

1 Introduction: scenes from the prehistory of digitization

When our poet's entire library shall have been discovered, and the fables of all his plays traced to their original source, when every temporary allusion shall have been pointed out, and every obscurity elucidated, then, and not till then, let the accumulation of notes be complained of.

Edmund Malone, preface to the 1790 Variorum¹

Had the Shakespeare editor Edmund Malone written these words in the early twenty-first century instead of the late eighteenth, he might well have used the word archive instead of library. Malone was certainly interested in Shakespeare's actual library of source material, but his ambition to recover all possible traces of Shakespeare's originary acts of authorship can best be described as archival. Between Malone's time and ours, the archive has replaced the library as the dominant metaphor for cultural memory, extending to specific institutions and technologies, and to memory as a personal and social phenomenon. While libraries tend to order their materials according to abstract systems premised upon Enlightenment models of an ideal world of knowledge, modern archives instead take a forensic approach, ordering their materials according to a reconstructed model of the typically unideal conditions in which an author's unpublished records lived and had their being. In other words, libraries usually order the world of knowledge as it should be; archives order the many little worlds of documentary traces as they actually were (as far as we can determine). The figure of the archive provides a useful set of metaphors for thinking about the transmission and preservation of literary texts like Shakespeare's, given that an archive is at once a physical thing - that is, a material gatheringtogether of documents, artifacts, and data - and an imaginary thing, a symbol for cultural investments in memory, preservation, and an available past. Malone may have envisioned Shakespeare's library as a real

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¹ Malone (ed.), *Plays and Poems*, vol. I, part I, p. lvi.



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space, but the object of Malone's own recovery project was an imagined Shakespearean archive – the sum of all the recoverable traces of the author's literary life.² This book explores the convergence of texts, technologies, documents, data sets, and new media experiments that have come to constitute the Shakespearean archive in the digital age.

Archives also embody our preoccupation with human presences in the documents that outlive us. With the possible exception of the Bible, that preoccupation is nowhere more intense than in the study of Shakespeare's textual remains. Jacques Derrida famously called this tendency *mal d'archive*, the archive fever or disorder which means "to have a compulsive, repetitive, and nostalgic desire for the archive, an irrepressible desire to return to the origin, a homesickness, a nostalgia for the return to the most archaic place of absolute commencement." Derrida's characterization captures the nature of Malone's preoccupation with Shakespeare, as does Pierre Nora's description of memory's social and institutional dimensions:

Modern memory is first of all archival. It relies entirely on the specificity of the trace, the materiality of the vestige, the concreteness of the recording, the visibility of the image ... [S]ociety as a whole has acquired the religion of preservation and archivalization. What we call memory is in fact a gigantic and breathtaking effort to store the material vestiges of what we cannot possibly remember, thereby amassing an unfathomable collection of things that we might someday need to recall.⁴

The road by which we arrived at this condition has been a long one, and amounts to more than just a chronicle of media and technologies. As Thomas Richards notes, for those living at the height of the British Empire, "The archive was not a building, nor even a collection of texts, but the collectively imagined junction of all that was known or knowable, a fantastic representation of an epistemological master pattern." The inaccessibility of the ideal archive, in the sense Richards describes, makes it both an object of desire and the principle by which that desire is frustrated.

What role does Shakespeare play in this archival picture of cultural memory, in the Victorian period but also within the more general scope of modernity that Nora considers? How does the preoccupation with archiving, as described by Derrida and Nora and embodied by Malone,

⁵ Richards, *Imperial Archive*, p. 11.

² On Malone's encyclopedic project, see de Grazia, Shakespeare Verbatim.

³ Derrida, Archive Fever, p. 91. ⁴ Nora, Realms of Memory, vol. I, p. 8.



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shape the ways we understand and represent Shakespeare's texts? This book explores these questions in ways that shed light not only on historical instances of Shakespearean archive fever, like Malone's variorum edition, but also on their connections with digital tendencies in the present. Shakespeare's texts give a habitation and a name to the spectres of forgetting and loss that haunt any archival enterprise.

What I call the Shakespearean archive can be defined as the imagined totality of playbooks, documents, versions, individual variants, commentaries, sources, adaptations, and other preservable records that underwrite the transmission of Shakespeare's texts. The Shakespearean archive serves as an answer – or at least a response – to the bibliographic koan attributed to F.W. Bateson, "If the Mona Lisa is in the Louvre, where [is] Hamlet ...?" The essential characteristic is the persistent sense, evident in Malone's words above, of the Shakespearean archive as an imagined totality, and specifically as what Nora calls an "an unfathomable collection" of information that cannot be remembered in its totality, but may be grasped in fragments with the help of memory technologies – including the format of the variorum edition, in Malone's case. In this sense, one could just as easily speak of the James Joyce archive, or the archive of English common law, but Shakespeare stands as an exceptional case given the degree to which his unstable textual archive is made to bear the weight of cultural heritage in the Western tradition. This form of Shakespearean exceptionality has received less attention than the more traditional kind, which takes Shakespeare to be the apex of English literary achievement and insight into human nature. Whatever else Shakespeare may be, his works stand as an exceptional problem for the idea of the straightforward transmitting and archiving

⁶ Quoted in Greetham, *Textual Scholarship*, p. 342, and in slightly different forms in Bornstein, "How to Read," p. 29, Robinson, "Is There a Text," p. 99, and probably many more publications. However, it is unclear what they are quoting; as Sukanta Chaudhuri points out, it appears that F. W. Bateson never formulated this idea as the question so often attributed to him, and that the closest he came in any printed source was a statement (accompanied by a decided answer), not an open question, in "The New Bibliography and the 'New Criticism," pp. 9–10 (but see also Bateson's exploration of the *Hamlet-Lycidas*-Louvre thought experiment from ten years prior, in "Modern Bibliography and the Literary Artifact," p. 74, and Joseph Grigely's discussion in *Textualterity*, pp. 84–5); Chaudhuri, *Metaphysics of Text*, p. 53. However, literary critics and textual scholars such as Chaudhuri, Greetham, Bornstein, and Robinson have also demonstrated the value of considering the received question as such, regardless of attribution.



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of cultural texts, and the various responses to this problem reveal human insights of a different kind.

The absence of the most archival of authors' records – Shakespeare's dramatic manuscripts – often prompts a necessary over-compensation in other areas of archival management. A specifically Shakespearean form of archive fever manifests in the interplay of time, desire, and data that runs through Malone's language in the epigraph above: "entire library"; "all his plays traced"; "every . . . allusion"; "every obscurity" – this is the language of philological encylopedism, inflected through the context of variorum editing as the building of a new kind of Shakespearean editorial interface. Though Malone makes an appeal to the spatial metaphor of Shakespeare's own library, his emphasis here is on temporality, on the archive as both an experiential state (responding to the "accumulation of notes" on the page) and an unfolding process (the sum of the verbs "discover," "trace," "point out," "elucidate," and "accumulate" as archival energies behind the notes). The tone of apocalypticism in Malone's words bears out Derrida's point that archives exist not for the past but for the future. Malone looks ahead to a moment of final revelation and escape from the squabbles of Shakespearean editorial history ("then, and not till then"), to be reached only through the medium of time with all its repetitions and accumulations.

Yet Malone apparently cannot account for a phenomenon that now seems commonplace, that the passing of time and accumulation of data generate more questions than answers. That accumulation defines the conditions of digital textual scholarship today. Over fifteen years ago, as digital editing and archiving were becoming the viable pursuits that humanists now accept them to be, Julia Flanders posed a question that textual scholars are still working to answer: "what pressure does the term 'archive' ... put on the conceptualization of the 'edition'?"8 Archives seem to offer unconstrained access to vast stores of primary materials, but at the expense of the scholarly selectivity and synthesis that readers value in editions. As the twenty-first century brings more digital Shakespeare projects, Flanders's question remains with us. It is clear that all digital textual scholarship takes place within the long

⁷ Derrida, Archive Fever, pp. 33–4. Peter Shillingsburg makes the similar point that "The purpose of editing is not to replicate the past" in his defense of authorially focused editorial theory, "The Semiotics of Bibliography," p. 21.

8 Flanders, "Body Encoded," p. 136.



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shadow of the archive, but that does not mean that we understand the shape of the figure casting that shadow.

The Shakespearean Archive explores the entwined histories of Shakespearean texts and archival technologies over the past four centuries, and asks why one finds Shakespeare so often associated with new information technologies and with the idea of archiving itself. In a sequence of chapters dealing with the archive, the book, photography, sound, information, and data, this book explores how the inherited texts of Shakespeare's plays (and to a lesser extent his poems) became prototypical material for publishing experiments, new media projects, and tech demos, as well as for theories of information and computing from the seventeenth century to the present. The chapters delve into specific examples of what could be called Shakespearean sites of memory, in reference to Nora's concept of lieux de mémoire: the various sites, whether documents, places, or ritual practices, "in which memory is crystallized." As Nora describes, "An archive is a purely material site that becomes a lieu de mémoire only if imagination invests it with a symbolic aura." ¹⁰ Shakespeare's texts bring with them a symbolic aura like no other, and yet also function as sites of forgetting and loss, even in the context of digitization projects that appeal to the modern archive fever that Nora and Derrida describe. 11

This book offers a critical prehistory of digitization read through the technological afterlives of Shakespeare's complex and imperfect textual archive. In taking modern digitization as a point of departure for historical inquiry, I regard the present state of computing not as a given, but as the result of cultural investments that bestow value in some ways and withhold it in others. The most consequential of those investments – in ideas such as the transmissability of culture through new media, and the translatability of cultural texts into data – were made earlier than one might expect, and many preceded and set the stage for modern Shakespeareans' narratives about the transmission of the texts.

Attempts to manage the Shakespearean archive inevitably take technological form. The book itself is the most obvious technology to consider in this regard, and there has been a resurgence of scholarly energy

⁹ Nora, Realms of Memory, vol. I, p. 1.

¹⁰ Nora, Realms of Memory, vol. I, p. 14.

For a general discussion of the role of loss in the history of books and libraries, see the chapters in Raven (ed.), Lost Libraries, and especially Raven's introduction, "The Resonances of Loss," pp. 1–40.



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in this area in recent years. 12 However, there has been less attention given to Shakespeare's strange ubiquity in the history of information and media. especially from the nineteenth century onward. 13 He shows up in the strangest places. When an 1856 advertisement pitches the stereoscope as a new invention for domestic entertainment, it quotes Hamlet ("Seems Madam! Nay, it IS!"). When the editor and librarian (and forger) John Payne Collier undertook the first photographic reproduction of a complete book, the book he chose was the rare Hamlet first quarto. When the Royal Ordnance Survey published a pamphlet detailing their own newly discovered methods of photozincographic reproduction, a page from the 1623 First Folio led the triumphal procession of sample images (followed by reproductions of Domesday Book, an indenture document, topographic maps, and photographs of Egypt). When Alexander Graham Bell demonstrated early versions of the telephone on the stages of public theatres and music halls, audiences heard Hamlet recited over the line, along with newspaper reports and live music. Later, when Bell and his collaborators went to the Smithsonian to deposit a prototype of what would become the dictaphone, they returned to Hamlet, recording lines of the play on the wax cylinder that went into storage with the prototype. When Thomas Edison demonstrated an early prototype of a device much like a fax machine, he chose the opening line from Richard III, underscoring the temporal efficacy of the machine with Shakespeare's powerful opening word, "Now." 14 It is as though Shakespeare wrote the script for new media's introduction into the cultural imagination.

Shakespeare has been recruited to legitimate not only new technologies but also new ideas about the nature of information and data. When Alan Turing first published his groundbreaking ideas about artificial intelligence in 1950, he imagined the composition of a Shakespearean sonnet to represent the boundary between human and machine

Exceptions include the work of Katherine Rowe and Peter Donaldson. Rowe cites
 Donaldson's survey of Shakespeare as "launch content" for new media from the
 nineteenth century to the present; Rowe, "Media History," p. 306.

Examples include Kastan, Shakespeare and the Book; Scott, Idea of the Book; Chartier, Inscription and Erasure; and Stallybrass, Chartier, Mowrey, and Wolfe, "Hamlet's Tables." See also the works cited in note 24 below.

These examples are cited and discussed in greater detail elsewhere in this book. On the stereoscope advertisement, Collier *Hamlet* facsimile, and Royal Ordnance Survey experiments, see Chapter 4. On Bell and Edison, see Chapter 5; on Edison's use of *Richard III* specifically, see also Gitelman, *Scripts*, *Grooves*, pp. 161–2.



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intelligence. 15 When other postwar theorists of information and cybernetics explained their ideas to each other and to the public. Shakespeare regularly furnished examples. When Jeff Rothenberg published one of the foundational articles on digital data preservation in *Scientific American* in 1995, Shakespeare's Sonnet 18 ("So long lives this, and this gives life to thee") served to exemplify preservable data, illustrated by a page from the 1609 quarto. 16 A recent pamphlet by Franco Moretti for the Stanford Literary Lab uses *Hamlet* to illustrate the application of network theory to literary studies, though it does so by detaching Hamlet from its history of textual transmission.¹⁷ The most well-known example of all comes from decades earlier: when physicist Arthur Eddington first conjured up the image of innumerable monkeys at typewriters generating literary works by accident, the works were not Shakespeare's - Eddington's original example was the contents of the British Museum Library - but somehow Shakespeare colonized the metaphor as it propagated through the twentieth century. 18 That is what Shakespeare does.

Reciprocally, our understanding of the transmission of Shakespeare's texts underwent radical changes immediately after the nineteenth century, in what were also formative decades for modern information culture. Twentieth-century Shakespearean textual studies and its disciplinary progeny, the New Bibliography, have shaped scholarly and popular ideas about the transmission of literary texts under the generally unacknowledged influence of information culture and technology. It was under these conditions that the leading figures of the New Bibliography, W. W. Greg, A. W. Pollard, and John Dover Wilson, inherited the nineteenth century's preoccupation with Shakespeare's quartos and folios as an encyclopedic mass of documents. They inherited an empty archive, given the absence of surviving Shakespeare manuscripts, but filled it with inferentially reconstructed documents, whose precise details they deduced from patterns of information left by machines

¹⁵ Turing, "Computing Machinery and Intelligence," p. 446. Turing and information theory are among the subjects of Chapter 6.

Moretti, "Network Theory, Plot Analysis." This example, along with the Rothenberg article on digital preservation cited above, is discussed in greater detail in Chapter 7.

On Eddington, see Butler, "Monkeying Around with Text," p. 113–14.

Rothenberg, "Ensuring the Longevity of Digital Documents"; a revised version is posted in the Council on Library and Information Resources online archive: www.clir.org/pubs/archives/ensuring.pdf. I am grateful to Yuri Takhteyev for bringing Rothenberg's article to my attention.



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and humans working together in the early modern printing house. Following Greg's first major work on memory as an agent of textual transmission in 1910, bibliographers increasingly viewed Shakespeare's textual problems in terms of information technology. 19 Joseph Loewenstein characterizes the New Bibliography not simply as an editorial and bibliographical movement, but as a "research program in industrial history," and argues that "new information technology and a legal crisis [over copyright] which that technology exacerbated were somehow determining for a twentieth-century bibliographical scholarship [with the result that] problems in modern intellectual property somehow motivate research into early modern information technologies and early modern intellectual property."²⁰ With these changes, as well as the rapid extension and consequent breakdown of the British Empire's networks of information gathering and dissemination, the technologizing of human memory in Freudian psychoanalysis, and the apocalyptic vision that spawned a knowledge preservation industry following the First World War, Shakespeare's material texts acquired unprecedented importance for all Shakespeareans, not just bibliophiles. Memory, textual transmission, and the preservation of knowledge became subjects of a Shakespearean bibliographic narrative, just as the practice of editing became a vital epistemological activity. It prompted the formation of an imagined archive: a fantasy of recoverable histories of textual transmission to buttress cultural monuments under threat from error, loss, and overload.

Digital humanists of the present stand to learn from how Shakespeareans have confronted those spectres, and how they negotiated their own imaginative engagements at the threshold between human and machine. The digital humanities now occupy much the same position in which the New Bibliography found itself in the mid-twentieth century. Then as now, the cultural pressures that went with social and technological change required the assimilation of vast amounts of knowledge about the transmission of texts – and by extension, the seemingly transmissible parts of culture itself – into a coherent narrative. This narrative had to account not only for the literary documents that survive, and for the positive explanatory power they bring to the idea of a transhistorical humanities archive, but also for the practical means by which culture

19 Greg (ed.), Merry Wives of Windsor.

²⁰ Loewenstein, Author's Due, pp. 251–2, emphasis in original.



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could be preserved and disseminated into the future through editing and related activities. Like digital humanists today, the New Bibliographers lived in a time of new media; they had to articulate their work to a changing academy that often did not understand it; they were obliged by their material to command a detailed knowledge of how text interacts with machines; and they had to respond to the often contradictory imperatives of explaining and making.

Shakespeareans have a unique perspective on the complex relationships between technology and textuality, given that, as Barbara Mowat has pointed out, all of the Shakespeare texts we have inherited from the past (with the possible exception of part of the manuscript for Sir Thomas More) are print artifacts. 21 All of the New Bibliographers' hypothesizing about Shakespeare's authorial manuscripts cannot change a basic fact: the Shakespeare we have inherited is the product of a mechanical process - or, to be more exact, the system of linked mechanical processes that constituted early modern printing. There is a large body of scholarly literature on Shakespeare and publishing, building upon the research of eighteenth-century editors such as Edward Capell and Edmund Malone. In recent decades, Shakespeareans have made a concerted effort to see the supposedly stable and familiar form of the book with new eyes, linking the material forms of the text to interpretive questions. In particular, Peter Stallybrass and Margreta de Grazia's provocative 1993 article "The Materiality of the Shakespearean Text" challenged critics to read the plays and poems in the light of knowledge about printing and scribal practices being uncovered by bibliographers and book historians. The materialist turn in Shakespeare studies – exemplified most controversially, perhaps, in Stallybrass and de Grazia's article - coincided with two other key developments: the widespread challenges to the orthodoxy of the New Bibliography's ideas about scholarly editing; and rapid changes in computing technology through the 1990s, which promised new frontiers for the transmission, representation, and analysis of Shakespeare's texts.²² The link between Shakespeare and the book has become a central topic, exemplified

²¹ Mowat, "The Problem of Shakespeare's Text(s)."

²² See De Grazia and Stallybrass, "The Materiality of the Shakespearean Text," and Marcus, *Unediting the Renaissance*. Gabriel Egan provides a skeptical overview of what he calls the New Textualism in his chapter "Materialism, Unediting, and Version-Editing, 1990–1999," in *The Struggle for Shakespeare's Text*, pp. 190–206.



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in recent studies by David Scott Kastan and Charlotte Scott.²³ In retrospect, all of this scholarship served to establish the history of the book as no longer merely background or context for Shakespeare's work, but as essential knowledge for understanding the very nature of the texts as cultural artifacts.

What has not yet been attempted on a broad historical scale is an examination of Shakespeare's entanglement with information technologies and structures generally, including books but also encompassing archives, libraries, databases, and other knowledge infrastructures that underpin modernity. With that difference as a point of departure, the present book builds upon studies of the editorial and bibliographical dimensions of Shakespeare by de Grazia, Kastan, Laurie Maguire, Andrew Murphy, Sonia Massai, Lukas Erne, Gabriel Egan, Paul Werstine, and most recently Zachary Lesser.²⁴ All of these authors concern themselves in different ways with the roles of scribes, players, printers, and publishers in transmitting Shakespeare's texts, and with editors in reshaping those texts for readers. The story of Shakespeare editing and publishing has been told thoroughly and well in these volumes, but The Shakespearean Archive seeks to tell a different story, one that focuses instead on textual agents who are not quite editors: the technologists, experimenters, inventors, and other information workers who were the first witnesses of Shakespeare's complex afterlife through information technology. Their stories inform presentday digital projects from the margins of Shakespearean history, and these technologists of the past have their counterparts in the information workers of the present: the encoders, programmers, project managers, database specialists, interface designers, archivists, and librarians who increasingly populate the ranks of the digital humanities. What they teach us is that the range of textual mediations commonly grouped under the word *editing* can take many forms, and can happen in places one might not think to look.

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Shakespeare; Lesser, Hamlet After Q1.

 ²³ Kastan, Shakespeare and the Book; Scott, Idea of the Book. On the related theme of reading and writing in Shakespeare's works, and in their transmission, see Goldberg, Writing Matter, and the essays in Bergeron (ed.), Reading and Writing.
 ²⁴ De Grazia, Shakespeare Verbatim; Maguire, Shakespearean Suspect Texts; Murphy, Shakespeare in Print; Erne, Shakespeare as Literary Dramatist; Massai, Shakespeare and the Rise of the Editor; Egan, The Struggle for Shakespeare's Text; Werstine, Early Modern Playhouse Manuscripts and the Editing of