jones 412). Thus, the fluidity of Blake’s text poses enormous challenges for scholars and editors alike, which can be seen in all printed editions of Blake’s oeuvre, all of them having serious inadequacies of one kind or another (Viscomi 31).

Against such background of flawed editions, the advantages of the digital Blake Archive stand out all the more saliently, fulfilling the scholars’ ideal: “to see Blake’s reproductions in context and in relations to one another” (Viscomi 31). This also reveals how contemporary Blake is, and in fact surprisingly “compatible” with the digital realm. This “plasticity”, in turn, has the potential to “enliven the thinking of intelligent young adolescent” (Kroeber 124), thus enhancing the Archive value as an educational tool, which is precisely part of the “overriding goal” of the editors—“not the maintenance of theoretical purity but the creation of a superlatively useful and durable scholarly (and pedagogical) resource” (Eaves 232). The key



word here is “useful,” that is useful for the user. It is the user, I would argue, who is not only in the center of the archival editorial rationale, but at the heart of the Archive itself, thus keeping it a thriving and viable tool for learning, cooperation and ultimately self-improvement. Thus trying to collect and preserve the treasures of our past cultural heritage we build up and preserve our own present and future.

A strikingly similar view is expressed by Paul Conway in his definition for “preservation” – action, which “should nearly always be taken in reference to use, rather than to the purely intrinsic value of the object” (Conway 64). With reference to digital preservation, the key for him is in identifying the long-term value of the digital resources. Only thus can users build the trust and confidence in the new practice of digital preservation, as do traditional preservation and access services (65). The result of the digital preservation, Ross Atkinson predicts “will be “new special collections, which like its traditional counterpart, will be very expensive and will be warranted for only a small, selected subset of publications.”” (quoted in Conway 65). Will this be the viable digital alternative, “a 500-year solution?”

Those who succeed in turning the digital preservation into a viable alternative, as the example with the William Blake Archive and some other successful practices have demonstrated, are those who are able to make the most durable and trustworthy partnerships, cooperatives, and alliances, those who join their forces and share their practices, with a long-term inspiration and commitment to learn, grow and work together for the common good. “The primary hope offered by electronic technology”, as Karl Kroeber has elegantly put it, with reference to “authentic humanistic scholarship,” is the possibility that “it may arouse self-awareness of the fundamentally cooperative, socially productive nature” of the discipline. What is more, the fundamental optimism of the new digital era, for me, is that it will arouse self-awareness of the fundamentally cooperative, socially productive human nature of every human being. Only when we rediscover and preserve our humanness, can digitization become a viable and sustainable preservation alternative.

### Works Cited

Brand, Stewart. “Escaping the Digital Dark Age.” *Library Journal* 1 Feb. 1999.

Conway, Paul. “Preservation in the Age of Google: Digitization, Digital Preservation, and Dilemmas.” *Library Quarterly* 80 (2010): 61-79.

De Lusenet, Yola. “Tending the Garden or Harvesting the Fields: Digital Preservation and the UNESCO Charter on the Preservation of the Digital Heritage.” *Library Trends* 56 (Summer 2007): 164-182.

- Eaves, Morris, Robert Essick, and Joseph Viscomi. "The William Blake Archive: The Medium When the Millennium Is the Message." *Romanticism and Millenarianism*. Ed. Tim Fulford. New York: Palgrave, 2002. 219-233.
- Eaves, Morris, Robert Essick, Joseph Viscomi, and Matthew Kirschenbaum. "Standards, Methods, and Objectives in the William Blake Archive: A Response." *The Wordsworth Circle* 30 (Summer 1999): 135-144.
- Jones, Steven. "The William Blake Archive: An Overview." *Literature Compass* 3/3 (2006): 409-415.
- Johnson, Mary Lynn. "The Iowa Blake Videodisc Project: A Cautionary History." *The Wordsworth Circle* 30 (Summer 1999): 131-135.
- Kraus, Kari. "Once Only Imagined': An Interview with Morris Eaves, Robert N. Essick, and Joseph Viscomi." *Studies in Romanticism* 41 (Summer 2002): 143-199.
- Kroeber, Karl. "The Blake Archive and the Future of Literary Studies." *The Wordsworth Circle* 30 ( Summer 1999): 123-125.
- Lee, Stuart. "Digitization: Is it Worth it?" *Computers in Libraries* May 2001.
- Schwartz, Joan. "Negotiating the Visual Turn: New Perspectives on Images and Archives." *The American Archivist* 67 (Spring/Summer 2004): 107-122.
- Skinner, Katherine, and Martin Halbert. "The MetaArchive Cooperative: A Collaborative Approach to Distributed Digital Preservation." *Library Trends* 57 (Winter 2009): 371-392.
- Smith, Abby. *Why Digitize?* CLIR Publication 80. Washington, D.C.: Council on Library and Information Resources, 1999.  
<http://www.clir.org/pubs/reports/pub80smith/pub80.html#preservation> (16 Dec. 2010)
- Smith, Abby. "Collection in the Digital Library". *Digital Library Development: The View from Kanazawa* . Ed. Deanna Marcum and Gerald George, 2006. 213-223.
- Viscomi, Joseph. "Digital Facsimiles: Reading the William Blake Archive." *Computers and the Humanities* 36 (2002): 27-48.
- Walters, Tyler. "Thinking About Archival Preservation in the /90s and Beyond: Some Recent Publications and Their Implications from Archivists." *American Archivist* 58 (Fall 1995): 476-493.