



## Archives, Memory, and Interfaces with the Past

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**Abstract.** Archival interfaces are critical nodes in archival systems where archivists negotiate and exercise power over the constitution and representation of archives. Drawing on notions of interfaces from physical, technological, and computer systems, archival interfaces are both a metaphor for archivists' roles as intermediaries between documentary evidence and its readers and a tangible set of structures and tools that place archival documents in a context and provide an interpretative framework. Interfaces in modern institutions and technological systems are neither natural nor neutral. In probing archival interfaces, what may appear as neutral and objective processes are revealed as places where archivists determine what constitutes legitimate evidence of the past and shape social memories. The emergence of computer interfaces as an increasingly common mode of user interaction with archives demands that archivists confront the interpretative nature of their work and exploit opportunities to place themselves visibly in the interfaces they construct.

**Keywords:** archival description, archival systems, digital documents (electronic records), interfaces, representation

To modern planners, engineers, and systems designers, interfaces serve the vital function of connecting components and subsystems into efficient and rational systems.<sup>1</sup> The best-designed interfaces are invisible to the user because they appear to be natural, if they are visible at all. As such, interfaces enable and constrain certain activities in ways that are inconspicuous and often taken for granted. Doors and hallways provide interfaces between the interior and exterior of modern buildings that allow people to enter the

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<sup>1</sup> This article has evolved over the past four years. I first presented these ideas in the keynote address called "Interfaces with Time" at the Australian Society of Annual Meeting in Freemantle on 7 August 1998. Since then, my thinking about archives, memory and interfaces has progressed as has the broader archival and historical discourse on these matters. I would like to acknowledge insights and support from several colleagues who have pushed my thinking and helped me become more confident in the ideas expressed here. Over the years I have benefited from discussions with Fran Blouin, Richard Cox, Wendy Duff, Bob Frost, Verne Harris, and Eric Ketelaar. I have learned a great deal about interface design from my human-computer interaction colleagues at the University of Michigan, especially Judith Olson and George Furnas. I also thank Terry Cook and Joan Schwartz for their thorough and helpful comments on the previous draft of this article. Perhaps a new cohort is in formation.

interior while protecting those already inside from the outdoors. However, if the doorway is too narrow for a person in her wheelchair to pass through, or if the apparatus for opening and closing the door is out of her reach, that interface becomes an obstacle that keeps her out rather than letting her in; or conversely, that keeps her in rather than letting her out. Similarly, a graphical user interface with text and images allows sighted people to use a computer while it excludes the blind. Those who design interfaces, whether they are physical structures or virtual creations, exercise power over who may use a system and what they may do with it.<sup>2</sup>

In this article, I explore the concept of archival interfaces as critical nodes in the representation of archives and as a means through which archivists enable, but also constrain, the interpretation of the past. The interface is a site where power is negotiated and exercised. For archivists, that power is exercised, consciously and unconsciously, over documents and their representations, over access to them, over actual and potential uses of archives, and over memory. I use the concept of an interface both as a metaphor for archivists' roles as intermediaries between documentary evidence and its readers and as a term which describes a tangible set of structures and tools that place archival documents in a context and provide an interpretative framework. The concept of an interface has particular significance at a time when interfaces comprised of physical structures and human actors are being supplemented and, in some cases, supplanted by the interface of the computer screen. As human-mediated archives yield to computer-mediated archives, the nature of the interface becomes a critical element in the interaction between documentary evidence and its consumers.

Digital documents and electronic records have destabilized the concept of records and challenged the ability of archives to capture, represent, and preserve digital information. Electronic records raised conceptual and technical challenges that engendered protracted and heated debates among archivists over the nature of records, the processes and procedures surrounding their creation, and the measures that archival institutions and others must take to preserve and provide access to a past inscribed on digital media. In these debates, archivists disagree about the extent to which records

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<sup>2</sup> David F. Noble was one of the first historians to examine how design decisions become imbedded in technological systems and objects. Although Noble did not use the concept of "interfaces" *per se*, he initiated a substantive debate in the history of technology and in science studies about the ways that engineers and designers exercise power through design decisions. See David F. Noble, *America by Design: Science, Technology, and the Rise of Corporate Capitalism* (New York: Alfred A. Knopf, 1977). Others who have pursued this question include Donald A. Norman, *The Design of Everyday Things* (New York: Doubleday, 1990); Langdon Winner, "Do Artifacts Have Politics?", in L. Winner (ed.), *The Whale and the Reactor* (Chicago: University of Chicago Press, 1986), pp. 19–39.

embody timeless principles that transcend changes in political and organizational structures, social and cultural values, and the means and technologies of recording. They question whether new modes of representing and distributing information demand modification of archival theory and practice.<sup>3</sup>

Much of the archival research on electronic records and digital documents has concentrated on the acts of creating, capturing, and, in some cases, transferring digital information from its original environment to an archives. In research and practice, archivists have focused on the role of computer technology in the creation of records, their capture and storage, and the standards, processes, and procedures necessary to attain immutability, integrity, authenticity, and permanence of records and to protect their status as evidence.<sup>4</sup> Later acts of contextualization, representation, or use of digital archives receive scant attention. In this article, I intend to push

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<sup>3</sup> David Bearman, "Record-Keeping Systems", *Archivaria* 36 (Autumn 1993): 16–23; David Bearman and Margaret Hedstrom, "Reinventing Archives for Electronic Records: Alternative Service Delivery Options", *Electronic Records Management Program Strategies*, Archives and Museum Informatics Technical Report, No. 18 (1993): 82–98. Sue McKemish and Frank Upward (eds.), *Archival Documents: Providing Accountability Through Record-keeping* (Melbourne: Ancora Press 1993); Terry Cook, "Electronic Records, Paper Minds: The Revolution in Information Management and Archives in the Post-Custodial and Post-Modernist Age", *Archives and Manuscripts* 22 (2) (1994): 300–328; Richard J Cox, "The Record: Is It Evolving?", *The Records and Retrieval Report* 10 (3) (1994): 1–16; Luciana Duranti and Heather MacNeil, "The Protection of the Integrity of Electronic Records: An Overview of the UBC-MAS Research Project", *Archivaria* 42 (Fall 1996): 46–67; and Linda J. Henry, "Schellenberg in Cyberspace", *American Archivist* 16 (2) (Fall 1998): 309–327.

<sup>4</sup> The question of how organizations will capture, structure, organize, and preserve electronic records, including those with long-term value, has been the topic of numerous conferences, programme sessions, research projects, reports, and articles. For recent examples, see Advisory Committee for the Coordination of Information Systems (ACCIS), *Management of Electronic Records: Issues And Guidelines* (New York: United Nations, 1990); U.S. National Historical Publications and Records Commission, *Research Issues in Electronic Records, Report Of The Working Meeting* (St. Paul: Minnesota Historical Society, 1991); S. Yorke (ed.), *Playing for Keeps: Proceedings of an Electronic Records Management Conference Hosted by the Australian Archives* (Canberra: Australian Archives, 1995); Luciana Duranti and Heather MacNeil, "The Protection of the Integrity of Electronic Records: An Overview of the UBC-MAS Research Project", *Archivaria*; Wendy Duff, "Ensuring the Preservation of Reliable Evidence: A Research Project Funded by the NHPRC", *Archivaria* 42 (Fall 1996): 28–45; Office of Official Publications of the European Commission, *Proceedings of the DLM-Forum On Electronic Records*, Brussels, 18–20 December 1996 (Luxembourg: European Commission, 1997); Margaret Hedstrom and Francis X. Blouin, *Electronic Records Research and Development, Report of an Invitational Conference Held at The University Of Michigan, 28 and 29 June 1996* (Ann Arbor: University of Michigan, 1997); and American Society for Information Science, *Bulletin* 23 (5) (June/July 1997), entire issues devoted to electronic record keeping; and Heather MacNeil, "Providing the Grounds for Trust: Developing Conceptual Requirements for the Long-Term Preservation of Authentic Electronic Records", *Archivaria* 50 (Fall 2000): 52–78.

the question of digital archives beyond current record-keeping systems and extend the records continuum forward temporally in order to imagine new generations of users, with fundamentally different perspectives on the past, who will approach archives through computer interfaces rather than visiting physical archives and interacting with tangible documents. I question how archivists, acting through computer interfaces, represent to their assorted audiences archives containing materials that are old and new, physical and virtual, born-digital and turned-digital. I contend, however, that analyzing digital documents and computer interfaces reveals ways in which archivists have exercised power as well over earlier physical documents and through physical face-to-face interfaces.

My perspective on digital documents and electronic records is shaped by three main influences. During the past two decades, I have observed the rapid evolution of new forms and genres of information.<sup>5</sup> What began as simple machine-readable data files evolved into electronic records, spawning what Terry Cook called the second generation of electronic records archives.<sup>6</sup> Cook argued that in contrast to the first generation of data archives, where concerns over the content and quality of data files were paramount, electronic records archives could serve as evidence of actions, processes, and relationships in society, and thus also provide one means of analyzing how bureaucratic organizations exercise power over their citizens, subjects, clients, and customers. Yet the second generation of electronic records archives was short-lived. It is rapidly being eclipsed by new concepts of documents, evidence, and records that emphasize the dynamic nature of digital information and the interactive processes between users and stores of digital information. In this latest iteration, archival records are not static fixed documents, but rather dynamic objects produced through processes of continuous creation, recreation, representation, and reinterpretation. I have also been influenced by the recent interest in, and vast literature on, memory, ranging from medical research on memory in the human brain to broad social processes of collective memory and commemoration. Because the question of memory is far too expansive to tackle directly in this article, I focus instead on the power that archivists exercise over possible personal, collective, and historical memories through appraisal, description, and the construction of interfaces.<sup>7</sup>

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<sup>5</sup> Margaret Hedstrom, "The Forms and Meanings of Virtual Artifacts", unpublished paper presented at the Sawyer Seminar on Archives, Documentation, and Institutions of Social Memory, University of Michigan, Ann Arbor, 11 October 2000.

<sup>6</sup> Terry Cook, "Easy to Byte, Harder to Chew: The Second Generation of Electronic Records Archives", *Archivaria* 33 (Winter 1991–1992): 202–216.

<sup>7</sup> For an excellent discussion of history, memory, and archives, I refer readers to Brien Brothman's recent article, "The Past the Archives Keep: Memory, History, and the Preservation of Archival Records", *Archivaria* 51 (Spring 2001): 48–80. In addition to an insightful

My perspective is also shaped recent discourse about postmodernism and its implications for archives and archivists.<sup>8</sup>

The evolving nature of digital documents, broader formulations of memory, and postmodern influences have encouraged me to adopt an open and expansive view of what constitutes records and archives. To me, the material manifestation of a record comes to be through an act of recording or inscription. The form of the inscription can be anything that is within the social, cultural, political, and technological means and imaginations of the time and place when it occurs. The record can be the product of one person for that person's own needs to externalize her thoughts – created for her eyes only; or it can be the work of many hands and minds thinking and acting together in an elaborately choreographed social organization. One way to think about records is to move back from the thing – the inscription – to the act of its becoming. This is where I *start* thinking about the transactional nature of archival documents, but it is not where I wish to stop. By exposing

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analysis of the intersection of these concepts, the article includes extensive citations to the key literature.

<sup>8</sup> I have struggled with Jacques Derrida, *Archive Fever: A Freudian Impression*, Eric Prenowitz (trans.) (Chicago: University of Chicago Press, 1996); Jean-Francois Lyotard, *The Post-Modern Condition: A Report on Knowledge*, Geoff Bennington and Brian Massumi (trans.) (Minneapolis: University of Minnesota Press, 1984, original 1979), and other post-modern theorists. To help me through this thicket, I have especially appreciated interpretations and criticism by archivists. For archival perspectives, see Brien Brothman, "The Limits of Limits: Derridean Deconstruction and the Archival Institution", *Archivaria* 36 (Autumn 1993): 205–220; Terry Cook, "Electronic Records, Paper Minds: The Revolution in Information Management and Archives in the Post-Custodial and Post-Modern Era", *Archives and Manuscripts*; Terry Cook, "What is Past is Prologue: A History of Archival Ideas Since 1998, and the Future Paradigm Shift", *Archivaria* 43 (Spring 1997): 17–63; Terry Cook, "Fashionable Nonsense or Professional Rebirth: Postmodernism and the Practice of Archives", *Archivaria* 51 (Spring 2001): 14–35; Verne Harris, "Redefining Archives in South Africa: Public Archives and Society in Transition, 1990–1996", *Archivaria* 42 (Fall 1996): 6–27; Verne Harris, "Claiming Less, Delivering More: A Critique of Positivist Formulations on Archives in South Africa", *Archivaria* 44 (Fall 1997): 132–141; Verne Harris, *Exploring Archives: An Introduction to Archival Ideas and Practice in South Africa*, 2nd edn. (Pretoria: National Archives of South Africa, 2000); and his "On (Archival) Odyssey(s)", *Archivaria* 51 (Spring 2001): 2–14; Carolyn Heald, "Is There Room for Archives in the Postmodern World?", *American Archivist* 59 (Winter 1996): 88–101; Eric Ketelaar, "Archivalisation and Archiving", *Archives and Manuscripts* 27 (1) (May 1999): 54–61; Lilly Koltun, "The Promise and Threat of Digital Options in an Archival Age", *Archivaria* 47 (Spring 1999): 114–135; Tom Nesmith, "Still Fuzzy, But More Accurate: Some Thoughts on the 'Ghosts' of Archival Theory", *Archivaria* 47 (Spring 1999): 136–150; Joan M. Schwartz, "'We make our tools and our tools make us': Lessons from Photographs for the Practice, Politics, and Poetics of Diplomats", *Archivaria* 40 (Fall 1995): 40–74; and Frank Upward, "Structuring the Records Continuum . . . Part One: Post-Custodial Principles and Properties", *Archives and Manuscripts* 24 (November 1996): 268–285; and "Part Two: Structuration Theory and Recordkeeping", *Archives and Manuscripts* 25 (May 1997): 10–35.

the role of archives as an integral part of the interface with the past, I hope to reveal the temporally and socially contingent nature of all aspects of archival work.

## Interfaces

In neutral or naturalistic definitions of interfaces, such as that found in the Oxford English Dictionary, an interface is “a surface lying between two portions of matter or space, and forming their common boundary.” Used originally in late-nineteenth-century chemistry to denote a face of separation between two contiguous portions of the same substance or between two liquids, interfaces found many applications in scientific, medical, and technological systems. In physical systems, the interface is the point at which different nodes meet and interact, such as the link from bus to train, train to train, and city terminal to airport terminal in a transportation system. During the late twentieth century, *interface* became a ubiquitous metaphor for the meeting places of societies, cultures, and people, and for nodes in organizational and technological systems. The concept of an interface is used in organizational theory to identify the liaison between two agencies working on the same project or between functional organizations and their external environment. The notion of an interface also captures the interplay among different disciplines. Music is created at the interface where the physics of sound meets the patterns and aesthetics of harmonics and rhythm.

Interfaces serve as boundaries, but they also have a degree of permeability that allows goods, people, information, and ideas to pass from one space to another. As I will argue in this paper, archivists construct a variety of interfaces between the past and the present through choices about what to keep, how to represent archival documents and collections, how to design systems for access, and who to admit or exclude from interactions with archives. As human constructions, interfaces in modern institutions and technological systems are neither natural nor neutral. In probing archival interfaces, I also intend to interrogate the interface not only as a site of passage or interaction, but also as boundary where archivists exercise power and negotiate over what constitutes legitimate evidence of the past, and less directly, shape social memories.

Most notions of interfaces involve contemporaneous interactions, but the concept has been used to investigate historical transitions and to describe the relationships between traditions with different geographical and temporal roots. Marshall McLuhan described “the interface of the Renaissance” as “the meeting of medieval pluralism and modern homogeneity and mechanism.” McLuhan argued that

[a]n age in rapid transition is one which exists on the frontier between two cultures and between conflicting technologies. Every moment of its consciousness is an act of translation of each of these cultures to the other. Today we live on the frontier between five centuries of mechanisms and the new electronics, between the homogeneous and the simultaneous.<sup>9</sup>

McLuhan, writing in 1962, was astute not only in recognizing the historic import of the shift to new media, but also in understanding how significant transformations always involve interactions between presents and their pasts. One can conceive of a complex set of interfaces with the past which constitute permeable boundaries that separate the past from the present and distinguish memory from consciousness, by shaping and controlling the flow of knowledge, meaning, and expression. Archives form one of the interfaces with the past, along with other formal structures like museums, libraries, and monuments, that interact with less tangible personal and collective memories.

### **Interfaces and memory**

The concept of an interface between cultures, traditions, and technologies provides a useful intellectual tool for understanding profound changes in the ways that individuals and societies remember the past. Jack Goody explored the “interface between the written and the oral” in his extensive study of the origins of writing systems and their interaction with the spoken word. For Goody, the interface between written and oral traditions had three dimensions: the meeting of cultures with and without writing; the encounter between oral and written traditions in societies that use writing to various degrees; and the interaction between the use of writing and speech in the life of any individual.<sup>10</sup> Goody recognized the functional origins of early written documents, and he went on to explore their social and cultural dimensions in societies where oral communication remained the norm.<sup>11</sup>

For early human societies, personal histories, and the histories of family and tribe, were oral. As neuro-scientist and memory researcher, Steven Rose explains,

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<sup>9</sup> Marshall McLuhan, *Gutenberg Galaxy* (Toronto: University of Toronto Press, 1962), pp. 172–173.

<sup>10</sup> Jack Goody, *The Interface Between the Written and the Oral* (Cambridge: Cambridge University Press, 1987), p. ix.

<sup>11</sup> *Ibid.*, pp. 29–33.

[w]hat failed to survive in an individual's memory or in the spoken transmitted culture, died forever. People's memories, internal records of their own experience, must have been their most treasured – but most fragile – possessions.<sup>12</sup>

The investments that oral cultures make to preserve and transmit memories attest to their value. Historically and in geographically scattered places, scholars of oral cultures find elaborate mnemonic systems that help compress sweeping epics into memorable and re-tellable narratives. Rhetorical devices, narrative structures, and the creative use of symbols help both the teller and the listener comprehend and remember a purely oral past.<sup>13</sup> The elevated status ascribed to the chroniclers and storytellers in oral culture is further evidence of the significance of transmitting memory.

The creation of external memories, first through pictograms and ideographs and later through writing systems, the printing press, photography, the phonograph, cinema, video cameras and, most recently, digital memory systems, has had a profound impact on how the past could be conceived and transmitted. In the *Phaedro*, Plato contends that writing destroys memory because writing would allow memory skills to atrophy among those who became dependent on written memory aids. In societies that rely extensively on recorded forms of communication, the book, the diary, the newspaper, and the television broadcast all reshape notions of memory because they provide a means to fix and stabilize evidence that can be transmitted across time in a seemingly static fashion. Written evidence often is distinguished from oral transmission on the basis of its persistence and immutability. Written and print culture imposes stability on the transmission of memory and knowledge because written documents do not change and rewrite themselves with each reading or transmission. Countless studies of the transition from oral narratives to recorded stories illustrate how, once recorded, the stories become static and frozen because they are faithfully copied or replicated rather than evolving with each new telling.

The evolution of recorded documents and their introduction into oral cultures has a profound impact on memory and history. According to Walter Ong, in oral cultures

the past is not felt as an itemized terrain, peppered with verifiable . . . 'facts' or bits of information. It is the domain of the ancestors, a resonant

<sup>12</sup> Steven Rose, *The Making of Memory* (New York: Anchor Books, 1992), p. 60.

<sup>13</sup> Rose, *The Making of Memory*, pp. 62–68; Goody, *The Interface Between the Written and the Oral*, pp. 78–122; Walter Ong, *Orality and Literacy: The Technologizing of the Word* (London: Routledge, 1982), pp. 31–77; and J.D. Spence, *The Memory Palace of Matteo Ricci* (New York: Viking, 1985).



source for renewing awareness of present existence, which itself is not an itemized terrain either.<sup>14</sup>

Yet breaking the methods of transmission into a simple dichotomy between the oral and the written vastly oversimplifies the ways in which symbols and images of the past are captured and represented. Relics and physical structures offer tangible traces of the past. Static, episodic, and frozen in time, the physical remnants of the past nonetheless have the advantage of a relative lack of intentional bias. The castle, the preserved old centre of a city, or a cluster of village houses were not built so that future generations could step into the past and experience it in three dimensions. Moreover, physical traces are unusually accessible, often integrated into the daily life of cities or present as visible markers in the landscape.<sup>15</sup>

Much less scholarship has been devoted to understanding how the proliferation of visual images altered the nature and art of recall and memory. The proliferation of book illustrations in the late eighteenth century spread the notion of “seeing” the past and began to accustom people to the past as a visual experience. Photography provided an even more vivid visual representation with its fine detail, accurate proportions, and precise replication.<sup>16</sup> As Joan Schwartz has argued recently, photography was accepted rapidly as means of witnessing across space and time and quickly put to work as a surrogate for travel and as a means for capturing and assembling scientific evidence.<sup>17</sup> Photographs became the norm for faithful visual replication once people became habituated to absorbing information from them. But photographs serve as more than a visual equivalent of the written or printed documents that depict frozen static moments. According to David Lowenthal, “[f]amily photographs serve as both goads to memory and as aids to its verifi-

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<sup>14</sup> Ong, *Orality and Literacy*, p. 61.

<sup>15</sup> David Lowenthal, *The Past is a Foreign Country* (Cambridge: Cambridge University Press 1985), pp. 240–249. For a critique of preserved objects as unintentional carriers of memory and a discussion of how physical objects are manipulated to encourage certain types of memory, see Judith E. Endleman, “‘Just a Car’: Reflections on the Kennedy Car, the Lincoln Chair, and Other Cultural Artifacts”, paper presented at the Sawyer Seminar on Archives, Documentation, and Institutions of Social Memory, University of Michigan, Ann Arbor, 11 October 2000; and Patrick Wright, “Trouble in the Health Food Shop: The ‘Heritage Industry’ and the Organic Idea in Modern British Culture”, paper presented at the Sawyer Seminar on Archives, Documentation, and Institutions of Social Memory, University of Michigan, Ann Arbor, 4 April 2001.

<sup>16</sup> Joan M. Schwartz, “‘We make our tools and our tools make us’: Lessons From Photographs for the Practice, Politics, and Poetics of Diplomats”, *Archivaria*.

<sup>17</sup> Joan M. Schwartz, “‘Records of Simple Truth and Precision’: Photography, Archives, and the Illusion of Control”, *Archivaria* 50 (Fall 2000): 1–40.

cation, making our recollections more faithful to the actual past.”<sup>18</sup> People do not use photographs exclusively – or perhaps even primarily – as a way to capture or view the evidence of the past. Rather these visual images serve as triggers that evoke memories and challenge or reinforce assumptions about how things really were or really looked.

Twentieth-century inventions have provided us with a cornucopia of memory aids that offer particularly compelling ways to negotiate the porous boundaries between the present and the past. Film, both as cinema and as a documentary medium, makes the past come alive in its depiction of real characters surrounded by an illusion of a reconstructed past. The popularity of historical themes in cinema and the ubiquity of the video camera at tourist sites, weddings, and births seems to speak to a contemporary desire to capture moments and experiences that can be replayed and “relived.”<sup>19</sup> Radio and television offer additional media for interacting with the past through the rebroadcast of old films and television programmes, interviews with people about their experiences or recollections, and the production of historical fiction. Seeing and viewing history, hearing tales told by others, and using memory aids to recollect personal experiences offer common pathways between contemporary society and its various pasts.

The most recent technological turn in the externalization of memory came with the introduction of digital memories embedded in computer systems. Computer technology does not necessarily introduce a fundamental shift in the way societies remember, but their voracious memories may attenuate the tendencies of earlier external memory devices. In cognitive psychology, computer memories have shaped both the theories and metaphors used to explain how individual memory works. Henry L. Roediger’s account of the long history of memory metaphors describes the interplay between memory metaphors and available technologies from Plato and Aristotle’s use of the wax tablet metaphor to current analogies between human memory and computer storage. According to Roediger, the spatial metaphor has dominated many of the popular theories about memory in cognitive psychology, where human memories are characterized as objects stored in a mind-space that are retrieved through a search for stored information.<sup>20</sup> From the perspective of archives, it is worth noting that Roediger argues that, although analogies for cognitive processes could be drawn from many sources, “one obvious

<sup>18</sup> Lowenthal, *The Past is a Foreign Country*, p. 257.

<sup>19</sup> For a critique of the notion of realism and an end to historicity in film, see Alison Landsberg, “Prosthetic Memory: *Total Recall* and *Blade Runner*”, in Mike Featherstone and Roger Burrow (eds.), *Cyberspace, Cyberbodies and Cyberpunk: Cultures of Technological Embodiment* (London: Sage Publications, 1995), pp. 175–189.

<sup>20</sup> Henry L. Roediger III, “Memory Metaphors in Cognitive Psychology”, *Memory and Cognition* 8 (3) (1980): 231–246.

and dominant source is the technology of keeping records.” He goes on to conclude:

We may note a progression from the imprint of seals on wax to the gramophone, tape recorder, switchboard, dictionary, library, keysort cards, and most recently the computer and the hologram. Advances in theories of human memory parallel, and perhaps depend on, advances in technology. Currently, the most influential approach in cognitive psychology is based on analogies derived from the digital computer.<sup>21</sup>

Brien Brothman carries portions of Roediger’s argument forward when he explores more recent notions of memory as plastic, distributed, and relational.<sup>22</sup>

I raise the memory analogies to underscore three points. First, while there is a rich literature on theories of memory in cognitive psychology and their relationship to concepts of storage and record keeping, there are few investigations of relationships between the use of “memory” as a metaphor for archives and current theories of memory in cognitive science. As Brothman contends, “the term ‘memory’ is common discursive currency in the archival realm.”<sup>23</sup> I am not arguing that a “scientific” understanding of memory will contribute to an archival “science” of memory. Rather, I contend that evoking the memory metaphor for archives is as simplistic and almost as comical as using analogies such as gramophone, rooms in a house, junk box, leaky sieve, conveyor belt, garbage can, or hologram to describe human memory. I would simply add to Brothman’s observation that archivists could increase the value of the term “memory” as discursive currency with research into the conceptual, organizational, and technological issues that he raises.<sup>24</sup> Secondly, not only in archival writing about memory but in cognitive psychology as well, the differences and interplay between individual memory and social memory are not well understood. Although a few psychologists and sociologists have introduced notions of the social construction of memory and explored collective or social memory, most cognitive studies of memory remain within the realm of individual memory and cognition. Historians and anthropologists have engaged the question of social memory more readily, but often with limited use for cognitive theories of memory.<sup>25</sup> Making the memory metaphor useful to scholars and users of archives will require not only a more refined

<sup>21</sup> Ibid.

<sup>22</sup> Brothman, “The Past the Archives Keep”, 66–71.

<sup>23</sup> Ibid., p. 50.

<sup>24</sup> Ibid., pp. 71–80.

<sup>25</sup> Historians and anthropologists who investigate social and collective memory most often draw on the works of psychologist Frederic A. Bartlett and sociologist Maurice Halbwachs. See F.A. Bartlett, *Remembering: A Study in Experimental and Social Psychology* (Cambridge:

sense of what memory means in different contexts, but also a sensitivity to the differences between individual and social memory. Finally, I would like to return to the main theme of this article: the interface. To take advantage of the potential synergy between memory studies and archives, we need to turn to the murkier notions of how memories – both individual and collective – are created, represented, and retrieved. For digital archives, the design and functions of the computer interface offers one useful analytical device.

### **The computer interface**

So far, I have discussed the concept of interfaces in the context of scientific processes, technological systems, social institutions, and human memory. Significantly, interfaces also play a critical role in both the functionality and usability of computer systems. In computer systems, interfaces are pieces of software that handle the interactions between different components of the system, between physical storage and logical representation, and between the user and the computer. In the most general sense, the interface translates the binary code on which the computer operates into a system of text and symbols that people can understand and manipulate. According to Steven Johnson, the computer interface manages semantic relationships that are characterized by meaning and expression. “For the digital revolution to take place, a computer must also *represent itself* to the user, in a language the user understands.”<sup>26</sup> The computer interface plays a subtle yet powerful role in the representation and distribution of information. By presenting symbols to users in pre-determined and pre-programmed ways, interfaces enable and constrain users’ interactions with computers and mediate between users and vast stores of digital information.

The fields of human-computer interaction and usability design have addressed computer interfaces extensively. These new fields draw heuristics and design principles from cognitive psychology, graphic design, and aspects of software engineering to increase the utility, ease-of-use, and users’ satisfaction with computer systems. The field of interface design, besides providing valuable guidance for creating computer interfaces that work better for users, also demonstrates that interfaces (good or bad) are not an inherent property of computer technology. Operating within technologically-imposed requirements and constraints, interface designers, nevertheless, have count-

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Cambridge University Press, 1932); and Maurice Halbwachs, *On Collective Memory*, Lewis A. Coser (ed. and trans.) (Chicago: University of Chicago Press, 1992, originally published in 1941).

<sup>26</sup> Steven Johnson, *Interface Culture: How New Technology Transforms the Way We Create and Communicate* (San Francisco: Harper Edge, 1997), p. 14.

less opportunities to shape the way the interface functions and to enable or constrain a wide range of actions and expressions. The postmodern critic, Mark Poster, contends that “[t]he interface is crucial for the design of the Internet. To attain wide appeal, the Internet must not simply be efficient, useful or entertaining, it must present itself in an agreeable manner.”<sup>27</sup> Fear and hostility of humans toward machines and the need for interfaces to appear transparent are among the challenges of interface design which Poster details.

Neither computers nor the Internet mysteriously present themselves to users. Rather, what users see and experience when they interact with computer systems reflect design decisions made by system designers, software engineers, and programmers. As such, computer interfaces remain malleable. Far from viewing the design of archival interfaces as inevitable or fixed, I take the position that archivists too should be active players in shaping new interfaces. But I also encourage archivists, who are shaping new interfaces, to be cognizant of how their actions in selection, description, and design, enhance and constrain society’s options for accessing evidence and acting upon the past. I explore the question of archival interfaces in the remainder of this article. My goal is to engage archivists in a discussion of how, in both theory and practice, they shape the interfaces between users and archives and how they can shape the computer interfaces that increasingly will mediate that interaction. Opportunities abound to shape new interfaces that can present rich contextual information about archives and provide users with valuable tools for navigating, exploring, and making their own interpretations of archives.

### **Archival interfaces**

The transition from the present sites of physical archives, where archivists mediate access to archival documents, to a world of computer-mediated digital archives is well underway. Thousands of archival repositories have developed World Wide Web sites, introduced on-line access systems, and gradually converted portions of their archival holdings to digital form. The impending integration of born-digital materials into the custody of archives, or at least into their access and descriptive systems, will further accelerate this trend. In this final section, I consider how interfaces might serve as devices for exposing, rather than obscuring, the imprint that archivists leave on records through appraisal and descriptive practices. As I have argued earlier, interfaces are neither neutral nor transparent. What interfaces are

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<sup>27</sup> Mark Poster, “Postmodern Virtualities”, in Featherstone and Burrow (eds.), *Cyberspace, Cyberbodies and Cyberpunk*, p. 93.

designed to expose or obscure depends on conscious design decisions and on an awareness of the underlying semantics that they are designed to represent.

Archivists exercise their greatest power over the recorded traces of the past through their decisions about which evidence to preserve and what to let slip away. Yet much of the archival discourse on appraisal ignores or obscures questions of power. Debates about appraisal occur along a continuum ranging from a Jenkinsonian approach, which takes as its point of departure assumptions about the neutrality and impartiality of records and the objectivity of the archivist, to a more socio-technical approach advocated by the early supporters of documentation plans and strategies.<sup>28</sup> Within this rationalist model, distinctions have been drawn over who ought to be granted authority for appraisal, how to define the universe from which permanent archives are selected, which criteria best define records of enduring value, and which interests ought to be represented in the appraisal process. These questions are fundamentally questions of power. To whom does society grant the power to select archives? From what stores of recorded documentation are archives legitimately constituted? Who gets to decide what constitutes value? Whether guided by the assumption that archivists should keep their distance from administrative decisions about record keeping or base their involvement in appraisal decisions on scientifically derived principles ratified by a larger community, much of the contemporary discourse on appraisal fails to engage the question of power directly. As a consequence, archivists simultaneously overlook sites of power that confound their goals of selecting the best or the most “representative” archival record and understate their own influence over the construction of archives.

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<sup>28</sup> See, for example, Luciana Duranti, “The Concept of Appraisal and Archival Theory”, *American Archivist* 57 (2) (Spring 1994): 328–344; Luciana Duranti, “The Thinking on Appraisal of Electronic Records: Its Evolution, Focuses and Future Directions”, *Archivi and Computer* 6 (1996): 493–518; Frank Boles and Mark A. Greene, “Et Tu Schellenberg? Thoughts on the Dagger of American Appraisal Theory”, *American Archivist* 59 (3) (Summer 1996): 298–310; and Richard J. Cox, *American Archival Analysis: The Recent Development of the Archival Profession in the United States*, Chapter 9, “Archivists Confront a Changing World: Documentation Strategies, the Reformulation of Archival Appraisal, and the Possibilities of Multi-Disciplinary Cooperation”, (Metuchen, N.J.: Scarecrow Press, 1990), pp. 291–303. For recent criticism of the positivist notions that inform much of modern appraisal theory and practice, see Hans Booms, “Society and the Formation of a Documentary Heritage: Issues in the Appraisal of Archival Sources”, *Archivaria* 24 (Summer 1987): 69–107; Terry Cook, “Archival Science and Postmodernism: New Formulations for Old Concepts”, *Archival Science* 1 (1) (2001): 3–24; Terry Cook, “Mind Over Matter: Towards a New Theory of Archival Appraisal”, in Barbara L. Craig (ed.), *The Archival Imagination: Essays in Honour of Hugh A. Taylor* (Ottawa: Association of Canadian Archivists, 1992), pp. 38–70; Richard Brown, “Records Acquisition Strategy and Its Theoretical Foundation: The Case for a Concept of Archival Hermeneutics”, *Archivaria*; and Elizabeth Kaplan, “We Are What We Collect, We Collect What We Are”, *American Archivist*.

Archivists contend that they are the authoritative arbiters of archival value, often ignoring the conflicts and power relations that influence implementation of even the most “scientifically” derived appraisal criteria. But archivists are not the only force determining what survives and, in many cases, they may be minor players among much larger social, technological, cultural, political, and budgetary forces that shape the holdings of archives. At a minimum, physical characteristics of recording media favor the survival of certain media and forms of communication over others. Preservation of oral memory requires an elaborate social system of transmission and reinterpretation, whereas messages chiseled into clay or carved into stone outlive the natural languages in which they are expressed.

Records stored on new magnetic and optical recording media demand immediate attention from archivists, unlike familiar paper-based records where archivists enjoyed the luxury of some temporal distance from the activities portrayed in the records they were to appraise. In the North American archival tradition, where responsibility for active and semi-active records is assigned to records managers, archivists rarely appraise records while they are actively being used. Even in countries with a more unified view of the records life cycle, practical and legal impediments, such as thirty-year rules and large backlogs of records, put a temporal distance between the archivist and the materials under review.<sup>29</sup> Waiting years, or even decades, to appraise records allows society to do some of the filtering of the trivial from the significant, but also creates opportunities for those who control institutional records or private manuscripts to destroy records that are uncomplimentary or potentially damaging. There are important justifications, embedded in traditional archival theory, for encouraging distance between the appraiser and the record. But digital records will not last long enough to be appraised using conventional practice, as numerous failed attempts to appraise and salvage electronic records, sound recordings, and video tapes from long-inactive systems have clearly demonstrated.<sup>30</sup>

In addition to the ways in which physical attributes change the shape of archives, social and political power work against the archivist’s unfettered access to the universe of documentation. Public entities regulated by public records or archives laws must offer up their recorded memories for review

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<sup>29</sup> M. Loef, *PIVOT, A New Turn to Appraisal Policy: Reduction of the Transfer Period in the Public Records Act and the Consequences for Government Administration* (The Hague: Drukkerij Smits, 1991).

<sup>30</sup> For examples, see Lee Stout, “The Role of University Archives in the Campus Information Environment”, *American Archivist* 58(2) (Spring 1995): 124–140; and Michael Wettengel, “Archival Preservation of Electronic Records and German Reunification”, paper presented at the Annual Meeting of the Society of American Archivists, Washington, D.C., 2 September 1995.

by the archivist. But even in the regulated public sector, there are countless examples of ways in which public officials circumvent this requirement, such as refusing to create a record, imposing extensive and lengthy security classification schemes, refusing to grant archivists access to their records, and outright unauthorized destruction.<sup>31</sup> In the unregulated sector, corporate records and personal papers provide even more extreme examples of the unwillingness to permit archivists to control the documentary legacy. Private companies consider their records private property; and it is property that can come back to haunt them, as the tobacco companies, Enron, and Arthur Andersen are learning from recent experience.<sup>32</sup> As the records that archivists appraise become even closer temporally to the people, events, ideas, and thoughts that they depict, we should anticipate hardened resistance to the intervention of archivists in the process of identification, selection, preservation, and destruction. Luciana Duranti, upholding the Jenkinsonian tradition, argues that in appraising records of recent creation, archivists are “not sufficiently distant from the facts and acts to which those records attest to be able to express impartial judgment on their ultimate fate.”<sup>33</sup> Duranti’s proposed solution to this dilemma is to rely on retention decisions made by records creators based on their administrative and evidentiary needs with transfer of all surviving records to an archives after a fixed period of time for appraisal. Duranti also argues that periodic reappraisal of electronic records, synchronized with the need to address problems of technology obsolescence, will become a greater issue for archivists.<sup>34</sup>

An alternative way of addressing the quest for neutrality and objectivity in appraisal is to expose the ways that the society and culture, in which archivists are embedded, influence their evaluation of records and the activities that records represent. Far from playing the role of neutral observers, archivists – individually and collectively – cannot escape from society, politics, or culture. Even Duranti acknowledges that “selection criteria are as revealing of the time in which they are used as the records they aim to

<sup>31</sup> For examples, see Timothy Garton Ash, *The File: A Personal History* (New York: Random House, 1997); U.S. Congress, Report of the Moynihan Commission on Protecting and Reducing Government Secrecy, 3 March 1997, available at: <http://www.access.gpo.gov/congress/commissions/secrecy/index.html>; and South Africa, Truth and Reconciliation Commission, Final Report: Presented to President Nelson Mandela on 29 October 1998, Volume 1, Chapter on Destruction of Records, available at: <http://www.polity.org.za/govdocs/commissions/1998/trc/volume1.htm>.

<sup>32</sup> For case studies of corporate actions to circumvent accountability, see Sidney Glantz et al., *The Cigarette Papers* (Berkeley: University of California Press, 1996); and Victoria L. Lemieux, “Let the Ghosts Speak: An Empirical Exploration of the ‘Nature’ of the Record”, *Archivaria* 51 (Spring 2001): 81–111.

<sup>33</sup> Duranti, “The Thinking on Appraisal of Electronic Records”, p. 517.

<sup>34</sup> *Ibid.*



preserve or destroy.”<sup>35</sup> Positivist assumptions about impartiality and naturalness obscure the interface of selection and misrepresent the contingent nature of archives. They deny the ways in which appraisal can be both an exercise of power by archivists in shaping social memory and an act of resistance by archivists against other powers that wish to shape social memory for their own purposes. Archivists, however, make little effort to leave clues about the basis for their appraisal decisions or the contexts in which they are made. What will researchers have to go on to make sense of the records that have been preserved, as they attempt to place these remaining fragments in the context of what might have existed and they try to discover why only this portion is kept in the archives? Of course, such future researchers could read appraisal theory and debates about it, but how would one understand the breach between theory and practice? Perhaps they could uncover the appraisal policies of archives and, in a few cases, written explanations of why a particular archivist thought certain records were important. Beyond that, the basis for appraisal and selection remains largely hidden and invisible. If this is true of all media of recording, electronic records make the appraisal interface particularly troublesome. Here archivists have lost the luxury of temporal distance between the records being appraised and timing of appraisal and selection. As a consequence, appraisal decisions will be shaped by quotidian values and by the pressures and constraints of the moment when the records are appraised. In that sense, appraisal is becoming an even more self-conscious endeavor, leaving a much deeper imprint on the nature of the historical record. There will be no second chance to readjust appraisal criteria as research interests change and no serendipitous discoveries of lost digital treasures.

New interfaces could serve as gateways to structured information about appraisal and selection. To build such interfaces, however, archivists would have to share their insights about how they interpreted appraisal theory, expose their debates and discussions about appraisal values, underline constraints of technology and politics hampering an ideal appraisal decision from implementation, and, most importantly, reveal their uncertainties about, and discomfort with, the choices that confront them. By providing insights into the tensions between theory and practice, supplying information about institutional appraisal policies, and providing means for users to discover the archivists on the other side of the interface, archivists could begin to share power with a larger community of scholars. Such information could be linked

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<sup>35</sup> Ibid., p. 518.

to information about other records that were evaluated, but not saved, as well as records known to exist, but beyond the archivists' purview.<sup>36</sup>

Archivists also construct an interface between the past and the present through the presentation and representation of archives to their users through various actions collectively known as archival description. Archival methods of representation produce tangible products – inventories, finding aids, indexes, and other access tools – that place archives in a context and provide clues to their content. Archival descriptions are the most visible interface between archives and their interrogators, yet archivists pay relatively little attention to the interpretive spin that description places on archival materials. ISAD(G), the international standard for archival description, defines archival description as “the creation of an accurate representation of a unit of description and its component parts . . . by the process of capturing, collating, analyzing, and organizing any information that serves to identify archival material and explain the context and records systems which produced it.”<sup>37</sup> Accepted descriptive standards outline the basic concepts of archival description: using provenance as the organizing principle, keeping records together on the basis of their creator-origin or accumulation, and constructing representations by working from the general to the specific. Most archival description follows a linear narrative structure in which administrative histories or biographical statements offer contextual clues to the contents of the archives and provide a means, from this contextual information, for making inferences about the contents of a fonds or a records series. Archivists provide additional “access points” through listings of the contents of boxes, folders, and, in some cases, specific items, along with controlled terms that archivists add to the description.<sup>38</sup>

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<sup>36</sup> Although this proposition may seem naïve and utopian, the type of power sharing and mutual respect that I am advocating grew out of a year-long discussion between historians and archivists around the theme of Archives, Documentation, and Institutions of Social Memory, sponsored by the Bentley Historical Library and the International Institute at the University of Michigan during the 2000–2001 academic year. In addition to producing a wealth of papers on the topic, which are being edited by Francis X. Blouin and William Rosenberg for publication by the University of Michigan Press, this seminar helped to demystify historians and archivists to each other and to reinforce the needs for a much deeper understanding of memory in both communities.

<sup>37</sup> International Council on Archives, International Standard for Archival Description (ISAD(G)), available [www.ica.org/ISAD\(G\)E-pub.pdf](http://www.ica.org/ISAD(G)E-pub.pdf) on 15 July 2001.

<sup>38</sup> Access points are terms that archivists add to finding aids and catalogue records to represent subjects, places, names, and concepts that may be significant in an archival collection, but that are not necessarily part of the original or standard description. Most institutions draw their access points from controlled vocabularies, such as the Library of Congress Subject Headings, the Art and Architectural Thesaurus, or any number of discipline, subject, form, and genre lists of terms.

Criticism of the interpretive frames represented in archival description has come from two fronts, yet archivists have only begun to explore the interpretive aspects of description.<sup>39</sup> Users of archives have put pressure on archivists to improve, if not rethink, their descriptive practices. The use of archives for increasingly diverse purposes exposed the limitations of archival descriptions designed with a narrow view of the ways in which researchers would exploit primary sources. Researchers who attempted to use archives to explore women's history, the history of minorities or native peoples, environmental history, or the history of mentalities, often found that archival descriptions obscured as much as they revealed about the contents of archival collections. Not unlike appraisal decisions, archival descriptions reflected as much about the mindset of the archivist writing the description, and the research interests at the time of its writing, as they revealed about the records.<sup>40</sup>

Some archivists have also questioned the ability to control descriptive language, and apply it consistently enough, to design access systems that produce meaningful results with any degree of accuracy, reliability, and precision. Avra Michelson found very little consistency in the terms that archivists used to describe the same set of records.<sup>41</sup> Helen Tibbo concluded that bibliographic databases, with descriptions of large numbers of archival collections, could not identify relevant collections with an acceptable degree of precision.<sup>42</sup> In a probing critique of archival descriptive practice, David Bearman

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<sup>39</sup> A few archivists have been vocal about redefining description and reforming access systems. See Chris Hurley, "Ambient Functions: Abandoned Children to Zoos", *Archivaria* 40 (Fall 1995): 21–39; Chris Hurley, "The Making and Keeping of Records: (1) What are Finding Aids For?", *Archives and Manuscripts* 26 (1) (May 1998): 58–77; and "The Making and Keeping of Records: (2) The Tyranny of Listing", *Archives and Manuscripts* 28 (1) (May 2000): 8–23; Margaret Hedstrom, "Descriptive Practices for Electronic Records: Deciding What is Essential and Imagining What is Possible", *Archivaria* 36 (Autumn 1993): 53–63; Margaret Hedstrom, "How do Archivists Make Electronic Records Usable and Accessible?", *Archives and Manuscripts* 26 (1) (May 1998): 6–22; and Elizabeth Yakel, "Thinking Inside and Outside the Boxes: Archival Reference Services at the Turn of the Century", *Archivaria* 49 (Spring 2000): 140–160. The problems of applying this ISAD(G) – or RAD – descriptive model are also analyzed in Terry Cook, "The Concept of the Archival Fonds in the Post-Custodial Era: Theory, Problems, and Solutions", *Archivaria* 35 (Winter 1992–1993): 24–37; and in "Fashionable Nonsense or Professional Rebirth: Postmodernism and the Practice of Archives", *Archivaria*: 32–34.

<sup>40</sup> Diane Beattie, "Retrieving the Irretrievable: Providing Access to Hidden Groups in Archives", in Laura B. Cohen (ed.), *Reference Services for Archives and Manuscripts* (New York: Haworth, 1997), pp. 83–94.

<sup>41</sup> Avra Michelson, "Description and Reference in the Age of Automation", *American Archivist* 50 (Spring 1987): 192–208.

<sup>42</sup> Helen Tibbo, "The Epic Struggle: Subject Retrieval from Large Bibliographic Databases", *American Archivist* 57 (Spring 1994): 310–326.

urged archivists to identify the dimensions of space, time, subject, action, object, form, and function, and then use these as the basis for building intelligent artifices and structures for intellectual control.<sup>43</sup> Speaking from outside archival science, Geoffery Bowker and Susan Leigh Star have analyzed how classification operates to structure daily relations, work processes, social hierarchies, and knowledge.<sup>44</sup>

Direct interactions between researchers and reference archivists also shape users' experiences of the archives. The current research process is highly human-mediated, involving a personal visit to the repository, a perusal of the finding aids with assistance from a reference archivist, and the delivery of documents in small portions to researchers in the reading room. Members of the archives staff may have extensive knowledge of collections gleaned during the process of appraisal, arrangement, and description, or gathered from discussions with previous users or their own research, but not formally represented in descriptive systems. This process offers researchers an opportunity to question the descriptive terms in finding aids and delve into their interpretation.

The adoption of on-line access systems opens the way for researchers to search archives without the benefit of human mediation and, in the process, exposes both the potential and the limitations of archival description, human intermediaries, and computer interfaces. On-line finding aids allow users to search administrative histories and biographical sketches, scope and content notes, and container and reel listings. Yet the information in finding aids – in their paper or on-line versions – often is presented as an accurate, factual, and neutral representation of the contents of archives, with little indication of the nature of the interpretation supplied by the archivist. During the decades ahead, as archives put finding aids on-line and digitize more of their holdings to take advantage of the possibilities of remote access, another type of appraisal decision will come to the fore. Decisions about which records to describe in greater detail, and which to digitize for remote access, will influence the characteristics of the documentary past for many users of archives. Materials that are discoverable and accessible remotely will enjoy more use than their physical counterparts, because remote access removes barriers of distance and time.<sup>45</sup> If remote access becomes the predominant way in which

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<sup>43</sup> David Bearman, *Archival Methods* (Pittsburgh: Archives and Museum Informatics, originally published as Archives and Museum Informatics Technical Report, 3.1 (Spring 1989), pp. 49–58.

<sup>44</sup> Geoffery C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge, MA: MIT Press, 1999).

<sup>45</sup> Thomas J. Ruller, "Open All Night: Using the Internet to Improve Access to Archives: A Case Study of the New York State Archives and Records Administration", in Cohen (ed.), *Reference Services for Archives and Manuscripts*, pp. 161–170.

most users discover archives and interact with their contents, then the on-line collection becomes *the* collection for many users. Archival exhibits and on-line collections are highly-mediated creations that are influenced by funders or sponsors' interests and by archivists' views of what is valuable or interesting. Selection of what goes up on the web privileges a tiny portion of the archives, chosen from a larger body of archival material which itself is only a small percentage of the documents that once existed. Yet archival exhibits and on-line collections provide few clues about the basis for selection or the existence of related physical and digital materials. Taken too far, this strategy can produce superficial digital collections, removed from their original provenance and context, that reinforce dominant master narratives of progress, nationalism, ethnic superiority, patriarchy, technological determinism, or whatever those making decisions about what to digitize decide to emphasize.

The transition from physical to remote access also will reorient the interactions between the users of archives and the archival institutions and their staff. One scenario would render the physical and human interface invisible and irrelevant. Rather than entering the halls of a custodial institution and interacting with the human mediators who serve as both gatekeepers and providers of archival documents, users may well bypass the human interface in favor of whatever can be rendered on their computer screen. Actual visits to archives to view the original documents would be limited to those who could not gain access remotely or who have exceptional needs to view original documents. Or archivists could build themselves into the interface – not by limiting on-line access or making it difficult and inconvenient, but by using the computer interface as means to make themselves accessible to users for rich verbal and visual interaction. This is not a far-off fantasy. Tools already exist to link remote users with human mediators who can supply some of the tacit and local knowledge that is not readily available in the formal representations of archives.

Archivists should also be cognizant of two other trends in access during the transition from a physical to a virtual interface. Common interfaces permit users to search across archival holdings, regardless of which repository has physical custody and, in fact, regardless of whether or not the materials reside in an institution called an archives. Users do not have to know where records exist before they can query the finding aids to determine what might be potentially relevant or useful. With many on-line access systems today, users have to invest time and effort to determine where materials are physically held. A significant implication of this transition for archivists is that search and navigation is becoming less centered on the repository. Increasingly, archivists will be expected to help users locate materials not only in the

holdings of their own institutions, but in other archives and in institutions not considered archives. A second trend is that universal interfaces, such as common web browsers, do not distinguish archival sources from any of the other myriad types of information available on the World Wide Web. For users, this has the distinct advantage of allowing search and navigation through massive amounts of heterogeneous material and the disadvantage of returning results with little relevant contextual information. For archivists, it is worth considering whether, when, and why it is important to differentiate archival space and archival sources from other types of information, as archivists have done in the past with the physical structures we built and our distinct representations of archival collections. Without a clear sense of which distinguishing features of archival documents should be presented to users, archivists will not be able to design a new interface that tells users at the outset when they have entered archival terrain.

Before archivists can proceed with interface design, it is critical to reach a consensus on what we are designing the interface to do. Is it simply a mechanism to provide users with screen after screen of digital images of documents, or should archivists also supply information – both textual and visual – that places the documents in their archival context? Can interfaces support navigation through collections and across contexts and help users locate relevant material in both digital and physical form? Should we create highly structured interfaces that incorporate the archivist's best judgment about how to exploit a collection or should we encourage users to explore intuitively or randomly? How much power and control do we want users to enjoy? How much power do we, as archivists, wish to share? Should our interfaces reinforce archivists' perspectives on what constitutes an archives or should we enable users to construct their own notions of archives based on the needs or values that matter most to them? These questions just scratch the surface of areas archivists must be prepared to address, before we can consider the important issues of the functionality and the aesthetics of the interface.

In closing, I would like to suggest some ways in which archivists can accommodate the highly contingent nature of archives and archival practice. To my mind, answers will not come from trying to reestablish a romantic ideal of archival absolutes, impartiality, naturalness, or objectivity. Rather, I see inspiration evolving from concepts, tools, and processes that enable archivists to place not only the records they deal with in context – but also to place archivists, archival practice, and archival institutions in an equally dynamic context. This process begins by acknowledging that archivists are human, with all of the consciousness, subjectivity, and frailty that humanness implies. It also demands that archivists confront the interpretive nature of their work.

Rather than obscuring the interpretive aspects of appraisal, presentation, and mediation, archivists should expose and articulate these interpretive acts, capture and structure information about them, and leave as many traces as possible about interpretive frames that operate at the organizational, professional, and individual level. Rather than ignoring the power structures within which archivists operate or denying their own interpretive power, I am urging archivists to become more conscious of power by declaring it and sharing it, however imperfectly, with each other and with current users and future generations.

My underlying assumption behind these suggestions is a faith that future users of archives will be able to adapt to the limitations of the memory traces we leave behind, *if* archivists provide the clues that will enable users to do that. Users will be able to judge the authenticity, reliability, and weight of documentary evidence for themselves using the tools, norms, and methodologies of their time, *if* we provide the contextual information about appraisal and description that they will need to make these judgments. Archivists could help future users understand why certain records survived and others did not by enriching the interface between archives and their users with information about the factors that archivists considered important in appraising, selecting, and describing records. Rather than assuming that archivists can achieve neutrality and objectivity, and therefore should be invisible, such traces of self-conscious archival activities would provide a lens through which users could read and interpret the evidence left behind. To do otherwise would deny archivists the credit they deserve for building an important part of the interface with the past and obscure from users the contingent and interpretive nature of archives.