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Farmer, Alan B., and Zachary Lesser, creators. *Database of Early English Playbooks. Database*

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archival images, TimelineJS or other options would likely be more appropriate, as they can incorporate images more easily and with visual flair. TimelineJS, and similar tools, will also be the choice for those with beginner programming skills, rapid project development deadlines, or limited access to computing resources (as a gentle reminder: all SIMILE tools require a web server). SIMILE Timeline, however, still remains a fair choice for platform development (see Neatline's success with the SIMILE plugin) or for advanced development teams seeking a well-structured codebase that can be easily extended or enhanced.

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Farmer, Alan B., and Zachary Lesser, creators.

Database of Early English Playbooks. Database.

Philadelphia, PA: University of Pennsylvania. Accessed 2 February 2019.
deep.sas.upenn.edu/.

DEEP: Database of Early English Playbooks, created by Alan B. Farmer and Zachary Lesser, is designed to allow "scholars and students to investigate the publishing, printing, and marketing of English Renaissance drama in ways not possible using any other print or electronic resource."¹ It is one of my favourite online tools. Unlike *Early English Books Online*, it is accessible anywhere in the world without a costly subscription, and unlike the *English Short Title Catalogue*, which began life as the *Eighteenth-Century Short Title Catalogue*, the records have been corrected and standardized to address variations in spelling and bibliographic practice that are particularly troublesome for the systematic

This review article is dedicated to Peter W. M. Blayney, who encouraged the path it follows. The author wants to thank Stephen Wittek, for his comments, and Alan B. Farmer for dutifully answering questions in a very short time frame. Randa El Khatib went beyond the call of duty in the number of e-mails she wrote to encourage the article.

1. Launch Page, *DEEP: Database of Early English Playbooks*, ed. Alan B. Farmer and Zachary Lesser, created 2007, deep.sas.upenn.edu. Unless otherwise stated, all electronic resources were last accessed on 2 February 2019.

study of English Renaissance plays.² Justifiably, *DEEP* has met with high praise from both well-established names in bibliography and rising stars. Thomas L. Berger and Sonia Massai mark it as the “most comprehensive and up-to-date source of information about the dating, authorship, attribution, theatrical affiliations, printing and publication of early modern English drama currently available.”³ Tara L. Lyons and Aaron T. Pratt rely on *DEEP*’s data as a guide for their writings on early modern “publishers” and play-printing in the 1580s.⁴ Nevertheless, Farmer and Lesser might help it to grow and to evolve as more scholarly attention is directed to the field of their choosing.

Before getting into the particulars of what Farmer and Lesser might want to consider, it is first useful to admire the impressive scale of *DEEP*, as well as the clever versatility of its records. In essence, *DEEP* makes publicly accessible many of the conclusions of W. W. Greg’s *A Bibliography of the English Printed Drama to the Restoration* (1939–59), a sizable, costly work of the praiseworthy genius of Greg, widely noted as one of the fathers of New Bibliography.⁵ Greg’s analytical-bibliographical concerns, about the relationship of the “editions,” “issues,” and “states,” based on his supreme research undertakings to find the “ideal copy” of many early modern playbooks, seem often to be lost on a new generation of scholars, especially in North America, where graduate courses in bibliography are no longer mandatory.⁶ Farmer and Lesser’s *DEEP* is foremost a gem of a work because it renders accessible to beginners the core beliefs of bibliography as an offshoot of textual criticism: mainly, that notions of bibliographic popularity—the speculation of stationers around commercial

2. For an example, see discussion of Thomas Goffe’s *The Raging Turk, or Bajazet the Second* (London, 1631; STC 11980), in Alan B. Farmer and Zachary Lesser, “Early Modern Digital Scholarship and *DEEP*: Database of Early English Playbooks,” *Literature Compass* 5.6 (2008): 1139–53. *Early English Books Online*, eebo.chadwyck.com. See Appendix 1 for ESTC and for all following implicit citations.

3. Thomas L. Berger and Sonia Massai, eds, *Paratexts in English Printed Drama to 1642* (Cambridge: Cambridge University Press, 2014), xvi.

4. Tara L. Lyons, “Publishers of Drama,” in *A New Companion to Renaissance Drama*, ed. Arthur F. Kinney and Thomas Warren Hopper (Hoboken, NJ: Wiley-Blackwell, 2017), 560–75 (esp. 573n1–3), and Aaron T. Pratt, “Printed Playbooks, Performance, and the 1580s Lag,” *Shakespeare Studies* 45 (2017): 51–59 (esp. 59n1).

5. Cited in Appendix 1.

6. No doubt this topic will be covered at length in the forthcoming volume “Teaching the History of the Book,” edited by Matteo Pangallo and Emily Todd, to be published by the Modern Language Association (mla.org), accessed 18 November 2018.

decisions and the taste decisions of readers around retail ones—have an impact on “reinventing” dramatists along lines of cultural production and external factors. Kudos to Farmer and Lesser for making critically relevant the publication of 1,005 Single-Play Playbooks, 126 Collections, and 481 Plays in Collection, searchable by title (both modern and early modern), stage history (both title-page and speculative), and title-page date, among many other factors.⁷ The choice to render Greg searchable is indeed commendably visionary.

Towards a “third generation” of electronic resources

In their article explaining *DEEP* as a scholarly-critical tool, “Early Modern Digital Scholarship and *DEEP: Database of Early English Playbooks*” (2008), Farmer and Lesser define *DEEP* as a “second-generation” digital resource for its “in-depth coverage of a particular kind of text or document”—its “specialized subject matter.”⁸ One would assume that such a shift in thinking would necessitate an objective clarification of a platform of sustainability, a document included somewhere on the site giving the scholars’ long-term plans to incorporate anticipated bibliographic discoveries. According to “New *DEEP* Updates,” a point-by-point breakdown of how the resource has changed from “11/04/06” to “7/15/2016,” *DEEP* would appear to be an active, ongoing project.⁹ Yet, the reality is not so, in certain respects. Commendably, since “11/25/08,” *DEEP*’s launch page has included a hyperlink “Bibliographic Sources for *DEEP*.” The latest “Source” of the seventeen noted by them, however, is Gary Taylor and John Lavagnino’s *Thomas Middleton and Early Modern Textual Culture* (2007), where, among the 16,130 words of “Additional Notes” for individual

7. “*DEEP* data export” (deep.sas.upenn.edu/export.php). *DEEP* offers the following Search Options in the Advanced Search: Title, All Title-Page Text (Modern Spelling), All Title-Page Text (Old-Spelling), Author (Modern Attribution), Author (Title-Page Attribution), Authorial Status (Title-Page Attribution), Company (First Production), Company (Title-Page Attribution), Theatre (Title-Page Attribution), Play Type, Genre (Annals), Genre (Title-Page Attribution), Paratextual Matter, Illustration, Black Letter, Latin on Title Page, Stationer (Printer), Stationer (Publisher), Stationer (Bookseller), Imprint Location, Date of First Production, Date of First Edition, Format, Edition Number, Greg Number, and STC / Wing Number.

8. Farmer and Lesser, “Early Modern,” 1139.

9. “*DEEP* Update History” (deep.sas.upenn.edu/whats_new.html). The tab of the launch page, “New *DEEP* Updates,” points to a page titled “*DEEP* Update History.” Similarly, “Download *DEEP* Data” points to a page titled “*DEEP* data export.” Ideally, the Launch buttons and Page titles would be the same, for citation and navigation purposes.

bibliographic records, several of the twenty-five studies cited (latest but one, 2008) reflect Farmer and Lesser's analytical, syncretic, comparative findings (see Appendix 1: bibliographic sources and additional notes, below).¹⁰ Farmer and Lesser frequently cite N. W. Bawcutt's *The Control and Censorship of Caroline Drama: The Records of Sir Henry Herbert, Master of the Revels, 1623–73*.¹¹ As Bawcutt (1996) pre-dates many of the studies in "Bibliographic Sources" but is listed only in "Additional Notes" it is unclear whether they are preferring *Annals* on occasion.¹² Besides Greg's *Bibliography*, Alfred Harbage's *Annals of English Drama 975–1700* (1940), a chronological hand-list of plays, successively revised by Samuel Schoenbaum in 1964 and Sylvia Stoler Wagonheim in 1989, provides much of the evidence rendered searchable by DEEP. Equally, Farmer and Lesser cite certain plays in multiple scholarly editions (e.g., Richard Dutton's edition of *Women Beware Women* vs John Jowett's of *Oxford Middleton*, and Suzanne Gossett's edition of *Pericles* vs Gary Taylor's of *Oxford Shakespeare*).¹³ One wonders whether they have systematically consulted all critical studies of all plays in DEEP, including dissertations and online editions. Somewhere on the site Farmer and Lesser might include a brief statement outlining whether they consulted dissertation editions and stating their intentions to use or to exclude the impressively rigorous online-only editions, such as Richard Cave's admirable *Richard Brome Online*, soon to be transformed into a print edition by Oxford University Press.¹⁴ Much of the original thinking may or may not be up-to-date in ways currently unclear due to unsystematic sourcing and no detailed plan for updates. Farmer and Lesser correct eight records to reflect suggestions by Peter Blayney, for instance, whose *Stationers' Company and the Printers of London, 1501–1557* (2013) is noted in DEEP's "Update History" and "Additional Notes" but not in its "Sources." If DEEP aspires to be more than

10. "DEEP data export" (deep.sas.upenn.edu/export.php).

11. DEEP ID numbers: 752, 816, 884, 885, 933, 935, 997, 1048, 1148, 1150, 5132.02, 5143.26, 5145.02, 5170.02, 5182.03. Since "6/14/2016" DEEP's ID numbers have been rationalized with entries 1–1213 (Single-Play Playbooks, omitting 47, 48, and 1014), 5000–5183 (Collections), and Plays in Collections (Collection numbers from the 5000 series, with 514 decimal figures, e.g., 5153.04. Conveniently, users can link directly to a particular record with the formula "deep.sas.upenn.edu/viewrecord.php?deep_id=969," where the "id" is replaced accordingly.

12. For citations, see Appendix 1.

13. DEEP IDs 5171.02; 546, 547, 548, 549, 550, 551, 5077.03.

14. E.g., *Richard Brome Online*, ed. Richard Cave, created 2010, dhi.ac.uk/brome/.

an “amalgam” of Greg’s *Bibliography* and Harbage’s *Annals*, a key component would have to be a standardized, potentially automated referencing system.¹⁵

As an example of *DEEP*’s programming idiosyncrasies, the alphabetization of *DEEP* entries includes unexpected articles for titles (the, a), so “A” *Jovial Crew* appears with the As and not the Js and “The” *Antipodes* appears with the Ts and not the As. Excluding articles of speech is an essential feature for users wanting to navigate long lists of plays (see Illustration 1).¹⁶ In terms of complex phrase searching, there is the matter of vocabulary. In “Using the Basic Search,” Farmer and Lesser talk about “wildcards,”¹⁷ but what they really mean here is *truncation*, the ability to search for different endings to a word, normally signified in the search formula by an asterisk or a question mark. A “wildcard,” as understood by EBSCO Information Services, the world’s largest online resource provider for libraries, is a single-character variable in a parsed string. Comparatively, EBSCO gives “ne?t” for “neat,” “nest,” or “next,” not “hono*” for “honor” or “honour.”¹⁸ By these definitions, *DEEP* has no “wildcard” option. In a recent build of *DEEP* (“7/15/2016”), Farmer and Lesser generously made *DEEP*’s data available for download according to a Creative Commons Licence BY-NC-SA (Attribution-NonCommercial-ShareAlike 4.0 International); users can request a link to the data and then can use the link to retrieve the data for re-application in their own scholarly projects, provided they cite Farmer and Lesser as the data’s creators.¹⁹ The conversion software, however, does not have an option to convert a number of special symbols essential to the discipline of bibliography, such as the dagger and diphthongs (æ and œ), into an ASCII character set, for easy import into Microsoft Excel. *DEEP* provides export captures conveniently in HTML, XML, and CSV, but without a date of extraction, prompting the question of whether the capture is in real time. Of the sixty columns of data

15. In reference to Greg’s *Bibliography* and *Annals*, Meaghan Brown writes it is “better still to consider [*DEEP*] an amalgam,” @EpistolaryBrown, *Twitter*, 6 January 2016, twitter.com/EpistolaryBrown/status/685899536221339649.

16. “Search DEEP: Basic Search” (deep.sas.upenn.edu/search.php). Richard Brome, *A Joviall Crew, or, The Merry Beggars* (London, 1652; Wing B4873). Richard Brome, *The Antipodes* (London, 1640; STC 3818).

17. “Using the Basic Search” (deep.sas.upenn.edu/help.html).

18. EBSCO Help, “Using Wildcards and Truncation,” *EBSCO Interfaces — User Guide*, help.ebsco.com/interfaces/EBSCO_Guides/EBSCO_Interfaces_User_Guide/Using_Wildcards_and_Truncation.

19. Creative Commons, “Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0),” *Creative Commons*, creativecommons.org/licenses/by-nc-sa/4.0/.

and 1,909 rows, no cells preserve a date of final revision per record, as might be easily coded for inclusion.²⁰

Year	Author	Title	Expand All
1. 1652	Brome, Richard	A Jovial Crew, or The Merry Beggars	Expand
2. 1653	Brome, Richard	A Mad Couple Well Matched	Expand
3. 1653	Brome, Richard	Five New Plays	Expand
4. 1659	Brome, Richard	Five New Plays	Expand
5. 1640	Brome, Richard	The Antipodes	Expand
6. 1653	Brome, Richard	The City Wit, or The Woman Wears the Breeches	Expand
7. 1653	Brome, Richard	The Court Beggar	Expand
8. 1653	Brome, Richard	The Damoiselle, or The New Ordinary	Expand

Illustration 1: A title-search in *DEEP*, illustrating that *A Jovial Crew* appears with the As, not the Js (deep.sas.upenn.edu/search.php).

More to the point of the referencing-transparency problem, there is the very programming language that Farmer and Lesser use—probably not a matter of their choosing but of the coders their universities chose to appoint to the project. Disregarding the fact that *DEEP* has no platform for mobile browsers—a seeming necessity in this day and age, and deployed to a highly effective standard by such projects as *DEX: A Database of Dramatic Extracts*—*DEEP* is coded, for about half its pages, in PHP.²¹ PHP, which originally stood

20. A project where this kind of referencing is achieved successfully is *Lost Plays Database*, ed. Roslyn L. Knutson, David McInnis, and Matthew Steggle, lostplays.folger.edu/.

21. *DEX: A Database of Dramatic Extracts*, ed. Laura Estill and Beatrice Montedoro, accessed 18 November 2018, dex.itercommunity.org/. *DEX* detects the width of the user's browser window and adapts its menu functions accordingly, from a menu bar to a single drop-down menu button.

for Personal Home Page but now has the recursive acronym (or backronym) PHP: Hypertext Preprocessor, is, in two respects, a poor choice for a project the size of *DEEP*.²² first, PHP executes server-side scripting, in order to hide from the user the data of the engine; second, PHP, as a server-side coding system, denies both personal and institutional archiving. For instance, a user can access “snapshots” of *DEEP* through Brewster Kahle’s *Internet Archive*, but only to see how the interface changes over time, not how the coding is revised.²³ Nowadays, the ever-popular “WayBack” machine of Kahle’s *Internet Archive* has become so entrenched in the browsing experience that web browsers connect users to it automatically when a server fails.²⁴ Farmer and Lesser have put to incredible use the technological assistance of their coding and design team—David Cross, Traci Vaughan, Brian Kirk, Pan Thomakos, and Michajlo Matijkiw²⁵—but these coders created the underlying structure of a secure corporate database, not an academic tool designed around referencing, transparency, and updates. One solution might be to upload copies of the code separate from the data to GitHub.²⁶

DEEP requires an accompanying book that Farmer and Lesser have yet to write. Greg’s *Bibliography*, from which *DEEP* extracts the vast majority of 33,077 words of “variant description,” is accompanied by a 174-page introduction in the fourth volume of the series, covering Scope and Limits, Transcription, Formulas of Collation, and so on.²⁷ Comparatively, Farmer and Lesser’s fourteen-page essay on *DEEP*, published in 2008, is not cited anywhere on the website, putting the onus on the searcher to know of the essay and what they conclude in it.²⁸ The 2,670-word user manual, “How to Use *DEEP*,” which digital humanities scholar Daniel Powell describes in his 2013 review of *DEEP*

22. Daniel Brown, et al., “Preface,” *PhP Manual*, php.net/manual/en/preface.php.

23. “WaybackMachine,” *Internet Archive*, archive.org/web/.

24. Entries on *Wikipedia* now key directly into saved captures from *Internet Archive* (see Mark Graham, “More than 9 million broken links on Wikipedia are now rescued,” *Internet Archive Blog*, created 1 October 2018, accessed 18 November 2018, blog.archive.org/2018/10/01/more-than-9-million-broken-links-on-wikipedia-are-now-rescued/).

25. “The History behind *DEEP*” (deep.sas.upenn.edu/about_deep.html).

26. GitHub Inc., *GitHub*, github.com/.

27. W. W. Greg, *A Bibliography of the English Printed Drama to the Restoration*, 4 vols. (London: Bibliographical Society, 1939–59), 4.i–clxxiv.

28. Additionally, the journal in which the article appears, *Literature Compass*, is behind a paywall.

as “impressively thorough,”²⁹ hardly scratches the surface of what “original” scholarship in bibliography typically expects. Farmer and Lesser adequately describe the “Types of Records” of their database (Single-Play Playbook, Collection, Play in Collection) and the “Search Fields” (currently seven for Basic Search, twenty-three for Advanced), but they ambiguously package together the twenty to thirty descriptive heads of the Results Display into four brief paragraphs (Reference Information, Title-Page Features, Paratextual Materials, Stationer Information; see Appendix 2: date of publication vs title-page date, below). Farmer and Lesser could say much more about bibliographic independence in collections, as extant copies and sales rhetoric often entail contradictory evidence of collation, such as for 1650s octavo collections.³⁰ Similarly, they could expand on how *DEEP* handles alternative titling. *DEEP* has, as a secondary title of Richard Brome’s *The Sparagus Garden* (London, 1640; STC 3820), “Tom Hoydon o’ Tanton Deane,” which arises from an epilogue, has loose links to the play, and is convincingly discredited by G. E. Bentley.³¹ *DEEP* gives Brome and Thomas Heywood’s “The Late Lancashire Witches,” from the book’s title-page, without the headline or running title, “The Witches of Lancashire,” under which the play was originally performed.³² The headline title can be interpreted as an important shared feature of the play and playbook because both benefited in popularity from the Witches’

29. Daniel Powell, “Reviewing Digital Resources: The *Database of Early English Playbooks (DEEP)* — Introduction,” created 8 July 2013, scalar.usc.edu/maker/english-507/powell-review-page1. Andie Silva also reviews *DEEP* in a chapter of her unpublished dissertation, “Marketing Good Taste: Print Agents’ Use of Paratext to Shape Markets and Readers in Early Modern England” (Detroit, MI: Wayne State University, 2014), 249–56, digitalcommons.wayne.edu/oa_dissertations/1025/.

30. Paulina Kewes, “‘Give Me the Sociable Pocket-Books’: Humphrey Moseley’s Serial Publication of Octavo Play Collections,” *Publishing History* 38 (1995): 5–21, 19n37, 20n37.

31. Gerald Eades Bentley, *The Jacobean and Caroline Stage*, 7 vols. (Oxford: Clarendon, 1941–68): “A ghost title. Tom Hoydon is a low-comedy character in Brome’s *Sparagus Garden* who is referred to as a popular hit in the epilogue to Brome’s *Court Beggar*. One or two scholars have mistakenly taken the name as a play title because it occurs with *The Antipodes*, and it has thus crept into play lists” (3.89).

32. Herbert Berry, “The Globe Bewitched and ‘El Hombre Fiel,’” *Medieval and Renaissance Drama in England* 2 (1984): 211–30: “Here hath bin lately a newe comedie at the globe | called *The Witches of Lancasheir*, acted by reason | of ye great concourse of people 3 dayes together: | the 3^d day I went with a friend to see it” (212). Richard Brome and Thomas Heywood, *The Late Lancashire Witches* (London, 1634; STC 13373).

visit to London for trial.³³ Farmer and Lesser appear not to have queried *Lost Plays Database* for missed alternative titles; *Endymion* 1663, *The Man-in-the Moon* (London, 1663; Wing A2492A), an almanac with a playlist, includes a title combining a mangled entry from the Herbert office book with a printed play's subtitle, possibly signalling the presence of an unrecorded lost edition.³⁴ In particular, though, it would be helpful for Farmer and Lesser to provide grounds for the inclusion of such mediated, anachronistic subject descriptors as the genre classifications from *Annals*, last revised in 1989. *Annals* classifies all plays of the early modern period (975–1700) into ninety-one such ambiguous categories as “Moral Interlude,” “Anti-Catholic Moral,” “Heroical Romance,” and “Pseudo-History.”³⁵ *Annals*’ justification of the genre codes constitutes a single sentence, “FOURTH COLUMN: ... supplies a rough classification of the play: *Mask, History, Tragedy, Latin Comedy*. Etc.”³⁶ After a brief caveat on *Annals*, acknowledging that a full-fledged re-evaluation of the categories might be impracticable with funding and personnel limitations, Farmer and Lesser might address the use of title-page words, rendered searchable by *DEEP*, as an alternative to such codes, considering whether stationers applied such wording in a standard way and whether the meanings of certain words changed in usage throughout their period, perhaps drawing on the powerful comparative tools of Ian Lancashire’s *LEME: Lexicons of Early Modern English*.³⁷

33. For this reason Gabriel Egan is justified in the title of his Globe Quartos edition: Thomas Heywood and Richard Brome, *The Witches of Lancashire*, ed. Gabriel Egan (London: Nick Hern Books, 2002).

34. Cf. “The Lovesick Court, or The Ambitious Politic” (*DEEP* 5182.03) and “Lovesick Courtier,” *Lost Plays Database* (lostplays.folger.edu/Lovesick_Courtier). The pamphlet gives “Love-sick Courtier, or the | Ambitious Politick, c.” (C1^v), where “c” is generic code for comedy.

35. For these four examples, see *DEEP* 1, 35, 129, and 210.

36. Alfred Harbage, *Annals of English Drama, 975–1700*, 3rd ed., rev. by Samuel Schoenbaum and Sylvia Stoler Wagonheim (London: Routledge, 1989), xviii.

37. Ian Lancashire, ed., *LEME: Lexicons of Early Modern English*, University of Toronto, created 2006, accessed 18 November 2018, leme.library.utoronto.ca/.

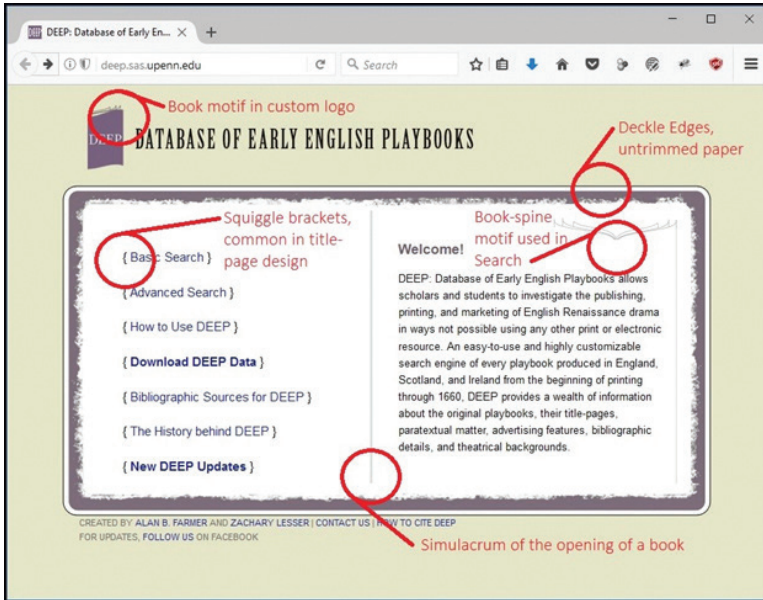


Illustration 2: *DEEP*'s interface is brilliantly designed around the popular late-twentieth-century concept of skeuomorphism

Much of the above, however, is to paint a grim picture of a very convenient and useful resource. Incredibly, *DEEP* encourages wider academic consideration of 843 play-titles by at least 262 authors provided to readers by at least 399 stationers.³⁸ To illustrate the point, Farmer and Lesser have integrated into *DEEP* a system of measuring usage that indicates that in 2017 *DEEP* had “about 25.5K page views and about 10.5K unique visitors,” a total that is “down slightly from previous years.”³⁹ Brilliantly, *DEEP*'s interface is designed around the popular late-twentieth-century concept of skeuomorphism, the principle

38. These figures were compiled using Microsoft Excel's data tools, by extracting the contents of each column, eliminating blanks and duplicate data (and numbers beside stationers' names—an attribute of the data left unexplained by Farmer and Lesser in “How to Use DEEP”), then using PivotTable to compute the final counts.

39. Alan B. Farmer and Zachary Lesser (@DEEPDatabase), “*DEEP: Database of Early English Playbooks*,” facebook.com/DEEPDatabase/, thread 10 January 2015, reply 7 February 2017. To a certain extent they do so in “Vile Arts” (see Appendix 2, below), but certainly more could be said and the findings updated.

in design that to make a virtual object easily navigable to a new user it should resemble a real-world object (see Illustration 2). To assist users in navigating *DEEP*, the launch page echoes familiar properties of a printed book, including a mock-gutter to simulate an “opening” of a verso and recto, patterning to allude to uncut deckle edges of handmade paper, and curly brackets (braces) common on the title-pages of many early modern play collections. The real scholarly-critical genius behind *DEEP* is its sorting method of defining printed plays as solo-playbooks, plays in play collections, or plays as mixed-play anthologies, a refinement of Greg’s binary of “plays” and “collections,” a timeless and valuable re-think of the organizational schema of play printing during the English Renaissance.

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Appendix 1: bibliographic sources and additional notes

This appendix combines unique record entries from an export of *DEEP*’s data (“DEEP data export,” export.csv) with the items included in the reference page of *DEEP*, “Bibliographic Sources for DEEP.” Items marked with an asterisk appear in “Additional Notes” (i.e., record entries) but not in Bibliographic Sources.

- * *Annals of English Drama, 975–1700*. 1st ed. By Alfred Harbage. Revised by Samuel Schoenbaum. London: Methuen, 1964.
- Annals of English Drama, 975–1700*. 3rd ed. By Alfred Harbage. Revised by Samuel Schoenbaum and Sylvia Stoler Wagonheim. London: Routledge, 1989.
- Arber, Edward. *A Transcript of the Registers of the Company of Stationers of London, 1554–1640*. 5 vols. 1875–1894; Gloucester: Peter Smith, 1967.
- * Bawcutt, N. W., ed. *The Control and Censorship of Caroline Drama: The Records of Sir Henry Herbert, Master of the Revels, 1623–73*. Oxford: Clarendon, 1996.

- Bentley, Gerald Eades. *The Jacobean and Caroline Stage*. 7 vols. Oxford: Clarendon, 1941–68.
- * Blayney, Peter W. M. *The Bookshops in Paul's Cross Churchyard*. London: Bibliographical Society, 1990.
- * _____. *The First Folio of Shakespeare*. Washington, DC: Folger Library, 1991.
- * _____. *The Stationers' Company and the Printers of London, 1501–1557*. 2 vols. Cambridge: Cambridge University Press, 2013.
- Bowers, Fredson. *The Dramatic Works in the Beaumont and Fletcher Canon*. Cambridge: Cambridge University Press, 1996.
- * Butler, Martin. "Ben Jonson's *Pan's Anniversary* and the Politics of Early Stuart Pastoral." *English Literary Renaissance* 22 (1992): 369–404.
- _____. "Exeunt Fighting: Poets, Players, and Impresarios at the Caroline Hall Theaters." In *Localizing Caroline Drama: Politics and Economics of the Early Modern English Stage, 1625–1642*, edited by Adam Zucker and Alan B. Farmer, 97–128. New York: Palgrave, 2006.
- * _____. "The Riddle of Jonson's Chronology Revisited." *The Library*. 7th series. 4.1 (2003): 49–63.
- * Dutton, Richard, ed. *"Women Beware Women" and Other Plays*. Oxford: Oxford University Press, 1999.
- English Short Title Catalogue* (estc.bl.uk).
- * Erne, Lukas. *Beyond "The Spanish Tragedy": A Study of the Works of Thomas Kyd*. Manchester: Manchester University Press, 2001.
- * Gerritsen, Johan. "The Dramatic Piracies of 1661: A Comparative Analysis." *Studies in Bibliography* 11 (1958): 117–31.
- * Gossett, Suzanne, ed. *Pericles*. 3rd series. London: Arden Shakespeare, 2004.
- Greg, W. W. *A Bibliography of the English Printed Drama to the Restoration*. 4 vols. London: Bibliographical Society, 1939–59.
- Gurr, Andrew. *The Shakespearian Playing Companies*. Oxford: Clarendon, 1996.
- * Hailey, R. Carter. "The Dating Game: New Evidence for the Dates of Q4 *Romeo and Juliet* and Q4 *Hamlet*." *Shakespeare Quarterly* 58 (2007): 367–87.
- * Juel-Jensen, Bent. "Sir Philip Sidney, 1554–1586: A Check-List of Early Editions of His Works." In *Sir Philip Sidney: An Anthology of Modern Criticism*, edited by Dennis Kay, 289–314. Oxford: Clarendon, 1987.

- * Linton, Marion. "National Library of Scotland and Edinburgh University Library Copies of Plays in Greg's *Bibliography of the English Printed Drama* [sic]." *Studies in Bibliography* 15 (1962): 91–104.
- * Luborsky, Ruth Samson, and Elizabeth Morley Ingram. *A Guide to English Illustrated Books, 1536–1603*. Tempe, AZ: Medieval & Renaissance Texts & Studies, 1998.
- McMillin, Scott, and Sally-Beth MacLean, *The Queen's Men and Their Plays*. Cambridge: Cambridge University Press, 1998.
- * Morgan, Paul. "Fragments of Three Lost Works from the Stationers' Registers Recently Found in Bindings in College Libraries." *Bodleian Library Record* 7.6 (1967): 299–307.
- Munro, Lucy. *Children of the Queen's Revels: A Jacobean Theatre Repertory*. Cambridge: Cambridge University Press, 2005.
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Appendix 2: date of publication vs title-page date

It is unclear what Farmer and Lesser mean when *DEEP* returns results of "date of publication" (see Illustration 3). Arguably, "date of publication" is the most important "result" sorted by *DEEP*, as annual print figures underlie the criteria of Farmer and Lesser's four essays on playbook scholarship, their original purpose for creating *DEEP* as a private database during their graduate work.⁴¹ To Farmer and Lesser, "date of publication" would appear to be synonymous with the year of a playbook's title-page imprint, even though "publication,"

41. "Vile Arts: The Marketing of English Printed Drama, 1512–1660," *Research Opportunities in Renaissance Drama* 39 (2000): 77–165; "The Popularity of Playbooks Revisited," *Shakespeare Quarterly* 56.1 (2005): 1–32; "Structures of Popularity in the Early Modern Book Trade," *Shakespeare Quarterly* 56.2 (2005): 206–13; "Canons and Classics: Publishing Drama in Caroline England," in *Localizing Caroline Drama: Politics and Economics of the Early Modern English Stage, 1625–1642*, ed. Adam Zucker and Alan B. Farmer (Houndsmills, Basingstoke: Palgrave, 2006), 17–42. See "The History behind DEEP" (deep.sas.upenn.edu/about_deep.html).

understood broadly, could denote anything from a playbook's licence in the Stationers' Registers to its date of initial purchase for books obtained and dated systematically by George Thomason (they appear to ignore Old and New Style differences).⁴² A recent update to *DEEP*, as recorded in the resource's "Update History," declares a print chronology now hard-coded into the record entries, "The *DEEP* #s for single-play playbooks now run in sequence by play, chronologically from the date of the first edition."⁴³ To be more accurate, a new version of *DEEP* might specify "imprint year" and survey the varieties of competing external evidence, if such evidence is being considered as an integral part of the chronology. Dates of initial advertisement from newsbooks, broadsides, and some currantos are certainly systematic and contrary to many of *DEEP*'s dates (see Table 1).⁴⁴ Usually advertisements from the period begin with a variation of "There is published" or "There is now published," so there can be little cause to suspect that they are advertising not-yet-published materials. Often the date of initial advertisement roughly approximates Thomason's date of purchase, again suggesting that the materials were in circulation at the time of advertising.

<i>DEEP</i> ID	Title	Date of Imprint	Date of First Advertisement	Different Year
1052	<i>Astraea, or Love's True Mirror</i>	1651	23 June 1651	
1053	<i>Hippolytus</i>	1651	25 Nov. 1650	*
1057	<i>Prince of Prigs' Revels</i> ["Hind's Figaries"]	1651	14 Nov. 1651	
1058	<i>Just General</i>	1652	26 Jan. 1652	
1061	<i>Bastard</i>	1652	4 Mar. 1652	
1063	<i>Loyal Lovers</i>	1652	8 Nov. 1652	
1065	<i>Scots Figaries, or A Knot of Knaves</i>	1652	1 Dec. 1651	*

42. G. F. Fortescue, *Catalogue of the Pamphlets, Books, Newspapers and Manuscripts Relating to the Civil War, the Commonwealth, and Restoration, Collected by George Thomason, 1640–1661*, 2 vols. (London: British Museum, 1908).

43. "DEEP Update History" (deep.sas.upenn.edu/whats_new.html).

44. Joshua J. McEvilla, "A Catalogue of Book Advertisements from English Serials: Printed Drama, 1646–1668," *Papers of the Bibliographical Society of America*, 107.1 (2013): 10–48.

1068	<i>Changeling</i>	1653	6 Dec. 1652	*
1077	<i>Spanish Gypsy</i>	1653	9 May 1653	
1086	<i>Alphonsus, Emperor of Germany</i>	1654	16 Jan. 1654	
1097	<i>Combat of Love and Friendship</i>	1654	27 Oct. 1653	*
1102	<i>Fortune by Land and Sea</i>	1655	21 Sept. 1655	
1103	<i>Lovesick King</i>	1655	21 Sept. 1655	
1104	<i>Poor Man's Comfort</i>	1655	21 Sept. 1655	
1105	<i>Twins</i>	1655	21 Sept. 1655	
1106	<i>Mirza</i>	1655	18 June 1655	
1116	<i>Polyeuctes, or The Martyr</i>	1655	13 June 1655	
1132	<i>First Day's Entertainment at Rutland House</i> ["Satyrical Declamations"]	1657	13 May 1658	*
1134	<i>Queen's Exchange (Royal Exchange)</i>	1657	4 June 1657	
1147	<i>No Wit, No Help Like a Woman's</i>	1657	6 July 1657	
1150	<i>Old Couple</i>	1658	18 Feb. 1658	
1165	<i>Unhappy Fair Irene</i> ["Tragedy of Irene the fair Greek"]	1658	27 Jan. 1659	*
1168	<i>Shepherd's Paradise</i>	1659	6 June 1659	
1179	<i>Aminta</i>	1660	26 Jan. 1660	
1212	<i>Fida Pastora</i>	1658	17 June 1658	

Table 1: Chronological numbering from *DEEP*'s "Single-Play Playbooks" is here compared to the dates of earliest advertisement for the same plays from pre-1668 newsbooks and broadsides, based on Joshua J. McEvilla, "A Chronology of Advertisements for English Printed Drama in London Serials, 1646–1668," 2017, updated 2019, 2018, *BibSite*, Bibliographical Society of America (bibsocamer.org/bibsite-home/list-of-resources/).

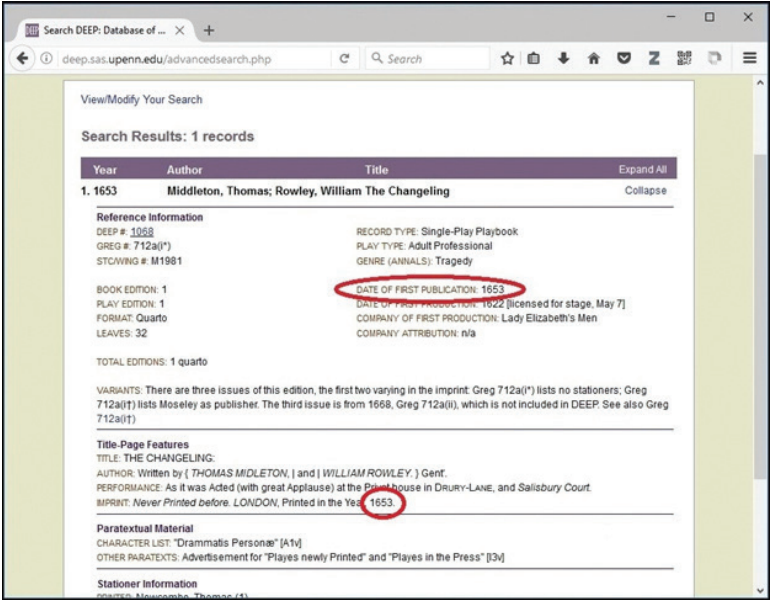


Illustration 3: A typical record in *DEEP*, displaying a date for the first edition of *The Changeling* (London, [1652]; Wing M1980) as “1653.”

Gruzd, Anatoliy, project lead.

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Introduction

Developed by the Social Media Lab (socialmedialab.ca) at Ryerson University, Netlytic (netlytic.org) is a cloud-based text and social network analyzer that aims to help uncover social networks from online conversations. Netlytic has the ability to import data from a number of sources—including Twitter, Facebook, YouTube, Instagram, text files, RSS feeds, and cloud storage—and advocates for ease of use as it requires no programming skills. However, Netlytic does require some underlying knowledge about the structure of the data you