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# Remediation and Spectral Bibliography: Ghost Hunting in Early Modern Books

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This paper explores the layers of remediation and hidden labour embedded in the digitization of early modern texts, focusing on how metadata traces in digital archives can both reveal and obscure the material history of books. Using a bibliographic workflow, this study examines the challenges of distinguishing between material artifacts of the original printing process and distortions introduced through digitization. Through a case study of Thomas May's *The Tragedie of Cleopatra*, I analyze metadata from the English Short Title Catalogue (ESTC) and Internet Archive, alongside correspondence with archivists, to reconstruct the provenance and digitization history of the text. I thus contend that the digitization of early modern texts introduces ambiguities: digital anomalies that can obscure or distort the material history of these works, thereby challenging the reliability of digital surrogates for historical inquiry. This research highlights the stakes of providing scholars with opportunities for in-person archival study, particularly in cases where digital surrogates present anomalies that resist easy categorization. These stakes are especially high for scholars relying on digital scans to conduct research, as addressing these uncertainties requires innovation in digitization processes, and sustained investment in methodologies that bridge the gap between digital and physical archives, ensuring the reliability of digital surrogates for historical inquiry.

Cet article examine les strates de remédiation et le travail invisible impliqués dans la numérisation des textes de la première modernité, en s'attachant à la manière dont les traces de métadonnées dans les archives numériques peuvent à la fois révéler et masquer l'histoire matérielle des livres. En mobilisant un protocole bibliographique, cette étude analyse les difficultés à distinguer les artefacts matériels issus du processus d'impression d'origine des altérations induites par la numérisation. À travers une étude de cas portant sur *The Tragedie of Cleopatra* de Thomas May, j'analyse les métadonnées issues du English Short Title Catalogue (ESTC) et de l'Internet Archive, ainsi que des échanges avec des archivistes, pour reconstruire la provenance et l'histoire de la numérisation du texte. Je soutiens ainsi que la numérisation des textes anciens introduit des ambiguïtés : des anomalies numériques susceptibles d'obscurcir ou de déformer l'histoire matérielle de ces œuvres, remettant en cause

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la fiabilité des substituts numériques dans la recherche historique. Cette recherche souligne l'importance de garantir aux chercheurs un accès physique aux archives, en particulier lorsque les substituts numériques présentent des anomalies difficiles à classer. Ces enjeux sont d'autant plus cruciaux pour les chercheurs dépendant des scans numériques, car surmonter ces incertitudes exige à la fois des innovations dans les processus de numérisation et un investissement durable dans des méthodologies capables de relier archives physiques et numériques, afin d'assurer la fiabilité des substituts numériques dans la recherche historique.

## Introduction

This paper investigates the layers of remediation and hidden labour embedded in the digitization of early modern texts, utilizing a bibliographic case study to demonstrate the stakes of innovations in digitization practices, as well as accessibility to in-person archival visits. In *Ghosts, Holes, Rips and Scrapes*, Zachary Lesser defines ghosts as "[a] residue of the linseed oil in which lampblack, soot produced by burning oil, is suspended to create printer's ink," which creates a faded image on the adjacent leaf, due to its acidity (Lesser 2021, 33). He reveals the utility of discovering ghosts, arguing that "[a] bibliographic ghost returns to the world that has forgotten it to reveal lost collections, lost sammelbands, lost histories" (Lesser 2021, 33). In the spirit of reconstructing these "lost histories," this paper explores the metadata of Thomas May's *Two Tragedies*, tracing its phases of remediation, asking (1) what can its metadata tell us about this book's digitization history, and (2) whose hidden labour can be unveiled by exploring it? Through the case study of *The Tragedie of Cleopatra*, the paper argues that these ambiguities necessitate a more integrated approach, combining innovative digitization processes with opportunities for in-person archival research to ensure that the provenance and materiality of texts are accurately represented. I demonstrate the urgent stakes of providing scholars opportunities for in-person archival research via identifying a case study in which it is impossible to tell whether a phenomenon is an embodiment of Lesser's concept of a "ghost" or a mere relic from the digitization process. These stakes are especially high for scholars relying on digitizations to conduct research, as addressing these uncertainties requires innovation in digitization processes and sustained investment in methodologies that bridge the gap between digital and physical archives.

The Functional Requirements for Bibliographic Records (FRBR) model defines "Item" as "a single exemplar of a manifestation," referring to a specific physical or digital work (Tillett 2003, 24). This view of physical or digital works as versions of the work shifts the notion of bibliographic records to a more disaggregated approach to digital objects. This shift is mirrored in Howarth's analysis, where she argues that "[w]ith a shift in focus away from data aggregates—the bibliographic record as a whole—to component pieces of data (or disaggregated data), those data elements have the potential to be shared and used in diverse, even novel ways" (Howarth 2012, 773). Howarth's assertion aligns with the conceptual framework of the FRBR model in that both suggest disaggregating traditional records into more flexible, reusable components. This allows for the potential integration of linked data, not only within institutional contexts, but also in social networks and broader digital platforms, enhancing the way

digital documents and their representations are studied, categorized, and shared. By redefining the "Item" as a more adaptable digital entity, we can align bibliographic practices with the digital age, fostering a deeper understanding of both physical and digital objects. This reconceptualization both deepens the potential theoretical insights for book historians and paves the way for rethinking digitization methodologies that bridge the gap between physical archives and their digital surrogates.

Scholars have long worked to reckon with the affective implications of virtually perusing pre-modern manuscripts and early printed books. Medieval scholars such as Elaine Treharne use the term "dismemberment" to describe this strange process (Treharne 2013, 475). It is the transformation of Benjamin's notion of the "aura" when manuscripts, which were once solely accessible in person, become digitized and remediated by the screen one uses for viewing access to the object (Benjamin 1968, 4). There have been generations of scholars investing in articulating the emotional experience of physically handling pre-modern manuscripts, dating back to Derek Pearsall's canonical "The Value/s of Manuscript Study" (Pearsall 2000, 174). An array of responses followed Pearsall's text throughout the 2000s and 2010s, such as that of Angela Bennet Segler, which hyperbolizes the "experience of contemporaneity between touching [and] brushing bodies" by handling a manuscript via the notion of "manuscript virginity" (Bennet Segler 2013, 52). It is the feeling of seeing a manuscript in person, and the disconnect that occurs in the process of remediation, that has historically caused scholars wonder, confusion, and discomfort. Dot Porter demonstrates the extent of the latter with the use of the uncanny valley to describe the effects of digitization on a manuscript's "manuscript-ness" (Porter 2018). Because of this strangeness, within the scholarly landscape, there has been what Robert Binkley refers to as a "fetishism" of utilizing printed books, as opposed to their digitized counterparts (Binkley [1935] 1948). The infamous distance that separates a researcher from a digitized object has led to decades of scholarship attempting to work through the tension of the significance of materiality and the accessibility of digitized texts.

Scholars have also examined how materiality and digitization shape the layered temporality that distances readers from their screens, extending previous discussions of the affective transmission produced by handling pre-modern manuscripts to the digital sphere. Bonnie Mak examines the layered temporality of digitizing texts, arguing that digitizing technologies "transmit" the conditions of that text over time (Mak 2014, 1,516). As Mak notes, this context is framed by an array of metadata, which itself is complicated by a blend of old and new information (Mak 2014). Furthermore, Michael Gavin finds reverberations of the strange effects of amalgamated temporality of metadata, arguing that "[b]ibliographic catalogues provoke a kind of sublime

experience, an awareness of ambient textuality, whispering: Books like this, but different, exist" (Gavin 2019, 76). Thus, according to Gavin, the process of creating metadata for a pre-modern book incorporates it into a vast organizational schema, generating a sense of awe at the awareness of an expansive network of related texts that exist beyond immediate perception. The well-established scholarly tradition of exploring the implications of digitization for academic researchers has elucidated how digital mediation transforms our engagement with texts, altering both their material presence and conceptual interpretation, while also prompting the development of robust methodologies to address the epistemological challenges posed by digital surrogacy. My case study exposes the inherent limitations of current digitization practices and argues that without a deliberate and sustained commitment to providing scholars access to in-person archival research and furthering our digitization technology, our understanding of historical texts will remain potentially compromised.

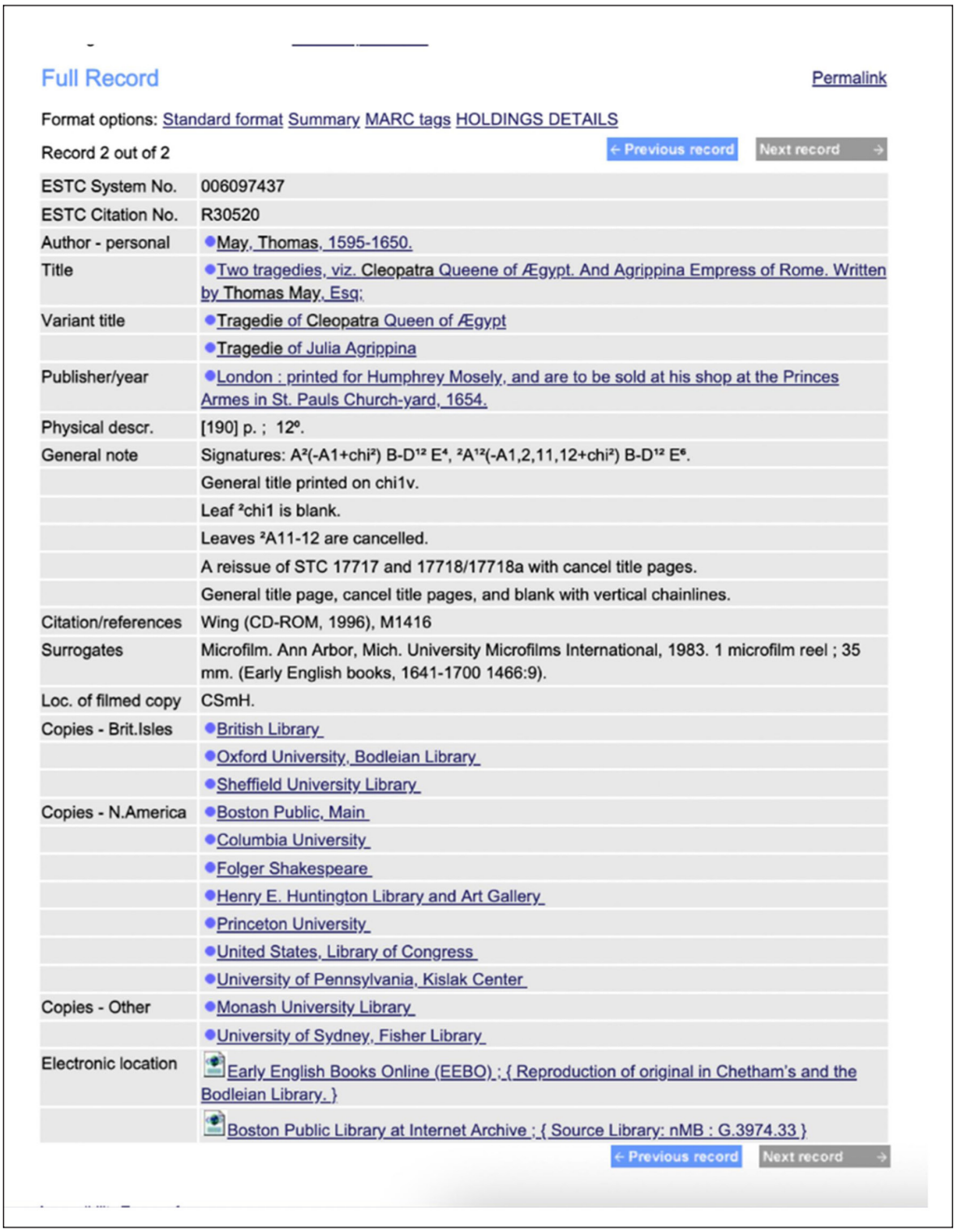
## Case study: May's *The Tragedie of Cleopatra*

To explore the stakes of digitization, this study employs a case study approach that reveals the layers of remediation separating researchers from Thomas May's *The Tragedie of Cleopatra*. As part of a broader investigation into ancient queens in early modern drama, the methodology began with a systematic examination of multiple editions of the text and their metadata. As shown in **Figure 1**, the English Short Title Catalogue (ESTC) identifies two versions of *The Tragedie of Cleopatra*, prompting a closer look at the origins of the metadata and the intervening layers of remediation. The ESTC, as one of the most centralized sources for early modern bibliographical data, serves as the initial point of analysis. Stephen Tabor contends that the ESTC must continuously evolve due to its collaborative nature: "The very success of the project in mobilizing contributions from such diverse sources creates monumental house cleaning problems. As long as the file grows, and people keep working on it [...] the file will continue to sprout typos, mis-statements, and ghosts" (Tabor 2007, 384). This evolving, collaborative framework underscores the inherent challenges in maintaining quality control in digital projects, rendering their fallibility inevitable. In line with Bridget Whearty's argument that "if humanities researchers wish to be information-literate about our data, we have to understand how they come into being" (Whearty 2022, 10), this methodology aims to bridge the gap between digital surrogates and in-person archival research. The following section details the systematic procedures employed in this investigation, demonstrating how innovations to bibliographic research technology are still needed to conduct research in early modern book history, particularly when scholars do not have access to in-person archival visits.

**Figure 1:** ESTC record of May's *The Tragedie of Cleopatra*.

The first step in the bibliographic workflow was observing the ESTC number of *Two Tragedies*, which is important for identifying digitizations of proper editions, and the internal system number, author, variant title names, as well as its publication details (**Figure 2**). From this page, one can also see that it contains 190 pages formatted as a duodecimo, with a complex signature "$A^{2}$(-A1+chi$^{2}$) B-D$^{12}$ E$^{4}$, $^{2}$A$^{12}$(-A1,2,11,12+chi$^{2}$) B-D$^{12}$ E$^{6}$" which indicates formatting irregularities in the construction of *Two Tragedies* (leaves A1, A2, A11, and A12 are missing), with *Two Tragedies* instead containing two extra leaves, both called "chi$^{2}$," as well as this information written out briefly. Additionally, one can see where the 1996 CD-ROM is located and microfilm is produced, as well as

where print and digital copies of this edition are, the latter of which are found on Internet Archive and Early English Books Online (EEBO) (May 1654a; 1654b). In **Figure 3**, this information is also available for the other printed version of the play. Once the EEBO scan had been identified, two editions of the play were accessible to read side-by-side.



Full Record — Permalink

Format options: Standard format Summary MARC tags HOLDINGS DETAILS

Record 2 out of 2 — ← Previous record — Next record →

| | |
|---|---|
| ESTC System No. | 006097437 |
| ESTC Citation No. | R30520 |
| Author - personal | May, Thomas, 1595-1650. |
| Title | Two tragedies, viz. Cleopatra Queene of Ægypt. And Agrippina Empress of Rome. Written by Thomas May, Esq; |
| Variant title | Tragedie of Cleopatra Queen of Ægypt |
| | Tragedie of Julia Agrippina |
| Publisher/year | London : printed for Humphrey Mosely, and are to be sold at his shop at the Princes Armes in St. Pauls Church-yard, 1654. |
| Physical descr. | [190] p. ; 12°. |
| General note | Signatures: A²(-A1+chi²) B-D¹² E⁴, ²A¹²(-A1,2,11,12+chi²) B-D¹² E⁶. |
| | General title printed on chi1v. |
| | Leaf ²chi1 is blank. |
| | Leaves ²A11-12 are cancelled. |
| | A reissue of STC 17717 and 17718/17718a with cancel title pages. |
| | General title page, cancel title pages, and blank with vertical chainlines. |
| Citation/references | Wing (CD-ROM, 1996), M1416 |
| Surrogates | Microfilm. Ann Arbor, Mich. University Microfilms International, 1983. 1 microfilm reel ; 35 mm. (Early English books, 1641-1700 1466:9). |
| Loc. of filmed copy | CSmH. |
| Copies - Brit.Isles | British Library |
| | Oxford University, Bodleian Library |
| | Sheffield University Library |
| Copies - N.America | Boston Public, Main |
| | Columbia University |
| | Folger Shakespeare |
| | Henry E. Huntington Library and Art Gallery |
| | Princeton University |
| | United States, Library of Congress |
| | University of Pennsylvania, Kislak Center |
| Copies - Other | Monash University Library |
| | University of Sydney, Fisher Library |
| Electronic location | Early English Books Online (EEBO) ; { Reproduction of original in Chetham's and the Bodleian Library. } |
| | Boston Public Library at Internet Archive ; { Source Library: nMB : G.3974.33 } |

← Previous record — Next record →

**Figure 2:** ESTC record of May's *Two Tragedies*.

Full Record — Permalink

Format options: Standard format Summary MARC tags HOLDINGS DETAILS

Record 1 out of 2 — ← Previous record — Next record →

| | |
|---|---|
| ESTC System No. | 006183883 |
| ESTC Citation No. | S112548 |
| Author - personal | •May, Thomas, 1595-1650. |
| Title | •The tragedie of Cleopatra Queen of Ægypt. By T.M. Acted 1626. |
| Publisher/year | •London : printed by Thomas Harper for Thomas Walkly, and are to be sold at his shop at the flying Horse neer York House, 1639. |
| Physical descr. | [84] p. ; 12º. |
| General note | Dedication signed: Tho. May. |
| | In verse. |
| | Signatures: A² B-D¹² E⁴. |
| | Intended to be issued with his: The tragedy of Julia Agrippina Empresse of Rome. |
| | Entered 26 October 1638. |
| Uncontrolled note | There is possibly a faintly printed letter after "York" in imprint. |
| Citation/references | STC (2nd ed.), 17717 |
| | Greg, II, 553(AI) |
| | Pforzheimer, 687 |
| Surrogates | Microfilm. Ann Arbor, Mich.: University Microfilms International, 1962. 1 microfilm reel; 35mm. (Early English books, 1475-1640; 930:6). |
| | Microopaque. New York, N.Y. : Readex, 1953. 1 microopaque ;23 x 15 cm. (Three centuries of drama. English, 1516-1641) (Three centuries of English and American plays, 1500-1830). Also available in microfiche. |
| Loc. of filmed copy | DFo. |
| Person as subject | •Cleopatra, Queen of Egypt, -30 B.C. -- Drama -- Early works to 1800. |
| Copies - Brit.Isles | •British Library |
| | •National Library of Scotland |
| | •Oxford University Worcester College Library |
| | •Oxford University, Bodleian Library |
| | •University of Leeds Brotherton Library (includes most of Cathedral Coll. from Ripon) |
| | •Victoria and Albert Museum National Art Library |
| Copies - N.America | •Folger Shakespeare |
| | •Harvard University Houghton Library |
| | •Henry E. Huntington Library and Art Gallery |
| | •United States, Library of Congress |
| | •University of Chicago |
| | •University of Texas at Austin, Harry Ransom Center |
| | •Yale University, Beinecke Rare Book and Manuscript Library |
| Electronic location | Early English Books Online (EEBO) : { Reproduction of the original in the Folger Shakespeare Library. } |

← Previous record — Next record →

**Figure 3:** ESTC record of May's *The Tragedie of Cleopatra*.

The layers of remediation separating the viewer and the material *Two Tragedies* became increasingly apparent after examining the metadata on Internet Archive (**Figure 4**) and downloading a torrent client (**Figure 5**). As Lisa Gitelman argues, dematerialization "can only be experienced in relation to a preexisting sense of matter and materialization" (Gitelman 2006, 86). **Figure 6** contains information about the book from Internet Archive's website, the top of which is straightforward: the scan's uploading date and the associated names with it, including the bookseller,

the playwright, and Thomas Pennant Barton, a previous owner of the book. **Figure 6** also states that the call number is BRLL, and that the camera that took the images is a Canon EOS ED Mark II. The bottom entries are a bit less reader-friendly, but (with the help of Chat GPT-3.5) seem to indicate Internet Archive's identifiers for this book (**Figure 7**). Parikka identifies the power of media archaeology as replacing a chronological perspective with a layered one, a "spirit of thinking the new and the old in parallel lines," as opposed to linearly (Parikka 2012, 2). This reconfiguration allows for a deeper understanding of how past and present media cultures are interconnected, revealing how old technologies continue to shape modern practices and discourses, and offering insights into the material foundations of contemporary media.

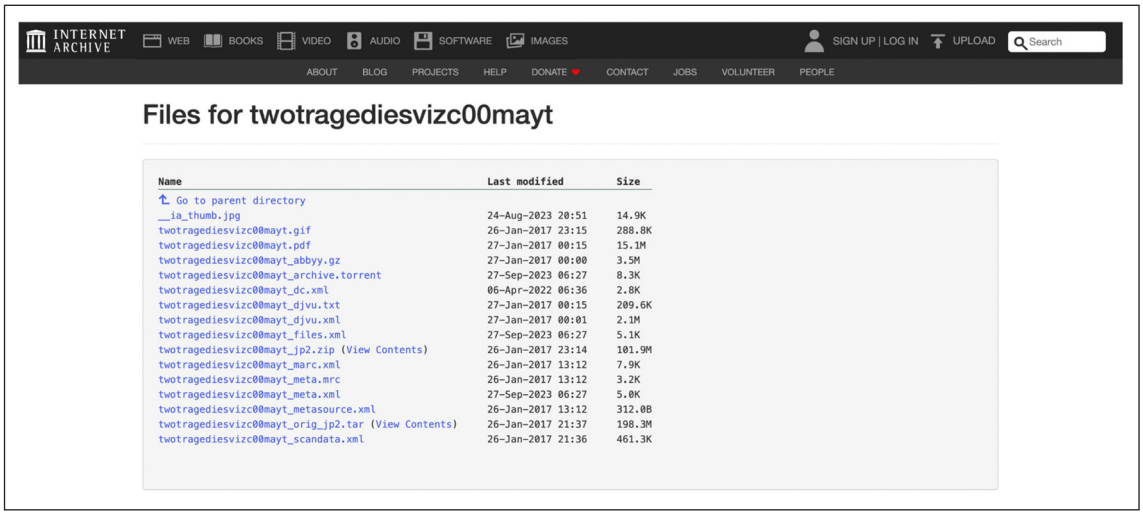



**Figure 4:** Image courtesy of Internet Archive.

Thanks to the generous assistance of the British Library and Boston Public Library, more information became available about this book's records and provenance. According to the Early Printed Collections Cataloguing and Processing Manager of the British Library at the time, this book was added to the ESTC in 1987, when the catalogue was expanded to include publications pre-1701 (Early Printed Collections Cataloguing and Processing Manager of the British Library, email messages to author, October 10–16, 2023). As noted by the Boston Public Library's website about Barton's collection, it was initially obtained by the library in 1873 and placed in the library's Upper Hall, per his widow's request: "When the Barton Collection was transferred to the Boston Public Library, it was housed, as per Cora Barton's stipulations, within separate alcoves in the Upper Hall, where the more scholarly volumes in the library's collection were held" (Boston Public Library 2024). The Curator of Rare Books and Manuscripts at the

Boston Public Library at the time was able to provide a wealth of information about this book's provenance and history. Regarding its provenance, although one cannot know for sure who the previous owner ("J.F.," who inscribed their initials on the front flyleaf) is, according to the Curator of Rare Books and Manuscripts, we do know that half of this book is interleaved, which was likely done by "J.F.," because this is "certainly not something Barton would have done" (Curator of Rare Books and Manuscripts at the Boston Public Library, email messages to author, October 8–December 13, 2023). In trying to identify how this book ended up at the Boston Public Library, the Curator of Rare Books and Manuscripts reported the fact that Barton's collection was obtained via an en-bloc purchase in 1873. They were then able to provide me access to Barton's correspondence with booksellers, many of which contain itemized invoices of the purchased books; however, they cautioned that this would take a lot of manual work, describing it as "[a] bit like looking for a needle in a haystack, but every once in a while, one can find what they're hoping for" (Curator of Rare Books and Manuscripts at the Boston Public Library, email messages to author, October 8–December 13, 2023).

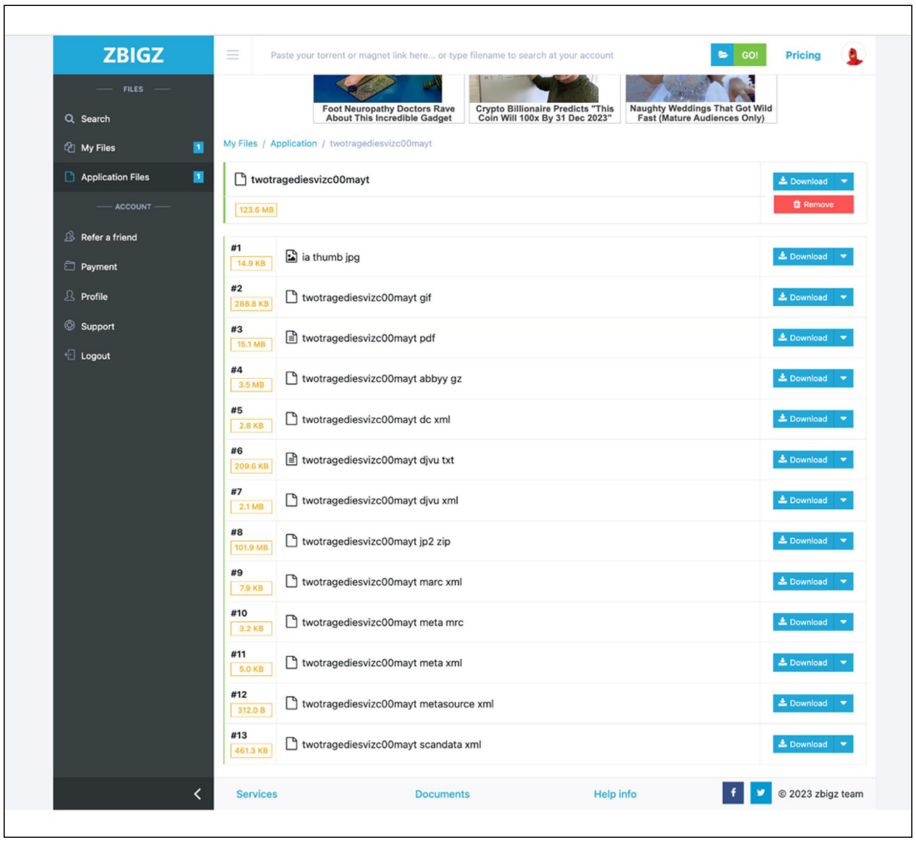



**Figure 5:** Image courtesy of ZBIGZ.

**Figure 6:** Image courtesy of Internet Archive.

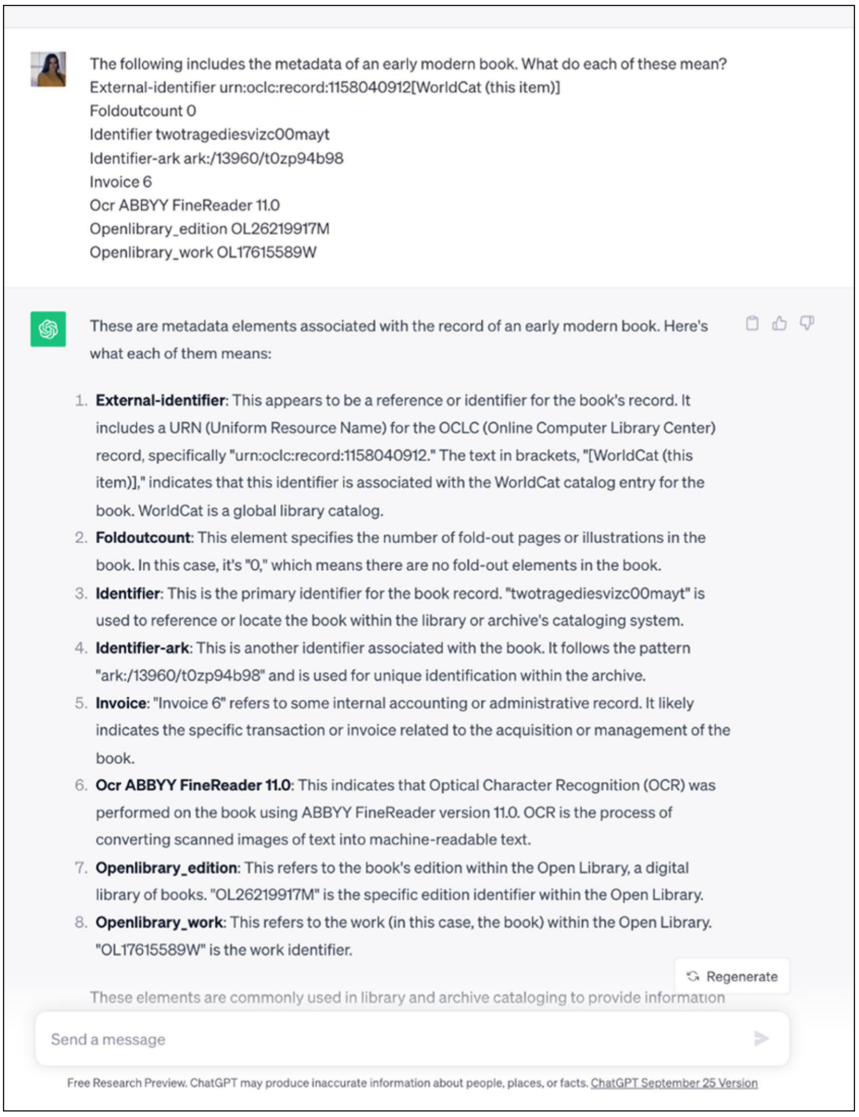



**Figure 7:** Image of consultation with Chat GPT-4.0.

As shown in **Figure 8**, an itemized invoice from John Russell Smith to Barton from December 1858 shows a book simply listed as "May," which was lot 877 in the auction of books on December 9 that belonged to the late John Harward. The Curator of Rare Books and Manuscripts graciously directed me towards the auction catalogue (**Figure 9**) from the HathiTrust Digital Library, which shows that item 877 in the Harward auction is described as "May (Thomas) Julia Agrippina, 1654–Cleopatra, 1654, morocco, gilt edges" (S. Leigh Sotheby & John Wilkinson 1856–1858).

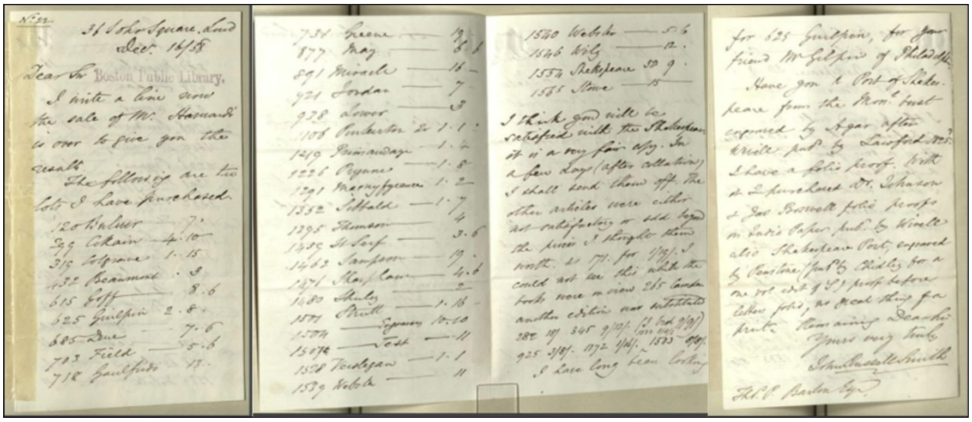
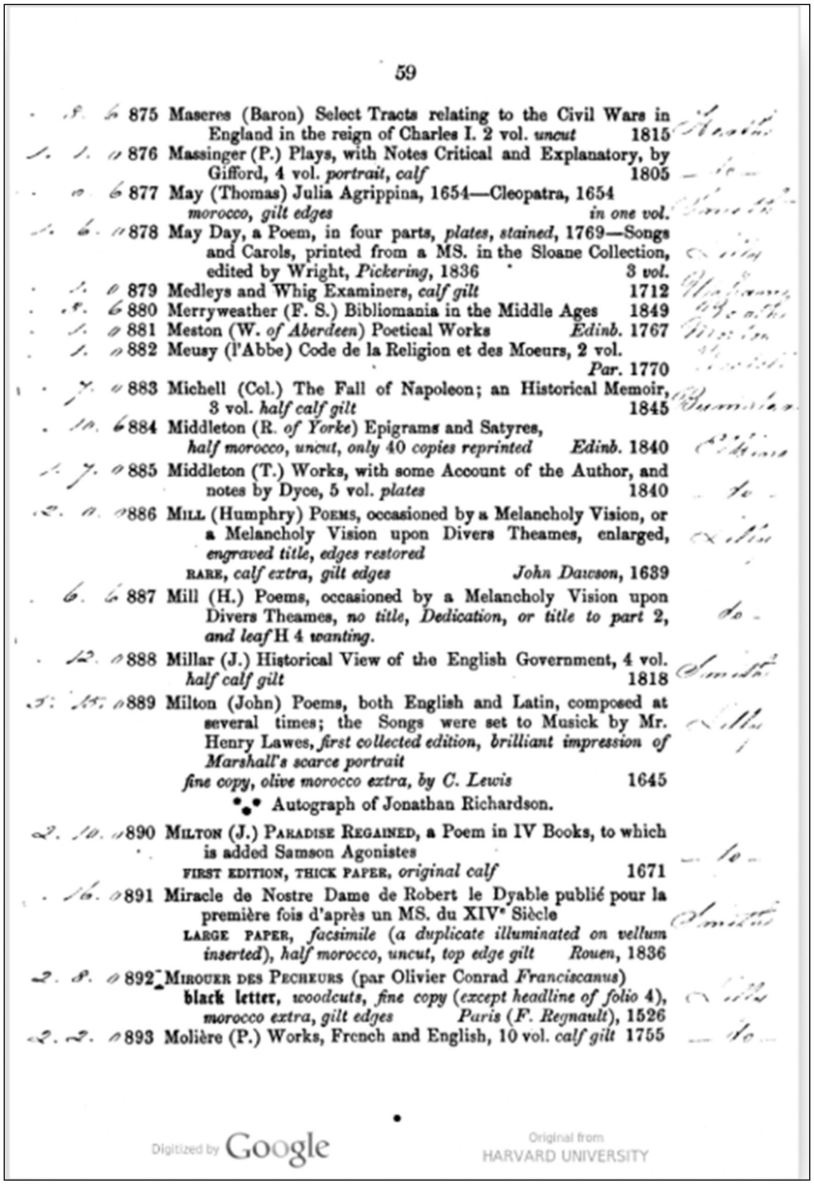


**Figure 8:** Images of an 1858 letter containing an invoice from John Russell Smith to Barton. At the top of the second page, the line item for May's book is labelled "877." Scan courtesy of the Boston Public Library.

Through examining the the scanned copy of the auction catalogue, which contains annotations identifying the buyers of each lot, it is clear that the buyer of lot 877 was John Russell Smith, who likely purchased it for Barton. It was thus confirmed that "[w]e can conclusively say, then, that Barton bought his copy from John Russell Smith, who had purchased it for him at the December 9, 1858 auction of John Harward's books" (Curator of Rare Books and Manuscripts at the Boston Public Library, email messages to author, October 8–December 13, 2023).

Now having additional information about the book's provenance, as well as information regarding its history previous to becoming a part of Barton's collection, I return to **Figure 6**, where someone was credited by name with uploading this scan. Who are they, and how did they acquire it? Thanks to the power of social media, I was able to chat with the person who was Head Cataloguer at the Internet Archive scanning centre at the Boston Public Library from 2015 to 2018. Although they did not remember May's obscure text, they provided insight into the invisible labour that had allowed it to appear on my screen, detailing the process by which books are scanned. They explained their role in making sure the images were in focus, and no pages were cut off, all while handling the book's metadata via MARC codes (Head Cataloguer of the Internet Archive

scanning centre of the Boston Public Library [2015–2018], Instagram direct message correspondence with author, October 7–11, 2023).



59

875 Maseres (Baron) Select Tracts relating to the Civil Wars in England in the reign of Charles I. 2 vol. *uncut* 1815

876 Massinger (P.) Plays, with Notes Critical and Explanatory, by Gifford, 4 vol. *portrait, calf* 1805

877 May (Thomas) Julia Agrippina, 1654—Cleopatra, 1654 *morocco, gilt edges* *in one vol.*

878 May Day, a Poem, in four parts, *plates, stained*, 1769—Songs and Carols, printed from a MS. in the Sloane Collection, edited by Wright, *Pickering*, 1836 3 *vol.*

879 Medleys and Whig Examiners, *calf gilt* 1712

880 Merryweather (F. S.) Bibliomania in the Middle Ages 1849

881 Meston (W. *of Aberdeen*) Poetical Works *Edinb.* 1767

882 Meusy (l'Abbe) Code de la Religion et des Moeurs, 2 vol. *Par.* 1770

883 Michell (Col.) The Fall of Napoleon; an Historical Memoir, 3 vol. *half calf gilt* 1845

884 Middleton (R. *of Yorke*) Epigrams and Satyres, *half morocco, uncut, only* 40 *copies reprinted* *Edinb.* 1840

885 Middleton (T.) Works, with some Account of the Author, and notes by Dyce, 5 vol. *plates* 1840

886 MILL (Humphry) POEMS, occasioned by a Melancholy Vision, or a Melancholy Vision upon Divers Theames, enlarged, *engraved title, edges restored* RARE, *calf extra, gilt edges* *John Dawson*, 1639

887 Mill (H.) Poems, occasioned by a Melancholy Vision upon Divers Theames, *no title, Dedication, or title to part* 2, *and leaf* H 4 *wanting.*

888 Millar (J.) Historical View of the English Government, 4 vol. *half calf gilt* 1818

889 Milton (John) Poems, both English and Latin, composed at several times; the Songs were set to Musick by Mr. Henry Lawes, *first collected edition, brilliant impression of Marshall's scarce portrait* *fine copy, olive morocco extra, by C. Lewis* 1645

*** Autograph of Jonathan Richardson.

890 MILTON (J.) PARADISE REGAINED, a Poem in IV Books, to which is added Samson Agonistes FIRST EDITION, THICK PAPER, *original calf* 1671

891 Miracle de Nostre Dame de Robert le Dyable publié pour la première fois d'après un MS. du XIV^e^ Siècle LARGE PAPER, *facsimile* (*a duplicate illuminated on vellum inserted*), *half morocco, uncut, top edge gilt* *Rouen*, 1836

892 MIROUER DES PECHEURS (par Olivier Conrad *Franciscanus*) **black letter**, *woodcuts, fine copy* (*except headline of folio* 4), *morocco extra, gilt edges* *Paris* (*F. Reynault*), 1526

893 Molière (P.) Works, French and English, 10 vol. *calf gilt* 1755

Digitized by Google Original from HARVARD UNIVERSITY

**Figure 9:** Image of the auction catalogue. Item 877 in the Harward auction is described as "May (Thomas) Julia Agrippina, 1654–Cleopatra, 1654, morocco, gilt edges." Image courtesy of HathiTrust Digital Library.

It became apparent, through analyzing the detailed information on the scanning and uploading procedures, that the digitized version of *Two Tragedies* exhibits an unusual anomaly: it ends mid-play. This edition ends with Plancus saying: "No conquer'd Prince. / Did ever find a nobler way to death" (*The Tragedie of Cleopatra*, V.i). Here, Cleopatra has just stabbed herself, and Plancus is arguing that Cleopatra died as

royally as she lived, despite Octavian Caesar winning the war. The final page contains a catchword, "had," confirming its abrupt ending. The presence of this catchword demonstrates that there was more to say; however, nothing but a ghost remains.

In the aforementioned EEBO scan, there is a different final page containing Caesar's memorialization of Cleopatra, where he says:

> We will no longer strive 'gainst destiny.
> Though thou art dead, yet live renowm'd for ever [...]
> No other Crown or Scepter after thine
> Shall Aegypt honour: thou shalt be the last
> Of all the raigning race of Ptolomey. (*The Tragedie of Cleopatra*, V.i)

Caesar thereby memorializes Cleopatra, declaring her death honourable despite her suicide. Without this scene, the text ends with Cleopatra killing herself in the face of Caesar; however, readers with access to this final speech witness Caesar taking control of Cleopatra's memorialization and catalyzing his empire.

In place of this speech, in the Internet Archive scan, there is a ghost disrupting the play's unfinished ending with a backwards imprint of another page (**Figure 10**). Through inverting the image of the ghost (**Figure 11**), a character list appears, which does not exist elsewhere in this edition, more clearly shown in the Early English Books Online scan of *The Tragedie of Cleopatra* (**Figure 12**). This imprint matches Lesser's assertion that ghosts are often "on the final verso of the play" (Lesser 2021, 46). While these preliminary observations appeared promising, further verification was needed to be certain that this was the phenomenon being observed.

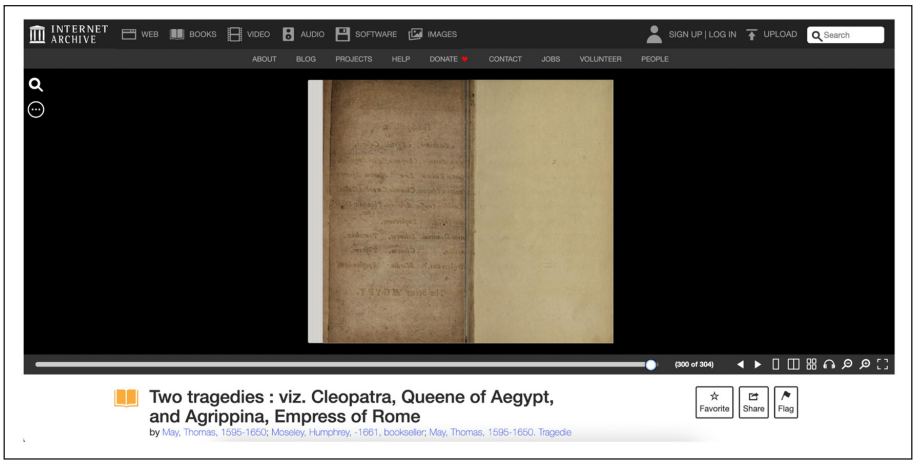



**Figure 10:** *Two Tragedies* (1654), courtesy of Internet Archive.

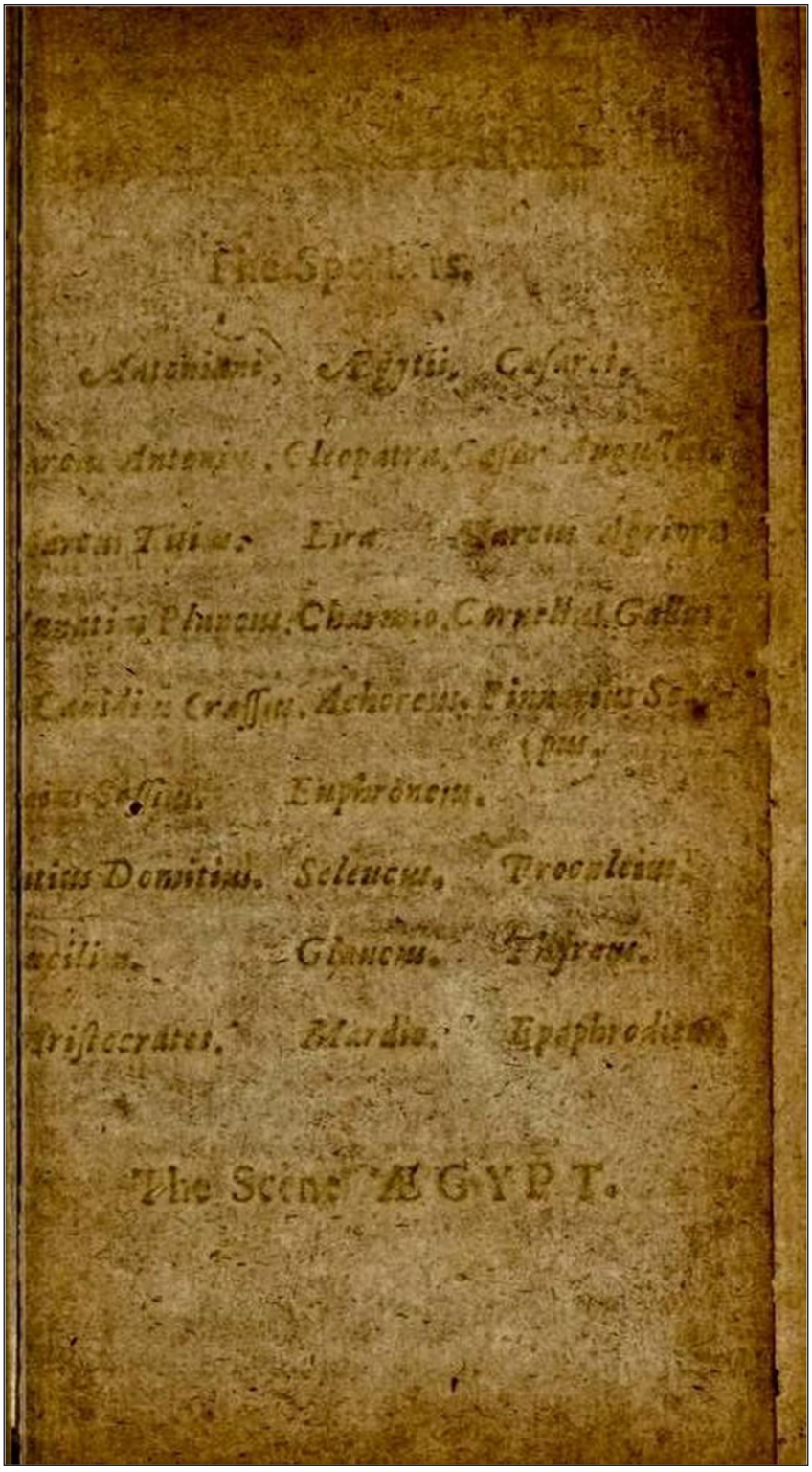
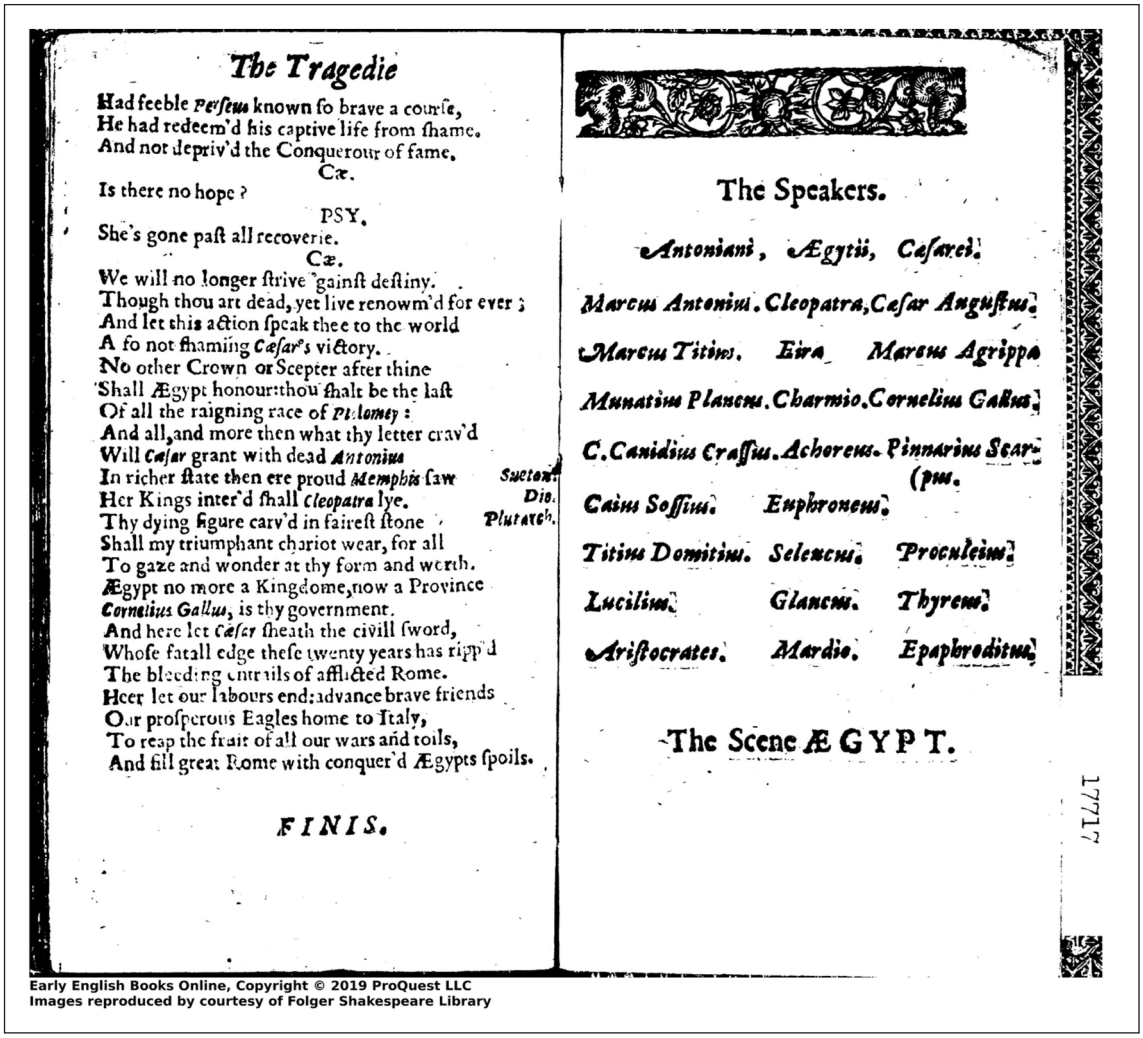


**Figure 11:** Inverted *Two Tragedies* (1654) scan.



The Tragedie

Had feeble *Perſeus* known ſo brave a courſe,
He had redeem'd his captive life from ſhame.
And not depriv'd the Conquerour of fame.
Cæ.
Is there no hope?
PSY.
She's gone paſt all recoverie.
Cæ.
We will no longer ſtrive 'gainſt deſtiny.
Though thou art dead, yet live renown'd for ever;
And let this action ſpeak thee to the world
A ſo not ſhaming *Cæſar's* victory.
No other Crown or Scepter after thine
Shall Ægypt honour: thou ſhalt be the laſt
Of all the raigning race of *Ptolomey*:
And all, and more then what thy letter crav'd
Will *Cæſar* grant with dead *Antonius*
In richer ſtate then ere proud *Memphis* ſaw — *Sueton.*
Her Kings inter'd ſhall *Cleopatra* lye. — *Dio.*
Thy dying figure carv'd in faireſt ſtone — *Plutarch.*
Shall my triumphant chariot wear, for all
To gaze and wonder at thy form and worth.
Ægypt no more a Kingdome, now a Province
*Cornelius Gallus*, is thy government.
And here let *Cæſar* ſheath the civill ſword,
Whoſe fatall edge theſe twenty years has ripp'd
The bleeding entrails of afflicted Rome.
Heer let our labours end: advance brave friends
Our proſperous Eagles home to Italy,
To reap the fruit of all our wars and toils,
And fill great Rome with conquer'd Ægypts ſpoils.

*FINIS.*

The Speakers.

*Antoniani, Ægytii, Cæſarei.*

*Marcus Antonius. Cleopatra, Cæſar Auguſtus.*
*Marcus Titius. Eira Marcus Agrippa*
*Munatius Plancus. Charmio. Cornelius Gallus.*
*C. Canidius Craſſus. Achoreus. Pinnarius Scar-*
*(pus.*
*Caius Soſſius. Euphroneus.*
*Titius Domitius. Seleucus. Proculeius.*
*Lucilius. Glaucus. Thyreus.*
*Ariſtocrates. Mardio. Epaphroditus.*

The Scene Æ G Y P T.

Early English Books Online, Copyright © 2019 ProQuest LLC
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**Figure 12:** *The Tragedie of Cleopatra* (1639), courtesy of Early English Books Online.

So, what does one do after finding a ghost? Naturally, question if it was really there. I had the privilege of asking a colleague who frequents the Boston Public Library to investigate. By asking them to see the book in person, they could aid me in determining whether my observations were a ghost or a mere relic of the digitization process. My colleague was able to frequent the Boston Public Library and look at the book in person with their own eyes. As seen in **Figure 13**, my colleague was able to see that *Two Tragedies* does not contain a ghost, but rather does contain the character list for the play, upright. The once-probable ghost was merely evoked from the layers of remediation separating me from this book. If one were unable to verify the ghost (or lack thereof) in person, these two phenomena would be otherwise indistinguishable.

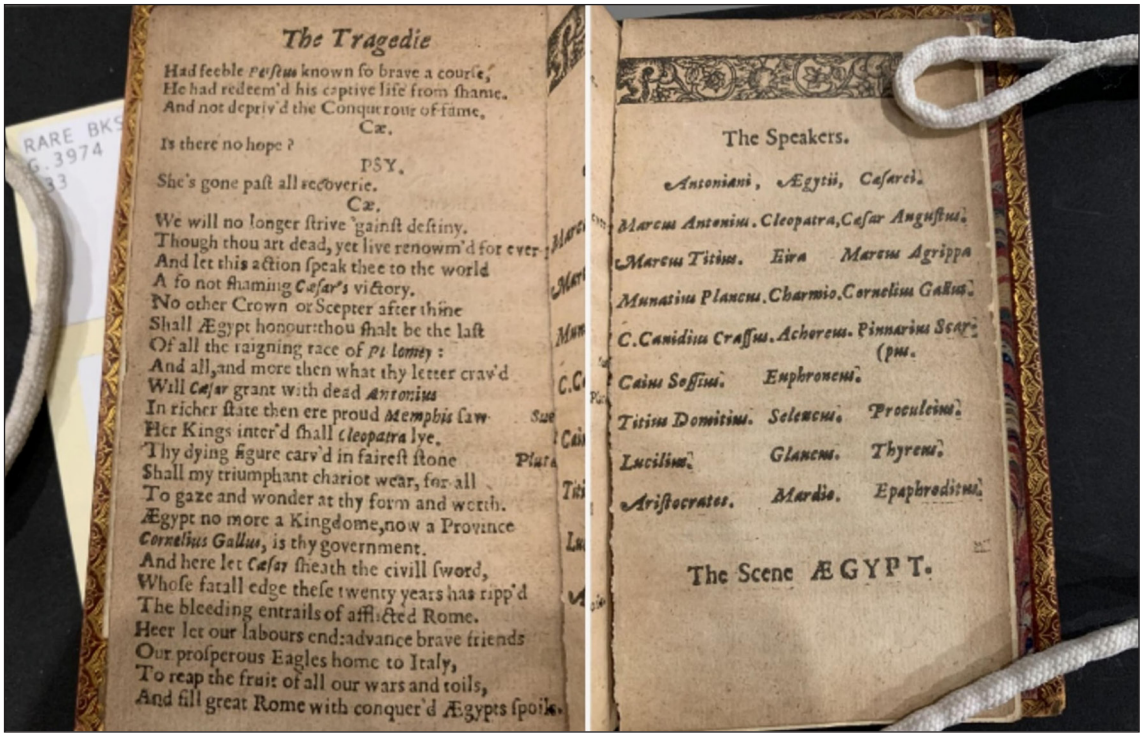


**Figure 13:** Images of *Two Tragedies* (1654) at the Boston Public Library, courtesy of D. J. Schuldt.

## Conclusion

The findings of this case study raise challenging questions surrounding how to interpret the results without glorifying in-person archival visits, which require scholars to receive enough funding to support their travels and lodging. Sarah Werner rightfully asks: "What could we come up with if we put some open-minded bibliographers and keen coders in a room together?" (Werner 2011). Perhaps the answer lies in widespread digital innovation: scholars such as Bill Endres argue for the use of 3D scanning of manuscripts as a means of better capturing the materiality of manuscripts (Endres 2024, 189). Werner and Endres both demonstrate the value of interdisciplinary collaboration. As Ashley Reed states with regard to digital humanities projects more broadly, "we should acknowledge and foreground the interdependencies between different kinds of labour and recognize the ecologies of creativity that make both art and scholarship possible" (Reed 2016, 38). It is this commitment to developing digital processes while centring humanistic knowledge that I argue should continue to be extended to digitization resources in particular. I thus contend that the digitization of early modern texts introduces ambiguities, digital anomalies that can obscure or distort the material history of these works, thereby challenging the reliability of

digital surrogates for historical inquiry. This research highlights the stakes of providing scholars with opportunities for in-person archival study, particularly in cases where digital surrogates present anomalies that resist categorization. These stakes are especially high for scholars relying on digital scans to conduct research, as addressing these uncertainties requires innovation in digitization processes, and sustained investment in methodologies that bridge the gap between digital and physical archives, ensuring the reliability of digital surrogates for literary-historical research.

Although the "ghost" was ultimately identified as a mere relic of remediation, it nevertheless remains an object of scholarly interest. Epistemologically, the study challenges the reliability of digital surrogates by demonstrating how technical imperfections can mimic historical artifacts, thereby necessitating a more critical evaluation of digital reproductions as evidentiary sources. Methodologically, it underscores the imperative of corroborating digital observations with physical examination, an approach that, unfortunately, requires funding for scholars' work. Institutionally, the study advocates for enhanced quality control in digitization projects and emphasizes the importance of maintaining accessible physical archives, thereby opening opportunities for early career researchers to access and analyze manuscripts in person, fostering a more comprehensive scholarly practice.

This case study demonstrates that digital anomalies are not isolated curiosities, but, rather, symptomatic of systemic challenges that undermine the reliability of digital surrogates. By revealing how technical imperfections can mimic historical artifacts, the study highlights the necessity of rigorous triangulation methods, namely, cross-referencing metadata and consulting multiple digital sources, particularly when direct verification through technician interviews or in-person archival visits is not feasible. The prevalence of these anomalies calls into question the assumption that digitization processes are foolproof and neutral, thereby advocating for enhanced quality control measures in digitization projects and sustained access to physical archives, particularly for early career scholars who might not have access to as many fellowship opportunities as their more senior colleagues. Ultimately, these findings underscore the urgency of reevaluating current methodological practices to ensure that digital reproductions serve as robust and trustworthy sources in bibliographic inquiry.

## Competing interests

The author has no competing interests to declare.

## Contributions

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