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Name: Sara Norja

Email: [skmnor@utu.fi](mailto:skmnor@utu.fi)

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**From manuscript to digital edition: The challenges of editing early English alchemical texts****1. Introduction**

Alchemy, later considered a pseudo-science, was one of the first experimental sciences in the Middle Ages and influenced the development of chemistry. A multitude of English medieval alchemical manuscript texts survive, written in both Latin and the vernacular. However, the uncharted material vastly outnumbers the texts edited so far, especially in the case of vernacular texts. Indeed, according to Peter J. Grund (2013: 428), the editing of alchemical manuscript texts can be called “the final frontier” in Middle English (ME) textual editing. There are currently no digital editions of ME alchemical texts, although one is under preparation (Grund 2006). Indeed, there is to my knowledge only one digital edition of alchemical texts from any period: *The Chymistry of Isaac Newton*, presenting Newton’s alchemical manuscript material (Newman 2005). There are also very few print editions compared to the vast amount of manuscript material: currently, only nine scholarly print editions of ME alchemical manuscript texts exist (Grund 2013: 431–32, fn. 14–15). The lack of editions may be partly due to alchemical texts having been considered too ‘obscure’ and ‘difficult’ to merit editing; alchemical language has a reputation for being vague and laden with metaphors. In general, English-language early scientific texts have not been much edited until fairly recently (cf. Pahta and Taavitsainen 2004: 3–4), and disciplines such as alchemy, considered pseudo-scientific in the present day, have been especially neglected.

However, alchemical texts present many intriguing research possibilities. In order for this branch of ME scientific writing to be used by e.g. historical linguists, more alchemical texts need to be edited – preferably in a digital form compatible with corpus search tools. This paper will discuss the challenges presented by ME alchemical texts and the ways in which a digital edition can address those challenges. A group of previously unedited and unresearched alchemical manuscript texts will act as a case study, with a focus on the issue of textual fluidity.

**2. Early English alchemical manuscript texts attributed to Roger Bacon**

The earliest Latin translations of Arabic alchemical texts appeared in the 12<sup>th</sup> century (Principe 2013: 51). However, it was only in the 15<sup>th</sup> century that texts began to be written in English. At first, these were mostly translations or transformations of Latin originals. The 16<sup>th</sup> and 17<sup>th</sup> centuries saw a flourishing of alchemical practice in England, and thus a proliferation of new alchemical texts. However, many older texts were also copied; medieval texts may appear for the first time as an early modern manuscript copy.

Pseudepigraphical texts – that is, texts falsely attributed to a famous author – are common in alchemical writing, as in many other types of medieval writing. Roger Bacon (c. 1214–92?) was a scholar interested in many branches of science. He valued the science of alchemy, and produced some genuine writings on the subject (Molland 2004). However, they are outnumbered by the pseudepigrapha: Bacon rose to great fame in alchemical circles, and thus numerous writings were falsely or spuriously attributed to him even centuries after his death.

Among these Pseudo-Baconian texts are several English-language texts. My doctoral dissertation will include a digital scholarly edition of some of them: the focus in my dissertation is on *The Mirror of Alchemy*, extant in seven manuscript copies. The edition will be linguistically oriented, but with the possibility for a general reader/usership as well due to the flexibility of the digital format. Due to the linguistic focus, the edition will be documentary (it will also be accompanied by a reader-friendly best-text edition of one of the copies). Documentary editions are especially important for historical linguists, since the focus on accurate representation of the original and the lack of unsignalled editorial interventions make the edition a better witness of the language of a past age (Lass 2004). My edition will adapt the framework for digital editing of ME texts proposed by Ville Marttila (2014); the TEI-XML guidelines form the basis for the framework. In the course of my doctoral degree, I will mainly aim for a data archive, intended to include the raw XML data and metadata, but not aiming for visual representation of any great degree. Any website presentation will appear only later. The edition is currently in early stages.

However, in this paper I focus on a broader group, featuring many of the English-language alchemical texts attributed to Roger Bacon. Some manuscript versions of *The Mirror of Alchemy* are included in this broader group. Overall, these texts seem to bear little relation to Bacon's genuine writings. The group of Pseudo-Baconian texts focused on here consists of twelve texts from manuscripts dating from the 15<sup>th</sup> to the 17<sup>th</sup> centuries. The manuscripts are located in libraries in Cambridge (Cambridge University Library, Trinity College Library), London (British Library) and Oxford (Bodleian Library). I have transcribed all of the texts; they add up to c. 31,400 words.

Ten of these texts have been preliminarily divided into four groups (A, B, C and D) based on their identification by George Keiser as versions of the same 'work' (Keiser 1998: 3636). The A and D groups consist of only one manuscript text each; the B group consists of five texts, and the C group of three. The material also includes two texts I have found which do not fit Keiser's classification. All the texts are predominantly in English, with occasional code-switching into Latin. The B group has a clear Latin antecedent: *Speculum Alchemiae*, also falsely attributed to Roger Bacon. The B group can thus be identified as versions of *The Mirror of Alchemy*.

Most of the texts are treatises on alchemy, dealing with matters such as the properties of metals and how to prepare the Philosophers' Stone. However, there are also several alchemical recipes.

### **3. The issue of textual fluidity and other challenges**

Early alchemical texts present several challenges to the editor. Some of these are common to the editing of any manuscript text. For instance, physical challenges such as smudges, stains, faded ink and so on are not a unique problem for alchemical texts. However, some of these physical challenges may be exacerbated by the fact that many alchemical manuscripts have actually been used as workbooks before being placed in archives, and so may contain stains from various

substances used in alchemical work (e.g. a small orange-hued stain penetrating several folios in Oxford, Bodleian Library MS Ashmole 1486, Part IV, at least ff. 17r–18v).

In my introduction I mentioned the ambiguity of alchemical language. Metaphors are indeed common, and although there has been plenty of research into alchemical metaphors and imagery (e.g. Abraham 1998), individual texts may well be obscure. Some of the Pseudo-Baconian texts rely on metaphors such as the “father and mother of all metals” (referring to sulphur and mercury, often conceived of as male and female, respectively; cf. Principe 2013: 78), and other more obscure ones such as “byardyd blood” (London, British Library, MS Sloane 1091, f. 102r; it is unclear precisely what substance this refers to). There are additional challenges to understanding the texts to be edited: alchemical terminology is not always recorded in the *Oxford English Dictionary* or the *Middle English Dictionary* (cf. Grund 2014), so it can be challenging to uncover the meaning of technical terms (e.g. “contricyons”, MS Sloane 1091, f. 102v).

There are also challenges relating to representing the original manuscript in the edition; many of these, of course, are common to any editor, but alchemical manuscripts often add to these problems. For instance, alchemical manuscripts often contain extensive marginalia and additions that may be of great interest linguistically and from a historical point of view (e.g. a note in mirrored handwriting in Cambridge, Trinity College Library MS R.14.44, in Part IV of the MS, f. 12v). Thus, these marginalia should also be encoded as intrinsic to the text itself, but presented as separate depending on whether they were added by the original scribe or a later hand. Since there are so few other editions, the possibility for comparison is not yet as fruitful as it could be – however, the Isaac Newton project is an extremely helpful resource for Early Modern English alchemical texts.

Medieval alchemical texts are complex when it comes to textual transmission, as is the case for many other early scientific texts (cf. Grund 2013: 435; Pahta and Taavitsainen 2004: 12–13). Scribes combined sections from various sources and sometimes added their own contributions. Perhaps the chief editorial challenge, thus, is that due to the fluid nature of alchemical texts, it is often difficult to actually define what a certain ‘text’ actually is (cf. Varila 2016; the term ‘work’ is useful in some cases, such as for *The Mirror of Alchemy*, but not in all). This is a challenge if one is considering a printed edition where (for either financial or practical reasons) it is often not feasible to attempt a documentary record of all the possible textual variations.

An example of this textual fluidity can be found in the Pseudo-Baconian D text (MS R.14.44, Pt IV, ff. 8v–14v). According to Keiser (1998: 3636), this text forms a separate group on its own, and thus is not connected to the other texts in his four-part classification. However, my transcription of the D text reveals some definite connections: D contains passages similar to the C group. It also has similar collocations compared to the B group. Keiser’s (1998) work is a manual of scientific writings in ME, and he had to go through a great number of manuscripts in the process. Thus, it is not surprising that extensive research on all the manuscripts was not feasible. In any case, it seems clear that Keiser’s group boundaries are more fluid than they might appear, and should be reconsidered.

The textual fluidity in the D group is evident when comparing it to the C group. One of the texts in the C group (Cambridge, Trinity College MS R.14.45, ff. 2r–4r) contains the following on f. 2r:<sup>1</sup>

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<sup>1</sup> The transcriptions are by myself. My transcription principles, in brief, are the following: original spelling, line breaks, punctuation, and superscripts have been retained. Rubrication has been marked with red font colour. Abbreviations are expanded in italics. Thorn and yogh are retained.

Ask þ<sup>e</sup> comyn verkerys þat holde ham soo wyse what ys þ<sup>e</sup>  
 erthe & what ys the vete. þat schall be souyn in the erthe.  
 ‘ask the common workers that consider themselves so wise: what is the  
 earth and what is the wheat that shall be sown in the earth’

The same passage also appears in the other texts in the C group. When compared with a passage from the D text (f. 12r), it can be seen that the two examples are almost identical according to medieval standards:

aske 3e of þese . philisophires . þat holden hem so wyse .  
 what muste be þ<sup>e</sup> whete þat is sowyn in þ<sup>e</sup> erthe  
 ‘ask ye of these philosophers that consider themselves so wise:  
 what must be the wheat that is sown in the earth’

The only major difference in word choice is “comyn verkerys” ‘common workers’ in the C text, which is “philisophires” ‘philosophers’ in the D text. However, the general similarities are immediately evident. In addition, the passages continue in a near-identical fashion in both texts until D’s explicit, over the space of several folios. There are also other similarities; the texts in MSS R.14.44 and R.14.45 (as well as the other C texts) have numerous complexities in their textual relationships that cannot be dealt with here. Thus, the latter part of the D text seems to have a similar textual history as parts of the C texts. Should the D text then be included among the C group? Or is it sufficiently different to merit a grouping of its own? Editorial decisions such as these are made very challenging by the textual situation in the manuscripts. However, digital documentary editing can provide many solutions for these issues.

#### 4. Digital editions for alchemical texts

Digital editing is a useful choice for alchemical texts for many reasons. Considering the issues of textual fluidity, a digital edition is a good solution: because of the lack of issues such as printing costs, a digital edition of alchemical texts can provide all the versions of a text and represent their interrelations in a flexible manner. Digital editions can overcome the issue of ‘too much’ text to be edited: lack of space is not an issue in the digital realm. Thus, multiple versions of an alchemical text/work can be edited and displayed in various ways. In addition, digital editions in website form can make it easier to present complex interrelations of texts. On a website, it would be possible to display links in textual organisation – thus enabling comparison of different versions. Such an edition could also highlight such things as the similarity of passages (cf. the example of the C and D groups above).

In addition, digital editions can easily provide multiple representations of alchemical texts with varying degrees of normalisation, thus catering to audiences both scholarly and popular. This makes the texts both 1) accurate representations of historical evidence – full texts, with all the idiosyncrasies of spelling and word choice used by the original scribe – and also 2) accessible for a more general audience, with the possibility of a representation of the edition with e.g. normalised spelling. Varying degrees of normalisation – with the possibility of going back to the most accurate representation of the manuscript – are one of the great strengths of digital editions. In one representation, e.g. modern punctuation can be added to ease comprehension of the often convoluted syntax of ME alchemical language. However, this should be clearly encoded in the XML as an editorial addition, and should not be part of the default view of the texts.

In conclusion: we need more editions of alchemical texts. The examples presented here are but a drop in the ocean of unedited material. Digital editing is very well suited to alchemical texts. However, a common framework for the documentary editing of alchemical texts is needed. In my doctoral dissertation and the accompanying edition, I hope to present a suggestion for such a framework.

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