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An Edition and Study of Early English Witnesses of *The Mirror of Alchemy*

Sara Norja

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ABSTRACT

This study concerns an English-language alchemical work called *The Mirror of Alchemy* (*MoA*). I examine manuscript copies of *MoA* from the 15th to 17th centuries as well as a printed edition from 1597. The main aim of my study is to edit a previously unstudied manuscript version of *MoA*, making this work accessible for future research and contributing to developing editorial methods for early scientific texts. A central aim is to place *MoA* in its textual and historical contexts to clarify the edited text to readers. I employ theory and methods from the fields of scholarly editing and textual scholarship, and integrate the discussion of manuscript and printed witnesses.

MoA is an English translation of the Latin work *Speculum alchemiae*. This is a well-known alchemical work, formerly attributed to Roger Bacon (c. 1214–1292?). The material for my study consists of the seven extant manuscript copies of *MoA*, as well as the 1597 printed edition. There is a previous edition of the 1597 witness, but all the manuscript copies were previously unstudied and unedited. My analysis uncovers the textual relationships between the witnesses as well as examining the witnesses as translations, focusing on the translation of specialised alchemical terminology into English.

Based on detailed qualitative textual comparisons, my study shows that the witnesses of *MoA* can be divided into four textual groups. *MoA* is an example of the gradual shift from Latin to English, as the four Groups represent different translations of *Speculum alchemiae*. I examine these Groups both from the point of view of their textual relationships and that of the influence of the (potential) source texts on the translations. My analysis shows that a combination of linguistic strategies was used to translate *Speculum alchemiae* into English multiple times. The differences in the translations are explained by the translation strategies used and diachronic changes in the language of science. A major result of this study is also the best-text edition and its commentary and glossary, as well as transcriptions of the four Groups. The edition's text also provides some previously unrecorded words and antedatings: these show that editing and studying early alchemical material is a valuable undertaking also from a lexicological perspective.

KEYWORDS: alchemy, Early Modern English, history of science, manuscript studies, Middle English, scholarly editing, textual scholarship, vernacularisation

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TIIVISTELMÄ

Väitöstutkimuksessa tarkastelen englanninkielistä alkemistista teosta nimeltään *The Mirror of Alchemy* (*MoA*). Aineistoni koostuu *MoA*:n 1400–1600-luvuilta olevista käsikirjoituskopioista sekä vuoden 1597 painetusta editiosta. Tutkimukseni päätavoite on editoida *MoA*:n aiemmin tutkimaton käsikirjoitusversio, mikä tuo aineiston tutkijoiden käyttöön. Editio kehittää myös osaltaan editointimetodeja varhaisille tieteellisille teksteille. Tutkimuksen keskeinen tavoite on asettaa *MoA* tekstuaalisiin ja historiallisiin konteksteihinsa. Käytän tutkimuksessa tieteellisen editoinnin ja tekstuaalitieteiden teorioita ja metodeja, ja käsittelen painettua ja käsikirjoitusaineistoa yhdessä.

MoA on käännös latinankielisestä teoksesta *Speculum alchemiae*. Tätä tunnettua alkemistista teosta pidettiin ennen Roger Baconin (n. 1214–1292?) kirjoittamana. Tutkimusaineistoni koostuu *MoA*:n seitsemästä säilyneestä käsikirjoituskopiosta sekä vuonna 1597 painetusta editiosta. Jälkimmäisestä on olemassa tieteellinen editio, mutta käsikirjoituskopioita ei ole tutkittu tai editoitu. Analyysini selvittää tekstien väliset suhteet sekä tarkastelee tekstejä käännöksinä keskittyen erityisesti siihen, miten alkemistista erikoisterminologiaa on käännetty englanniksi.

Tutkimus osoittaa tekstikriittisen vertailun pohjalta, että *MoA* voidaan jakaa neljään tekstiryhmään. *MoA* on esimerkki tieteen kielen vähittäisestä siirtymästä latinasta englantiin, ja neljä tekstiryhmää edustavatkin eri käännöksiä *Speculum alchemiae*sta. Tarkastelen näitä käännöksiä tekstien välisten suhteiden näkökulmasta ja tutkin, miten (mahdolliset) lähtötekstit ovat vaikuttaneet käännöksiin. Analyysini osoittaa, että eri käännöksissä oli käytössä oli erilaisia kielellisiä strategioita *Speculum alchemiae*n kääntämisessä. Käännösten väliset erot selittyvät eri käännösstrategioilla sekä tieteen kielen diakronisilla muutoksilla. Merkittävä tulos on myös tutkimukseen sisältyvä *best text* -editio, johon kuuluu kommentaari ja sanasto, sekä transkriptiot kaikista neljästä ryhmästä. Edition teksti tuo myös esille joitakin aiemmin tuntemattomia sanoja sekä sanoja, jotka varhaistavat sanakirjojen ensiesiintymiä. Ne kertovat siitä, että varhaisen alkemistisen aineiston editointi ja tutkiminen on kannattavaa myös sanastontutkimuksen näkökulmasta.

ASIASANAT: alkemia, englannin kieli, kansankielistyminen, keskiaika, käsikirjoitustutkimus, tekstintutkimus, tieteen historia, uuden ajan alku

Acknowledgements

I've been telling stories since I learnt to write, and I've stayed on that road ever since. At some point I discovered that there are stories to be told outside fiction, too: stories of new knowledge based on scientific methods. I must invoke an English philology tradition in crediting Professor J.R.R. Tolkien for my discovery that studying English language history is something a person can do. My alchemical journey began much later, and although I cannot yet make gold, the present magnum opus has taught me the importance of perseverance. Writing this dissertation has been a long road, and I have pursued it with feet both eager and weary. I could not have done this alone.

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Before the plague times, I spent two months in Cambridge, UK, in the autumn of 2017. I remember that visit as a time of falling leaves, cycling past the medieval colleges, late evenings at the UL, the 17th-century chill of the Wren Library, and the magic of handling centuries-old manuscripts every working day. I would like to thank Dr Orietta Da Rold of St John's College, who acted as my mentor during this time. In addition to those two months, I have spent a lot of time at various libraries in Cambridge, Copenhagen, London, and Oxford over the past years. I wish to express my gratitude to the library staff who have helped me during my visits as well as with remote enquiries. I especially wish to thank Sandy Paul, the former Sub-

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It's thanks to you all that I am still here, still writing, still curious.

2 May 2021

Sara Norja

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Abbreviations

BL	British Library
BLO	Bodleian Library
BnF	Bibliothèque nationale de France
CUL	Cambridge University Library
DNB	*Dictionary of National Biography*
EEBO	*Early English Books Online*
eLALME	*Electronic Linguistic Atlas of Late Mediaeval English*. Benskin, Michael, Margaret Laing, Vasilis Karaiskos, & Keith Williamson. 2013. *An Electronic Version of A Linguistic Atlas of Late Mediaeval English (eLALME)*. <http://www.lel.ed.ac.uk/ihd/elalme/elalme.html>.
EModE	Early Modern English
ESTC	*English Short Title Catalogue*
eTK	Thorndike, Lynn & Pearl Kibre. 1963. *Catalogue of Incipits of Mediaeval Scientific Writings in Latin* (eTK). Available online as a companion to eVK2: <https://cctr1.umkc.edu/cgi-bin/search>.
eVK2	Voigts, Linda Ehrsam & Patricia Deery Kurtz. [2000] 2014. *Scientific and Medical Writings in Old and Middle English: An Electronic Reference CD*. Ann Arbor: University of Michigan Press. Online version: <http://cctr1.umkc.edu/search>.
GKS	Gamle Kongelige Samling (Old Royal Collection)
HTOED	*Historical Thesaurus of the Oxford English Dictionary*
IMEP	*Index of Middle English Prose*
KB	Kongelige Bibliotek (Royal Danish Library)
ME	Middle English
MED	*Middle English Dictionary*
MS, MSS	Manuscript, manuscripts
OED	*Oxford English Dictionary*
PDE	Present-Day English
TCC	Trinity College Library, Cambridge
WL	Wellcome Library

PART I – THE STUDY

1 Introduction

Alchemy conjures up images of robed adepts crouched over their furnaces in a futile attempt to transform lead into gold. This image has a basis in reality, but the history of alchemy reveals a far more multi-faceted picture: alchemy is an early science involving complex theories on the composition of matter. The Philosophers' Stone, the instrument for transmutation, was a quintessential part of the alchemical vision, but the transmutation of base metals into gold was not the sole objective of alchemy. It is, however, the culmination of an alchemical work called *The Mirror of Alchemy*. That work is the object of my enquiry in the present study, and the focus of the scholarly edition that is the culmination of my research.

Alchemy was considered a science in its time, along with other early sciences such as medicine and astrology. The role of early scientific texts in the vernacularisation of English has not yet been studied broadly enough. Earlier studies have predominantly focused on medical writings (see e.g. Taavitsainen & Pahta 2004; Crespo 2012); throughout this study I use previous research on medical material as a useful source of comparison. Medicine, then, has received scholarly attention; other early sciences have been explored far less.

Indeed, European alchemical texts from the medieval and early modern period have been studied very little despite the copious numbers of surviving manuscripts. Especially vernacular alchemical texts are only now emerging from the margins of research. Peter J. Grund, who has done ground-breaking research in the study of English-language alchemical texts, has remarked that alchemical texts form the largest group of unresearched and unedited Middle English (ME) texts; he calls them "the final frontier" of Middle English editing (Grund 2013: 428). The present study

treads beyond that frontier to explore new ground. Grund (2013: 442) has called for researchers to approach alchemical material; indeed, my study is in part a response to his challenge. Early Modern English (EModE) alchemical writings have also experienced editorial neglect, and what is even rarer is to include medieval and early modern material within the same edition. However, this is a central part of my research aims, which focus on bringing a previously unedited and under-researched version of an alchemical work to light.

The Mirror of Alchemy (henceforth abbreviated as *MoA*) is an English translation of the Latin alchemical treatise *Speculum alchemiae*. This work – both Latin and English – was previously attributed to Roger Bacon, scholar and Franciscan (c. 1214–1292), but this attribution has later been proved false. While it is true that Roger Bacon addressed alchemy in his actual works, those are outnumbered by "Pseudo-Baconian" writings falsely attributed to him. Most of these Pseudo-Baconian writings survive in Latin (Singer 1932). However, there are also English Pseudo-Baconian writings – and of these, *MoA* is the only work to be extant in several witnesses (Keiser 1998b: 3805). Therefore, exploring and editing this work will provide new insights into the history and transmission of early English alchemical writing.

MoA's witnesses are from the 15th to 17th centuries; there are eight extant manuscript copies, as well as a printed edition from 1597. *MoA* was one of the first alchemical works to be printed in English: this indicates the importance of *MoA* as a work centuries after its previously assumed author Roger Bacon's death. A modern scholarly edition of this printed version has been published (Linden 1992), but the manuscript history and transmission of *MoA* has remained almost entirely unexplored. The manuscript copies of this work have not been previously studied, nor have they been edited. However, they are an essential part of the history of the work. In the present study, I use all of the available witnesses of *MoA* as my primary material, including the printed witness. The scholarly edition of *MoA* is of one of the 15th-century manuscript copies (9 manuscript pages, about 4,100 words) and includes transcriptions of the other previously unstudied versions of the work.

Notably, these manuscript witnesses, together with the printed witness, showcase almost 200 years of the textual transmission of this single alchemical work in English. Some of them are written in Late Middle English (c. 1350–1500), others in Early Modern English (c. 1500–1700); however, a central part of my approach is to problematise the rigidity of this crude (if oftentimes necessary) periodisation. Medievalists and Early Modernists are often divided into their own camps, but a more fruitful approach is to bridge the gap between the two periods and to focus on

the intersections of medieval and early modern.[1] *MoA* offers fruitful material for examining the spread of scientific information in the vernacular in the late Middle Ages and the early modern period, and much would be lost if the focus was on only one or the other time period.

Intersections are meaningful for my approach in other ways, too: in addition to the language and periodisation angle, my study combines the examination of manuscript and print, and how printed editions affect manuscript texts.[2] This approach is becoming more common (cf. Varila 2016; Drimmer 2020; Liira 2020), but it is still not a given, especially in editions. As Richard Sharpe (2003: 79) remarks: "It is almost unusual for an editor to investigate the relationship between the manuscript tradition and the text known in print since (in many cases) the fifteenth or sixteenth century."

My approach is philological, paying close attention to the text and its context. The present study operates at the intersection of historical linguistics and textual scholarship, using methods from both fields to fully contextualise the edition of *MoA*. The core concerns of my study are in the area of *textual scholarship*. David Greetham ([1992] 1994: 2) defines textual scholarship as "the general term for all the activities associated with the discovery, description, transcription, editing, glossing, annotating, and commenting upon texts". Textual scholarship is thus an umbrella term for a wide range of activities dealing with texts. In this study, and in preparing the edition of *MoA*, I have engaged with each of the activities Greetham mentions. Indeed, *scholarly editing* could be called a subactivity of textual scholarship.

In the following sections, I lay the foundations for the present study. First, I discuss my central aims and research questions (Section 1.1). Next, I examine previous research in alchemical writings in English (Section 1.2). After that, I introduce the primary material for this study, the witnesses of *MoA*, and the relevant terminology for dealing with them; I also give a brief summary of the contents of *MoA* (Section 1.3). Finally, I outline the structure of this study (Section 1.4).

1 This does not seem to be a frequent approach in studies on a single work such as *MoA*, but is more common in broader topics: for instance, David McKitterick (2003) examines the intersections between print and manuscript from 1450 to 1830. Merja Kytö and Matti Peikola (2014: 6) note, in their introduction to a special issue of *Studia Neophilologica* on manuscript studies and codicology, that "research methods of manuscript studies are in many cases meaningfully applicable across the boundary" of medieval and early modern.

2 See N. F. Blake (1989) on how the division of manuscript and print obscures how similarly the two forms of book production were viewed in the 15th century.

1.1 Aims and research questions

This study places *MoA* in its historical and linguistic contexts, enabling understanding of the content and significance of the treatise. A central aim of this study is to edit a previously unedited manuscript version of *MoA*, and by doing so, make this work more accessible for use in future research. There are many reasons to edit alchemical manuscript texts; such editions show the development of English alchemy as a science, and can "enable us to analyse linguistic conventions in these texts and, for instance, to compare the results with those obtained by other scholars for medical texts" (Grund 2002: 266). The edition forms an essential part of this study, and thus my editorial aim forms the basis for my research questions.

My first research question concerns textuality: **(1) How do the witnesses of *MoA* differ from each other, and what are their textual relationships?** For the edition, I have chosen one manuscript copy to represent this work; answering research question (1) gives a justification for my choice, as the textual relationships determine for instance which witnesses can fruitfully be compared with one another, and which version of *MoA* has the most to give in the form of an edition. In effect, studying the textual relationships of the witnesses of *MoA* is one of the first steps towards editing the treatise.

Materiality is a central part of my methodology: I consider it essential to return to the materiality of textual witnesses, especially manuscripts, in order to fully explore the texts that those manuscripts contain. Sharpe (2003: 57) notes that "[i]t is vital to combine understanding of texts and understanding of manuscripts"; I agree. For instance, in the case of *MoA*, some of the textual relationships between the manuscript copies could not be determined without examination of the physical manuscripts. In addition, transcription from merely pictures – even high-quality digital photographs – may introduce errors, for instance if there are marginalia that are hard to see, and transcriptions should always be checked against the actual manuscript if possible. For these reasons, I have considered it essential to personally examine each manuscript *in situ*.

My second research question relates to *MoA* as a translated work, and its contribution to the vernacularisation of science: **(2) How does *MoA* reflect the processes of the vernacularisation of science through translation?** The vernacularisation processes of alchemy have not been fully researched, so my study forms a contribution to this topic. *MoA* is a translation from Latin into English. Translations are an important part of the processes of vernacularisation, that is, the shift from using a prestigious, elite language to using a language spoken by the common people – in England, the gradual shift from Latin to English.

Vernacularisation often occurs at different paces for different registers and domains of language; the present study deals specifically with the vernacularisation of the language of science, i.e. the gradual shift from Latin to English in the late Middle Ages and early modern period.

In this study, I examine vernacularisation particularly through the lens of translation, as *MoA* is a translation from the Latin *Speculum alchemiae*. I have discovered through my research that there are different translations of *MoA*; my aim is to compare these translations and through them, using dictionary-based methods, to explore the linguistic strategies used to translate *Speculum alchemiae* into English. There are several complexities in the journey from the source language to the target language, and my study outlines these complexities as part of the overall transmission of *MoA* in English. The present study and the edition that is a part of it add to our understanding of the development of early English scientific prose; for instance, in preparing the glossary for the edition, I have discovered antedatings and words not in the *Middle English Dictionary* (*MED*) or the *Oxford English Dictionary* (*OED*).

Finally, the third research question relates to the problems of editing: **(3) What method of editing is best for an alchemical work in multiple witnesses such as *MoA*?** Scholarly editing, part of the field of textual scholarship, forms a central part of my methodology, as the edition of *MoA* is the cornerstone of the present study. Much of editorial theory and methodology has focused on Middle English or on texts from the 19th century onwards (Hunter 2009: 6). There is less theoretical discussion of editing early modern texts.[3] Since the copies of *MoA* span both Late Middle English and Early Modern English, I have thus had to expand the scope of the existing theories and methodologies to also accommodate Early Modern English.

When it comes to choosing an editorial method, this depends on the target audience of the edition as well as the specific features of the text to be edited. For some purposes, it is necessary to make the original historical text readable to a broader modern audience, for instance by modernising spelling and punctuation. However, close adherence to the original is important if the edition is to be used as material for historical linguistic research. A historical linguist ideally needs access to the original text in as unmediated a form as possible.

My editorial method of choice is *best-text editing*, in which one manuscript copy is chosen to represent the edited work. A best-text edition has been the most helpful way to represent *MoA*'s textual complexities while still being readable. My approach

[3] The essays in Loffman and Phillips (eds. 2018) are an important step towards more theoretical discussion on this topic, however.

to best-text editing, however, is much indebted to another method of scholarly editing, *documentary editing* (see Kline & Holbrook Perdue 2008). In documentary editing, the edited text is transmitted to the reader/user in a form as close as possible to the original. All editorial commentary and interpretations are clearly signposted to the reader/user. Documentary editions are useful for historical linguists, as they include as little editorial interpretation as possible and are thus closer to the actual language use of a past time (cf. Lass 2004). I apply a documentary approach to the best-text edition in which I also indicate variants from other manuscript copies. In addition, I supplement the best-text edition with documentary transcriptions of the other manuscript copies.

My three research questions are all related to understanding the text of *MoA* presented in my edition. Textual commentary – that is, the contextualisation of the edited text – is also an essential part of editing. The chapters that precede the edition in Part II are in essence an extended introduction to the edition.

1.2 Resources for early English alchemical texts

Before introducing the primary material of this study in the next section, I will lay the groundwork for my study of *MoA* by briefly examining the historiography of alchemy, particularly alchemical writings in English. First, however, a terminological note is required. *Alchemy*, as William R. Newman and Lawrence M. Principe suggest (1998: 41), is a useful term for medieval purposes, since *chemia* (and similar forms) was not used in the Middle Ages. However, Newman and Principe (1998) prefer the term *chymistry* – an Early Modern English spelling of *chemistry* – for post-15th-century alchemical pursuits. Newman and Principe (1998) show that attempting to draw a clear boundary between alchemy and chemistry as terms in the early modern period is ahistorical, since contemporary usage did not see the two as separate disciplines. Rather, the boundaries were fluid and changeable, and any real division between the two in that period is impossible (Newman & Principe 1998: 35). For Newman and Principe, the term *chymistry* works as a foreignising reminder that alchemy and chemistry coexisted in the early modern period.

However, I would argue that in the case of *MoA*, to use the term *chymistry* for the post-15th-century witnesses would in fact create another artificial boundary. Since the same, originally medieval work continued to be transmitted in the early modern period, the alchemy of the 15th-century *MoA* did not suddenly become something different as time passed. Newman and Principe conclude (1998: 63) that

"the terms 'alchemy' and 'chemistry' were synonymous until at least the last two decades of the seventeenth century". Because these terms were synonymous, because *MoA* is an originally medieval alchemical work, and because I wish to avoid creating boundaries where I think it is more fruitful to cross them, I use the term *alchemy* throughout this study to cover the time period up to 1700, after which modern chemistry began to develop.[4]

The very etymology of the word *alchemy* points to the multicultural past of Western alchemy: it was passed on from Egyptian to Greek to Arabic culture, and thence to Western Europe. Entering English via Old French *alquemie* and/or Latin *alchymia*, and various spellings thereof (*MED*, s.v. *alkamie*),[5] the word derives from Arabic *al-kīmiyā'* < *al* 'the' + *kīmiyā'* 'branch of medieval science whose goal was the transmutation of baser metals into gold' (*OED3*, s.v. *alchemy*).[6] The second part of the word came into Arabic from Greek, so the word is not Arabic in ultimate origin.

Alchemical texts in English have received relatively little scholarly attention.[7] One reason for this may be that – as the modern division into alchemy and chemistry shows – alchemy is these days associated with pseudoscience, while chemistry is firmly a modern science. Alchemy is far from alone in this: for instance, the relationship between astrology and astronomy has a similar history (Varila 2016: 6). Raimo Tuomela (1987: 94) calls pseudoscience "a belief system" regarded as a science. I do not think pseudoscience is a useful historical category, however, as it has overt derogatory tones unsuited to examining history. As Irma Taavitsainen and Päivi Pahta (1998: 161) remark, concepts of what is a science and what is not have varied through history: "the borderline between science and pseudoscience is fuzzy, as the changing position of alchemy demonstrates".

Instead, my study sees the alchemy of *MoA* as a science, albeit one in which the underlying conceptions concerning the composition of matter are flawed. One categorisation of late medieval scientific texts is referred to by Linda Voigts (1989a) in her seminal work in the study of early scientific and medical writings. Voigts (1989a: 345–347) describes various approaches to the definition of medieval science.

4 Modern chemistry truly blossomed in the 19th century, but the mid-18th century saw "spectacular advances heralding the approach of a new age" (Read 1957: 126).

5 Throughout this study, I give *MED* entries without the diacritics indicating vowel length.

6 I add *OED* edition numbers when discussing individual words, as it may be relevant whether the entry has been updated or not.

7 In a very recent study, however, Jennifer M. Rampling (2020) traces the history of alchemy in England.

She refers to Mahmoud Manzalaoui's (1974: 225–226) categorisation of late medieval scientific texts (the below list is from Voigts 1989a: 348):

1. activities that are experimentally sound, mathematically true, or empirically useful (geometry, astronomy, pharmacology, herbal lore),
2. pseudo-sciences or consistent logical systems involving study but which cannot now be substantiated by experimental fact (dream lore, lapidaries, judicial astrology, physiognomy),
3. the occult (alchemy, geomancy, chiromancy).

This list, in my view, has a basis in a problematic, ahistorical notion: that of viewing early science from our modern perspective. The above categories, created by Manzalaoui (1974), are all based on what present-day knowledge of the world considers as science. Manzalaoui acknowledges the importance of alchemy as "it was the alchemists who developed much of the method and the apparatus of empirical science" (1974: 226), and yet he views alchemy as an early science that clouds its observations in "obscurantist" ways (*ibid*.) and is "a deliberate act of logorrhoeic non-communication" (1974: 227).

My study of *MoA* will show that this sort of deliberate obscurantism was not the case for all alchemical texts, all the time. I view *MoA* and its alchemy as early science, and as an example of a scientific text, but it must be noted that the standards for scientific writing were different in the 15th century to what they are today. *MoA* might indeed be classified into Manzalaoui's third category of the 'occult', to some extent, although not as much as other alchemical works which seek to intentionally confuse the reader. *MoA* claims to give the reader a clear image of alchemy, but the text does on occasion expect the reader to infer things that even close reading does not yield. Some of this may be occult, but some of *MoA*'s "obscurantist" language may be scientific jargon of its time.

Alchemy's relationship with esoteric practices in the medieval and early modern period is a broad topic, but the notion that alchemy was primarily a matter of mysticism and the occult is persistent in modern assumptions. Newman and Principe (1998: 35) argue that this is anachronistic, and has more in common with 19th-century esoteric interpretations of alchemy rather than actual historical practices such as those that appear in *MoA*. In fact, most alchemical texts from before the 18th century are grounded in a theoretical basis, and can be practically, even experimentally oriented (Newman & Principe 2001: 407). Many have claimed that the very worldview behind alchemical practice was magical (cf. Reidy 1975: lxvi), but I would argue against that kind of generalisation, as the alchemical theories in *MoA* merely conform to the central tenet of transmutation being possible. Even

though the theories are incorrect from the modern scientific point of view, they were logical in their time.

Alchemy, then, has many things in common together with astrology and medicine, as both of those early sciences also had logical worldviews behind them, even if the results and applications would be considered laughable or even dangerous today. As mentioned at the start of this introduction, comparisons to the more-studied field of medicine form part of my study. Although comparisons between different fields can be unreliable, I consider them justified, as many of the issues related to alchemy are also common to other fields of early science. Vernacular astrological writings, like alchemical writings, have been especially neglected in scholarship (Mooney 1998; but see Taavitsainen 1988; Griffin 2013; Varila 2016). Relating to scientific writing more generally, Pahta and Taavitsainen (2004: xv) note: "Vernacular scientific writing in the late medieval and early modern periods is still an understudied area, though more attention has been attached to it recently." More linguistic attention has also been paid to vernacular scientific writing since 2004 (e.g. Tavormina 2014, 2019). However, most of this attention has focused on the field of medicine (e.g. Pahta et al. 2011). Even certain areas of medicine have experienced relative neglect: for instance, Tavormina (2019: vii), in her recent edition of ME uroscopies, mentions the "prolonged editorial neglect" of this branch of medical writing (see also Tavormina 2014; Harvey & Tavormina 2020).

Keiser encapsulates the history of editing ME scientific texts (1998a: 109–110). There are many reasons why early English scientific texts have not been edited as frequently as other types of ME texts. One may be that many of them, like *MoA*, are translations – which have often been disdained in favour of 'original' works.[8] Another reason for the lack of edited early scientific texts stems from earlier stages in editorial history: Olalla (2013: 388) points out that the Early English Text Society (EETS) – founded in 1864 partially to provide previously unedited material for the *New English Dictionary* (the *OED*'s predecessor) – did not promote all kinds of early English texts in an equal manner. As Olalla phrases it (2013: 388), "literature, history, and religion soon became the main focus of scholarly attention while other subjects – science particularly – remained editorial Cinderellas, a situation that has

[8] This disregard for translations does not only apply to early English texts: Helen Fulton (2013: 358–359) says, of a medieval Welsh version of the Troy story: "There is currently no standard edition or translation into English of *Ystorya Dared*, partly because of the number of manuscript copies and partly because of its perceived status as a mere translation from a Latin original".

since improved but little".[9] One reason for this may be that the potential audience for literary texts has been thought to be larger than that for scientific material.

This is one explanation for why newly edited scientific material frequently predates *OED* entries, and why some senses or forms are not included in the dictionary: from the beginning, *New English Dictionary* compilers lacked scientific historical writings to draw from. As the *OED* and *MED* are the main sources for an editor preparing a glossary, this is very relevant background for the edition of *MoA*.

The task of finding alchemical material for editorial purposes is made complex by alchemical texts having been catalogued in less detail than some other textual domains, perhaps partly due to the perceived difficulty of the subject matter (cf. Olalla 2013: 389 on the scanty earlier cataloguing of scientific material in general).[10] Alchemy is not the only 'difficult' subject: Mooney (1998: 123) mentions that finding all or enough copies of a single text or work is also a potential problem with editing astrological material.[11] As with alchemical material, this difficulty is often due to insufficient cataloguing complicating the search for copies of a certain text. Indeed, it is only recently that more extensive bibliographical tools for researching alchemical and other early scientific texts have been developed (Grund 2013: 429–430). In addition, many of the texts – although possibly medieval in origin – are preserved in early modern manuscripts, which have not been catalogued and studied quite so extensively as medieval manuscripts. This tendency can be seen in *MoA*, as only two of the witnesses are medieval and the others are early modern.

I will return to the matter of locating the material for *MoA* in Chapter 4; for now, a brief mention of the bibliographical aids for finding alchemical material will suffice. For alchemical writings in English, some useful resources are the catalogues of individual libraries;[12] Dorothea Waley Singer's *Catalogue of Latin and*

9 Olalla (2013: 388, fn. 3) lists all EETS volumes with scientific material up to 2008; and even in the 2010s, publishers of editions have less of a focus on scientific material (Olalla 2013: 389).

10 Even with a deeper knowledge of alchemical material, it can be very difficult to tell where a given text begins and ends (cf. Varila 2016: 332 with regard to astrological material). It is thus unsurprising that cataloguers dealing with a great variety of material should find it difficult to accurately delineate the borders of texts, and prefer to lump together e.g. groups of alchemical recipes.

11 Mooney (1998) discusses astrological texts and the issues relevant to them. Astrological and alchemical texts have a lot of similarities both historically and in terms of how they have been treated by modern scholarship. Astrology is also seen as 'pseudoscientific' in the present day.

12 For instance, Black (1845, the Ashmole manuscripts at the Bodleian Library); Hardwick and Luard (1858, Cambridge University Library); James (1900–1905,

Vernacular Alchemical Manuscripts in Great Britain and Ireland […] (1928–31); George R. Keiser's *Manual of the Writings in Middle English 1050–1500, Volume 10: Works of Science and Information* (1998b); and, a major digital addition, the database *Scientific and Medical Writings in Old and Middle English* (eVK2; Voigts & Kurtz 2000). Other useful resources for primary sources for scientific and alchemical writings in English are Braswell (1984: esp. 380–383) and Wilson (1939); in addition, the general finding aids *The Index of Middle English Prose* (searchable by checking texts listed under the keyword 'alchemy'); *The Index of Middle English Verse* (especially in its updated, digital form *DIMEV*; also searchable with the subject keyword 'alchemy'); and *Early English Books Online* (*EEBO*).

Even locating English alchemical writings can be a challenge, and indeed, alchemical texts have not been edited much. Grund summarises the field of research on Middle English alchemy, especially the previous editions of alchemical texts giving wider access to this material. There are not very many even today; Grund remarks that "editorial activity in this area so far represents the proverbial drop in the ocean" (2013: 431). He points out that alchemical poetry has received more attention than prose: see Grund (2013: 431, fn. 14) for a list of the five editions of complete Middle English alchemical poems available then. It should be noted that Early Modern English alchemical texts increase the number of editions somewhat: for instance, Linden's (1992) edition of the printed *MoA*, Newman (2005), and Grund (2011b).

Olalla (2013: 390–391, fn. 13) remarks: "But the complexities of alchemical texts ideally mean that it requires a very accomplished editor, with a wide-ranging knowledge that includes not only more than a certain familiarity with Chemistry but also fluency in a number of exotic [*sic*] languages." Indeed, alchemical texts can be very complex, and the nature of the present study also indicates that even a short treatise such as *MoA* requires plenty of wide-ranging knowledge. However, there is enough previous scholarship in the field of alchemy, and enough fairly recent alchemical editions (especially Grund 2011b and Timmermann 2013) that this endeavour is feasible despite the considerable gap in research compared to e.g. medical writing in English.

Trinity College Cambridge); and the online *British Library Archives and Manuscripts Catalogue*.

1.3 The primary material: *The Mirror of Alchemy*

As mentioned at the start of this introduction, the primary material for this study is formed of the witnesses of *MoA*, both handwritten and printed. Two of the manuscript witnesses are from the 15th century, one from about 1500, two from the 16th century, and two from the 17th century. The manuscripts thus present a relatively broad timespan for the transmission of this alchemical work. In addition, *MoA* was printed in 1597, one of the earliest printed alchemical works in English, and as such, this printed edition also forms part of my material.

I will introduce and discuss the witnesses in detail in Chapter 4, and Appendix 1 includes descriptions of the manuscripts and printed edition. I use *witness* as an umbrella term for my primary material, as using simply *manuscript copy*, for instance, would erase the essential presence of the printed edition of *MoA*. One of the 15th-century manuscript witnesses, Trinity College Cambridge O.5.31, forms the basis for my edition in Part II: this witness represents a previously unedited version of *MoA*. However, the text of the other relevant manuscript witnesses is also included in the form of transcriptions as part of the edition. Stanton J. Linden (1992) has edited the printed edition of *MoA* from 1597, and although I do not agree entirely with his editorial principles (see Section 7.2.1), his edition is sufficiently recent and accurate that I have chosen not to include the printed edition's text of *MoA* in my own transcriptions.

In this study, I deal with *MoA* and its witnesses on several levels. On the most abstract level, I consider *MoA* as a *work*. This term has been defined in various ways in the field of textual scholarship.[13] I find Peter L. Shillingsburg's (1986: 46) definition useful: "a work is the imagined whole implied by all differing forms of a text which we conceive as representing a single literary creation". In other words, a work does not exist in any tangible way. However, neither is it a fixed platonic ideal: it is a mutable thing with many potential forms (Shillingsburg 1986: 46–47). In the case of *MoA*, when I discuss *MoA* as a work, I refer to it not with regard to the individual manuscript copies or their versions, but as the intangible entity which has seven chapters of content, and the content is arranged in the same order. In Section 2.1.2, for instance, I summarise the contents of *MoA* as a work. The ultimate source of *MoA*, the Latin *Speculum alchemiae*, is also a work.

The level of *version* is one step towards concreteness from *work*. "A version is one specific form of the work […] A version has no substantial existence, but it is represented more or less well or completely by a single text as found in a manuscript, proof, book, or some other written or printed form" (Shillingsburg 1986: 47). In the

[13] Cf. the discussion in Snijders (2013) and Marttila (2014: 15–33).

context of *MoA*, my analysis in Chapter 5 shows that there are different versions of the work. The reason for these different versions arising is related to them being different translations, as I discuss in Chapter 6.

As for the next level of *text*, according to Shillingsburg (1986: 49): "A text is the actual order of words and punctuation as contained in any one physical form, such as manuscript, proof, or book." This is fairly straightforward: a *text* is already more tangible, but it should be noted that it is not yet the physical form, letters on an actual manuscript page. A text can exist in several copies, such as in a present-day printed book which has large print runs. Every individual text "represents [...] a version of the work" (Shillingsburg 1986: 50). When I speak of *text* with regard to *MoA*, I mean the words that are written in the individual manuscript copies, and printed in the 1597 edition. This level is central for my analysis in Chapter 5.

The text becomes material at last when we examine the next level: *document*. This "consists of the physical material, paper and ink, bearing the configuration of signs that represent a text" (Shillingsburg 1986: 51). This, in the case of *MoA*, is the manuscript pages that scribes wrote the words upon, and the individual copies of the printed editions. This angle is examined particularly in Chapter 4. The document level is rather similar to the level of text, but the document level is firmly on the material side of things, whereas the level of text is a little more abstracted.

In order to understand some of the issues arising with *MoA*, especially its manuscript documents, a brief description of scribal culture is needed. I will not delve into the full process of manuscript production, as only the later parts of the process – writing the words and decorating the page – are relevant to the transmission of *MoA* through manuscript (see De Hamel 1992 for a brief but well-rounded introduction to how manuscripts were made). I will address and describe more involved aspects of manuscript production in the following chapters when it is called for. For now, suffice it to say that in the time period which *MoA*'s manuscript witnesses are from – the late 15th to 17th centuries – paper was the most common writing support for manuscripts.[14] Scribes could be professional, or they could be educated people writing for their own profit and pleasure: in the case of *MoA*, the latter category is far more relevant. Scribes would copy texts from other manuscripts – or even printed books, in the 16th and 17th centuries. In a time before standardised spelling, scribes would frequently use their own spelling, and in general, spelling variation is ubiquitous in early English manuscripts (see e.g. Horobin 2013: 82). Human error would often creep into the copying process: the eye could skip over a

[14] Relevantly for the 15th-century manuscripts, Orietta Da Rold shows that 60% of the paper manuscripts she examined (from 1350–1500) are from 1450–c. 1500 (2020: 156, Figure 4.1).

line or two, or the scribe could miscopy a word. However, scribes did not simply copy thoughtlessly. Especially if they were also experts in their field (in this case, alchemy), they could modify the text as they saw fit, with any possible levels of deletion or addition.

In other words, *variation* is a key concept for early textual transmission, especially through manuscripts. Variation in this context means how the texts differ from each other: what words they use, what order those words are in, and so forth.[15] *Textual transmission* simply means "the reproduction of texts from one document to another" (Shillingsburg 1986: 172), and as such does not need to include variation; however, variation is such an essential part of especially medieval textuality that when I discuss the transmission of *MoA*, this inevitably includes textual and structural variation and change. As Cerquiglini (1999: 77–78) puts it, "medieval writing does not produce variants; it *is* variance" (emphasis original). Cerquiglini sees this variance on several levels, from dialectal and orthographical variance to variance on the level of work: in all cases, "[v]ariance is the main characteristic of a work in the medieval vernacular" (Cerquiglini 1999: 37). The witnesses of *MoA* also exhibit variance on all these levels, as my study will show.

As delineated above, a work can exist in several versions, with plenty of variation, and yet it is seen as the same thing; this is the "essential plurality" of a medieval work (Cerquiglini 1999: 27). Variation on this kind of broader level can also be called *textual fluidity*. This refers to the "instabilité fondamentale" (Zumthor 1972: 507), 'fundamental instability', of texts in pre-modern textual culture. As I will discuss in Section 2.2.2, this is particularly a feature of scientific writing, including alchemical texts. Textual fluidity is related to the characteristic of scribal culture that I introduced above: scribes/compilers could and did combine texts from various sources into a fluid textual weave that can be difficult for later scholars to unravel (cf. Grund 2013: 435). As Chapter 5 will show, some manuscript copies of *MoA* have evidence of this kind of scribal behaviour: the text of *MoA* is occasionally combined with other textual material in subtle ways.

Before delving into the deeper intricacies of *MoA* through the course of this study – its Latin antecedents, its surviving English-language witnesses, their textual relationships, and its position as a translation – I will give a summary of the contents of the treatise. In order to distinguish between the chapters of *MoA* and the chapters of the present study, I will use Roman numerals throughout for *MoA*'s chapters (e.g.

[15] The concept of medieval textual variation can also be expressed through another term, *mouvance*, introduced by Paul Zumthor (1972).

Chapter III), and Arabic numerals for the chapters of this study (e.g. Chapter 3). Table 1.1 shows the chapters and their topics:

Table 1.1. The chapters of *MoA*.

Chapter number	Chapter topic
I	Defining alchemy
II	The properties of the seven metals
III	The substance that should be chosen for preparing the Elixir
IV	The process of working on the chosen substance
V	How the vessel and furnace should be made
VI	The colour stages appearing in the work
VII	Achieving the white and red Elixir

MoA is a practical introduction to alchemy. The first three chapters are more theoretical, first introducing the very concept of alchemy as a science and what its purpose is, then moving on to describing the properties of the metals, crucial for the alchemy of the treatise. *MoA* includes discussion on how to decide which substance should be used as the starting point to reach the Philosophers' Stone or Elixir: these are terms used (often synonymously) for the substance that enables transmutation. Chapter IV shows how the alchemical process works, bridging from theoretical to practical. Chapter V is practical in nature, describing the apparatus needed to achieve alchemical results. Chapter VI goes through the alchemical process step by step. Chapter VII discusses what can be achieved with the Philosophers' Stone: the transmutation of metals.

MoA describes fairly standard alchemical processes and concepts. This brief summary of the content of *MoA*, encapsulating what this alchemical work is about, will be contextualised by the chapters that follow. I describe the contents of *MoA* in more detail in Section 2.1.2.

1.4 Structure of the study

As the main aim of this study is to enable understanding of *MoA* and its witnesses, the following chapters in Part I all contribute to this purpose. In this introduction, I have given an overview of the central concerns and aims of this study. In Chapter 2, I provide the necessary historical context for understanding *MoA*. In Section 2.1, I introduce alchemy as an early science, giving a brief overview of alchemical history

as well as summarising *MoA* as a work and detailing those alchemical theories and practices that appear in or inform this work. In Section 2.2, I move on to textual history, discussing the importance of the medieval scholastic tradition, influential for medieval and early modern scientific writing, for *MoA*. I also note relevant compositional features of alchemical writing that appear in *MoA*. Section 2.3 introduces the background necessary for understanding the analysis in Chapter 6: I outline the history of vernacularisation in England, focusing particularly on scientific texts. Vernacularisation often develops through translation, and Section 2.3 introduces previous research on translation and historical English.

Chapter 3 sharpens the focus to Pseudo-Baconian texts, that is, texts like *MoA* that have been (erroneously) attributed to Roger Bacon. I discuss the historical Roger Bacon and why so many alchemical works were attributed to him (Section 3.1). The main focus in this chapter is on the Latin work *Speculum alchemiae*, which *MoA* is a translation of (Section 3.2). I discuss the Latin and French manuscript and print witnesses of *Speculum alchemiae* / *Le miroir d'alquimie*. This forms the background for the textual comparisons between the English *MoA* and its source texts in Chapters 5 and 6. Short descriptions of select Latin manuscript copies are also included in Appendix 2.

Moving on from the Latin and French manuscript witnesses, Chapter 4 discusses the main material for this study, and the basis for the edition: the manuscript and print witnesses of *MoA*. Chapter 4 provides an overview of the previous research into the witnesses in Section 4.1; Section 4.2 discusses material aspects of the witnesses (including dating, provenance, scripts/hands used), and Section 4.3 gives an overview of the other textual contents of the witnesses. This information is essential for understanding the physical context in which the *MoA* witnesses were created, and for discussing their textual differences. Full descriptions are included in Appendix 1.

Chapter 5, then, presents my analysis of the textual relationships between the witnesses of *MoA*; I divide the witnesses into four groups based on their differences and similarities. In Sections 5.1–5.4, I compare the witnesses with each other, exploring the complexities of their interrelationships in cases where a group has more than one witness. In Section 5.5, I bring the analysis together and consolidate my argument for the existence of the four textual groups.

The analysis in Chapter 5 forms the necessary backdrop for Chapter 6, in which the four groups are analysed as different translations of *MoA*. Chapter 6 examines the translations of *MoA* as part of the vernacularisation process. First, I compare *MoA* to general tendencies of vernacularisation in scientific texts (Section 6.1). Next, I analyse the four groups as different translations of *MoA* (Section 6.2), explaining what features differentiate the groups and make the translations distinct. Finally, I

compare the translations (Section 6.3): I compare word counts to further show the differences between them, and use dictionary-based methods in analysing specialised terminology to find out how the translations differ in terms of Latin influence.

Chapter 7 moves on to scholarly editing, shifting the focus to the edition that forms a part of this study. I introduce relevant aspects of editorial theory in Section 7.1, discussing documentary editing and especially best-text editing. In Section 7.2, I discuss the various features of *MoA* that have informed my editorial concerns. In Section 7.3, I present the editorial solutions I have chosen to best represent those features, as well as laying out my editorial aims and the principles underlying the best-text edition. Chapter 8 presents my conclusions.

Part II, following the chapters of this study, contains the best-text edition of one of the 15th-century witnesses of *MoA* (Trinity College Cambridge MS O.5.31), together with in-depth editorial principles, a commentary, and a glossary. Transcriptions of the other manuscript witnesses are also included to enable comparison between the copies.

This study has two appendices. Appendix 1, as mentioned, has manuscript descriptions of the *MoA* manuscripts to supplement the more interlinked discussion in Chapter 4; Appendix 2 has brief manuscript descriptions of those Latin manuscripts of *Speculum alchemiae* which I have personally examined, as most of those manuscripts have not been previously studied.

2 Alchemy in context

In order to understand a work such as *MoA*, grounded in alchemical concepts and traditions as well as having deep roots in the broader scientific context of its time, it is necessary to have some knowledge of those concepts, traditions, and contexts. In this chapter, I will therefore focus on three main areas. First, I present a brief introduction to the alchemy behind *MoA* and the content of the treatise itself (Section 2.1). This section is particularly relevant for the best-text edition, as it provides the background for understanding what *MoA* as a work is trying to say; and the alchemical concepts and theories come up in the chapters that follow, particularly Chapters 5 and 6. Section 2.2 places *MoA* and its witnesses in the context of medieval scientific writing, through the influence of scholasticism and the features that alchemical texts in general have. This is particularly pertinent for Chapter 6, where I analyse whether *MoA* exhibits features of a scholastic treatise.

Finally, I examine the processes and history of the vernacularisation of science in England, focusing particularly on the importance of translation (Section 2.3). This section lays the groundwork for my analysis in Chapter 6, where I analyse *MoA*'s translation history as an example of the vernacularisation processes in England.

2.1 Alchemy as an early science

> "Alkemye ys Ascyence þ*a*t techeth to t*ra*nsfro*m*me All man*er*e of bodyes Into ech oþ*er*" (*MoA*, **T**, ll. 57–58)
>
> 'Alchemy is a science teaching how to transform all kinds of substances into each other'

Alchemy is an early science relating to what matter consists of and how it can potentially be changed. The search for gold and eternal life is commonly viewed as the goal of alchemy. This both is and is not true of alchemy as it was practised in Western Europe. Transmutation of metals into precious gold was certainly a

preoccupation for many alchemists, and it is a key part of *MoA*, as the aim of *MoA* is to reach transmutation. However, alchemy was not just about gold: this early science enabled experimentation, and alchemical work enabled many metallurgical and chemical discoveries.

The full history of alchemy stretches from ancient times to the present day. Numerous histories of alchemy have been written (e.g. Read 1939, 1947, 1957; Taylor 1949; Holmyard [1957] 1990; Multhauf 1966; Halleux 1979; see also Thorndike 1923–1934, vols. I–IV). I will briefly introduce the most relevant scholars of alchemical history as concerns the present study.

John Read wrote several books on alchemical history from various perspectives ranging from an overall history with an emphasis on cultural influences (1939) to a division between history, literature, and visual art (1947) to a more chronological history (1957). Taylor (1949) gives a wide-ranging account of the history of alchemy; he does not often give exact references to other scholarly works, although he uses primary sources, so this book is not without problems. Another seminal work in the historiography of alchemy is Eric J. Holmyard's book *Alchemy* ([1957] 1990) in which he paints alchemical history with a broad brush, and does not give references, although primary sources are used. Robert P. Multhauf's book *The Origins of Chemistry* (1966) is primarily a history of where chemistry comes from; Multhauf has a rather disdainful opinion of alchemy (1966: 11), and frames his account through a chemical view. Thorndike (1923–1934, vols. I–IV) has a far wider focus – the history of magic and experimental science as a whole – and does not give a cohesive account of alchemy.

As many of these sources on the history of alchemy date from the early decades of the 20th century, they have some problems particularly with regard to tracing sources for some rather weighty claims. In other words, these older works need to be considered very carefully as secondary sources. In the present section I have sifted information from them, gathering a synthesis from them and also utilising the recent account by historian and chemist Lawrence M. Principe (2013). Principe has studied the history of alchemy extensively, often together with another historian of science, William R. Newman (e.g. Newman & Principe 1998, 2001, 2002; Principe 2017; Principe ed. 2007). Despite being aimed at a broader audience, Principe (2013) is an invaluable source for an up-to-date scholarly consensus on the history of alchemy.

Since the focus of this dissertation is on late medieval and early modern copies of *MoA*, I will focus on those time periods rather than providing a detailed history of early alchemy. However, so as not to leap immediately into deep water, I will first give a general introduction to alchemical history before I discuss alchemy's position as an early science in late medieval and early modern England.

2.1.1 Alchemical history

> "Be yt opy*n*nely knowen*e* þ*a*t olde phelosophers In þer bok*es* haue tretyde of þ^{is} nobell scyens" (*MoA*, **T**, ll. 5–6)
>
> 'Let it be openly known that old philosophers/alchemists have dealt with this noble branch of knowledge in their books'

Medieval and early modern alchemy – the context in which *MoA* was created and transmitted – was a distillation of knowledge from past centuries. Humans had been working with metals such as gold as early as 3000 BCE in Egypt, and alchemy was in part born as a result of this fascination with metallurgy. The history of alchemy in the West[16] is usually divided into three main periods: Greco-Egyptian and Byzantine (3rd to 9th centuries), Arabic (8th to 15th centuries), and Latin European (12th century onwards) (Principe 2013: 4). In addition to these three standard periods in the history of alchemy, Principe adds a fourth, from the 18th century to the present.[17] Of these divisions, I will focus on the Latin European, as that is the immediate context for *MoA*. However, alchemy was always a conglomeration of what came before, and *MoA* is no exception: some references in *MoA* can only be explained with the help of a brief foray into the Greco-Egyptian and Arabic periods.

The Greco-Egyptian period provided the foundations for alchemy, and many aspects of alchemy which were still fundamental in the early modern period had been established in the early centuries CE. For instance, the theories of the Greek philosopher Aristotle (384–322 BCE) were influential for the alchemical worldview of *MoA*. Aristotle was not himself an alchemist, but he was very much concerned with the formation of matter, which was a fundamental concern for alchemy.

Aristotle is not mentioned by name in *MoA* (although see Section 2.2.1), unlike two names from the earliest alchemical times. The first of these, referred to in Chapter I of *MoA*, is Hermes. This is not a reference to the Greek messenger god – not quite, that is. The Hermes referred to in *MoA* is Hermes Trismegistus, a mythical Hellenistic figure who originated as a combination of the Egyptian scribe god Thoth

16 Alchemy has also been practised in China and India (see e.g. Taylor 1949: 68–75). However, texts from those traditions do not form part of the background of *MoA* as medieval Europeans did not have access to them, and as such they will not be discussed in the present study.

17 Extending the history of alchemy to the present day is a valid suggestion; there exists, for instance, an online discussion forum "dedicated to all forms of alchemy", *Alchemy Forums* (2007–2021). This forum contains subcategories for practical and spiritual alchemy, as well as discussions on alchemical texts and symbolism.

and the Greek Hermes (Fowden 1986: 22–24).[18] Hermes Trismegistus was later seen as the mythical founder of alchemy, and many early writings were attributed to him from the 1st century CE onwards (Thorndike 1923, vol. I: 288, 292). One of the fundamental alchemical texts, ascribed to Hermes, was the *Emerald Tablet/Table* (*Tabula Smaragdina*; see Campion 2009: 64–65).[19] Evidence suggests that this is in fact "an original Arabic composition dating from the eighth century" (Principe 2013: 31). The main doctrine of the *Emerald Tablet* can be summarised in the maxim 'as above, so below': that is, the macrocosm is reflected in the microcosm.

A second mythical name mentioned in *MoA* is that of Alkemus, called a philosopher in the treatise (Best-Text Edition, l. 60). Alkemus's name is presented in *MoA* as the etymon of the word alchemy. As the *OED* etymology of alchemy in Section 1.2 showed, this is certainly not the actual etymology. However, Alkemus, as a mythical king and the founder of alchemy (Reidy 1975: 122), is also referred to in at least two other English alchemical treatises: the 15th-century Thomas Norton's *Ordinal of Alchemy* (Reidy ed. 1975: 18, l. 470) and the 16th-century treatise by Humfrey Lock (Grund ed. 2011b: 236, f. 324v, l. 25). This reference also appears in a letter from Thomas of Bologna to Bernard of Treves (Thorndike 1934, vol. III: 33).

When the heyday of Greek civilisation had passed, their cultural heritage was preserved by Arabic scholars – for alchemy, as for many other sciences. In addition to building on the Greco-Egyptian basis, Arabic scholars went on to develop many theories and practices that were fundamental for later alchemical work (Reidy 1975: lxii). I will describe some of these theories and practices in the following sections. The 8th century was an especially productive time for alchemical thought in the Arabic world, and theories developed then also affected the worldview behind *MoA*.

Indeed, alchemy arrived in Europe as "an Arabic science" (Principe 2013: 4). Alchemy entered Christian Europe in 1144; at least that is when the English monk Robert of Chester finished translating *De compositione alchemiae* from Arabic into Latin (Holmyard [1957] 1990: 106; Principe 2013: 51). This was said to be the first translated alchemical treatise between those two languages. In any case, the earliest Latin translations of Arabic alchemical texts began to appear in the 12th century; they were part of the 12th-century renaissance, during which intellectual culture flourished and developed all over Europe (Ladner 1982: 29; Principe 2013: 52). Alchemy became popular in Europe, and flourished on this continent for almost 600 years.

[18] The word hermetic – meaning 'occult science, esp. alchemy; magical; alchemical' (*OED*, s.v. *hermetic*, subsense 2a) – derives from this Hermes. Alchemy is sometimes referred to as the 'hermetic art'.

[19] An English translation of this short text can be found in Holmyard ([1957] 1990: 97–98). Another translation appears in Principe (2013: 32).

Unlike astrology, however (Campion 2009: 44), alchemy was never taught at universities, and as such did not have an 'official' status.

At first, translations from Arabic were the sole purveyors of alchemical information in Europe. However, by the mid-13th century, Europeans had begun to write their own books on alchemy. Early Arabic alchemists had attributed their writing to Greek authorities; now Latin alchemists were attributing their writing to Arabic authorities (for more on this practice, see Section 3.1). Some 13th-century alchemical compositions in Latin were attributed to Jābir, an influential 8th- or 9th-century Arabic alchemist.[20] In Latin writings, Jābir was Latinised into Geber. However, Jābir the alchemist cannot be equated with Geber the alchemist. In fact, the connection between Jābir and Geber is mainly a matter of names: Geber as a name derives from the famous Jābir's name, but there is no further connection (Principe 2013: 55). Geber was most likely a late-13th-century author writing in Latin, whose works cannot be traced back to Jābirian works (Holmyard [1957] 1990: 134–135; Newman 1991: 98; cf. Grund 2011b: 64).[21] In what follows, I will refer to Geber for the medieval Latin author, and Jābir for the conglomerate of earlier Arabic alchemists; this distinction is relevant, as their alchemical theories are not identical.

In any case, Geberian alchemical theories were influential; they also influenced *MoA*. Geberian theories frequently reiterated ideas from Arabic writings on alchemy, as did most medieval European alchemical writings. For instance, the popular late-13th-century treatise *Summa perfectionis*, the most famous work attributed to Geber (Newman ed. 1991),[22] disseminated the notion of alchemy as *donum Dei*, a gift from God. This was originally a thought attributed to Jābir, who saw any successes of alchemy as a gift from Allah (Newman 1994: 98).[23] This notion also briefly occurs in *MoA*, although *MoA* does not contain other religious elements, unlike some alchemical texts from the 14th and 15th centuries. In those centuries, alchemy

20 The alchemist known as Jābir ibn-Hayyān was most likely a conglomeration of people whose writings were attributed to Jābir (Taylor 1949: 79; Principe 2013: 33–35). Although it is possible that a person such as Jābir actually existed, the Jābirian corpus should be treated more as the writings of a school of alchemists. Jābir's theories were extremely influential for later alchemical thought, as I discuss in Section 2.1.3.

21 Newman's research has shown that this anonymous author was probably Paulus de Tarento (Newman 1991: 26). Newman (1991: 57–108) discusses the 'Geber problem' in depth.

22 This influential work (dated to the end of the 13th century) defended alchemy in a time when it was coming under censure (Newman ed. 1991: i). *Summa perfectionis* "provided a comprehensive overview of alchemical practices and theories current in the late Middle Ages" (Newman ed. 1991: ii).

23 For more on alchemy as *donum Dei*, see Karpenko (1998) and Nummedal (2007: 27–28).

acquired religious overtones: the process of perfecting the Philosophers' Stone could be seen as parallel to saving one's soul (Newman 1994: 99).

The 15th century has been called a time "poor in alchemical compositions" (Thorndike 1934, vol. IV: 332). Thorndike's claim may be due in part to the lack of alchemical cataloguing in the 1930s, so it should be interrogated. Indeed, according to Principe, in the 14th and 15th centuries, the output of new alchemical writings "continued to increase and diversify" (2013: 73). Manuscript copies of alchemical texts are more numerous in the 15th century, although Thorndike notes that they mostly preserve and bring together works from previous centuries (1934, vol. IV: 332). Pereira (1989: 22) points out that the majority of all medieval alchemical works in Latin survive mainly, some of them entirely, in manuscripts from specifically the 15th century. This may be an indication of the vagaries of manuscript survival, but may also indicate an upsurge in Latin alchemical writing in the 15th century.

Despite the invention of printing in the 15th century, almost no incunabula of alchemical works exist in Europe (Thorndike 1934, vol. IV: 332). This may be due to the secretive nature of alchemy, or perhaps indicates the small audience for alchemical texts. However, the extant manuscripts reveal a great interest in alchemy. Alchemical texts began to appear in print in the 16th century, although manuscript distribution still had a major part to play (Norja 2017). Printing is of importance to *MoA*, as one of the witnesses is in print and others have been affected by print.

Indeed, alchemy reached its 'golden age' in the early modern period, during the 16th to early 18th centuries. In other words, as Principe points out (2013: 4), alchemy reached its peak during the same time as the Scientific Revolution was ongoing.[24] Even as the sciences that are still considered 'legitimate' today were being developed, and a concept of science more familiar to present-day Westerners was coalescing, alchemists were experimenting and refining their alchemy. Moreover, its practitioners included some of the people who were in fact fundamental to the Scientific Revolution, such as the chemist Robert Boyle (1627–1691) and physicist and mathematician Isaac Newton (1642–1726/27) (Newman & Principe 2002; Schettino 2017).[25] Both were members of the Royal Society, founded in 1662 to

[24] As Webster (1982: 10) puts it: "Somewhat inconveniently for standard interpretations of the Scientific Revolution the decades following the foundation of the Royal Society witness a last outburst of judicial astrology, the continuing flourishing of Paracelsian medicine, undiminishing appeal of alchemy and hermeticism".

[25] There is a digital edition of all of Newton's chymical writings, *The Chymistry of Isaac Newton* (Newman ed. 2005). The editors maintain that it is impossible to "erect a watertight dam separating [Newton's alchemical work] from his other scientific endeavors". Newton kept his alchemical pursuits somewhat hidden, which suggests that alchemy was not quite acceptable to the emerging scientific community – although

advance science; and yet Newton has been called the last of the magicians (Webster 1982: 9). Alchemical theories and practice developed in many ways in the early modern period (see Nummedal 2007 for alchemy in central Europe at the time). More sources for the history of alchemy survive from the early modern period than from earlier times.

Throughout Europe, transmutation remained the central concern of alchemy in the late medieval and early modern periods, although in the early modern period, the pharmaceutical uses of alchemy also gained importance (cf. Paracelsus's thoughts, Holmyard [1957] 1990: 165–176). Various 'schools' of transmutation had developed based on which starting materials or procedures were deemed the most effective, and with varying theories on the subject of matter and the act of transmutation (Principe 2013: 81). This is very relevant to *MoA*, as the question of what starting material to choose for the alchemical process is a central one for the treatise.

A notable feature of alchemical history is the aspect of experimental science. Newman and Principe (2002: 38) note that alchemy exhibited a "strong experimental tradition" with its laboratory practice, and some alchemists recording experiments. The experimental nature of alchemy is more clearly seen in recipes rather than treatises, especially in medieval texts: treatises, as I will discuss later in this chapter, were often influenced by scholasticism and thus not prone to experimentation. *MoA* has a recipe-like section at its end, but I would not consider it a work that encourages experimentation: on the contrary, *MoA* leans deeply into how things have been done before.

Secular authorities throughout Europe were interested in and worried by transmutational alchemy: too much artificial, alchemical gold would be ruinous to the economy (Principe 2013: 61). Fraudulent alchemists producing counterfeit gold were also considered a problem, as indicated in Chaucer's parody of alchemists, *The Canon's Yeoman's Tale*. In England, related to the authorities' fear of alchemical gold, the practice of alchemy was in fact expressly forbidden in a statute passed in 1403–1404. In this statute forbidding alchemy, the craft was essentially seen as transmutation, and attempting to multiply gold or silver was explicitly forbidden. This statute was only repealed in 1689 (Geoghegan 1957: 10, fn. 2). In other words, during the 15th century, which is when the Latin source text for *MoA*, *Speculum alchemiae*, was probably written and the first manuscript copies of *MoA* appear, alchemy in England was an illicit pursuit. In spite of the statute forbidding alchemy,

> Newton was far from the only member of the Royal Society to engage in alchemical experimentation. However, the very fact that Newton was a serious practitioner of alchemy suggests that it was not a discipline to be scoffed at in early modern England.

there were exceptions: people could petition for permission to practice alchemy, and licences were granted (Geoghegan 1957: 10; Pereira 1998: 26).[26]

The plentiful manuscript evidence also points to people continuing their alchemical pursuits regardless: for instance, alchemical works such as Thomas Norton's *Ordinal of Alchemy*, with manuscripts from the late 15th century (ed. Reidy 1975); and George Ripley's *Compound of Alchemy* (see Rampling 2008).[27] Indeed, Timmermann (2013: 1) considers the 15th century to be significant when it comes to the development of English alchemy; as her study is on specifically English-language alchemical poetry, it is of course notable that the 15th century is when e.g. alchemical recipes began to be transmitted in English, and in rhyming form. The same is true for alchemical prose treatises in English; the 15th century is when they began to flourish. Murray Jones ([1994] 2008: 110) has called the 15th century "an information age", since written information proliferated and began to be appreciated and utilised also by people who were not university-educated.

In early modern England, alchemy reached even greater cultural resonance than in medieval England (cf. the aforementioned *Canon's Yeoman's Tale*). The alchemist became more of a stock figure in art (Read 1947: Ch. III; and esp. Linden 1996). One of the most famous early modern literary examples is Ben Jonson's 1612 play *The Alchemist*, which presents a fraudulent 'alchemist' as a metaphor for the atmosphere in Jacobean London (Read 1947: 39). In more subtle uses, John Donne wrote poems adapting alchemical concepts to poetic imagery beyond the popular satirical view, indicating that he knew something of alchemy (Duncan 1942).[28] Alchemy thus inhabited an uneasy liminal space in early modern England: popular amongst practitioners, well-known enough by the public for its imagery to pervade art, and yet beginning to be challenged by the new theories of how the world worked (Norja 2017). By the mid-18th century, the transmutation of metals began to be considered a relic of past thought. During this time, the terms *alchemy* and *chemistry* also became differentiated. However, *MoA* was first written in a time when alchemy

26 Geoghegan (1957) describes one such licence, in the time of Henry VI, in addition to providing a transcription of the Latin text and an English translation.

27 For an account of English alchemists, see Taylor (1949: 123–144). There has not, to my knowledge, been research specifically on how English alchemical writings approached alchemy during the period when alchemy was forbidden: did they emphasise secrecy more than later writings? This would be an intriguing subject for further study.

28 Donne sometimes, but not always, equates alchemy with unsuccessful attempts to make gold: e.g. "And as no chymique yet th'Elixir got" in *Loves Alchymie* (quoted in Duncan 1942: 259).

was still the only science dealing with matter. In the next section, I will describe the full contents of *MoA*.

2.1.2 An alchemical work: Summary of *MoA*

Understanding the overall content of *MoA* is crucial for understanding the treatise as it stands in the edition in Part II; to that end, I will summarise *MoA*'s chapters in what follows. The content of this treatise has determined which aspects of alchemical theory and practice I highlight in the following sections.

MoA is a practical introduction to alchemy. It is divided into seven chapters, which include theoretical sections on matters such as the properties of metals, as well as rather practical instructions on alchemical processes leading to the preparation of the Philosophers' Stone or Elixir. The 'prototypical' version of *MoA* consists of prefatory matter and seven chapters. The following summary of the contents is on the level of *work*, i.e. on a more abstract level than any of the individual witnesses. I discuss the witnesses of *MoA* in Chapter 4. There are different *versions* of *MoA*, as I discuss in my analysis in Chapters 5 and 6; however, this summary does not do more than allude to some differences between the versions, and I do not go into the *text* level at all, as that is also the subject of my analysis. My purpose here is to show the contents of *MoA* as a *work*, although in a fairly detailed manner, in order to facilitate discussion of the work in the rest of the present chapter and the ensuing chapters, before I approach the levels of *version*, *text*, and *document*. The summary is based on the most complete version of the work (see Section 5.1).

Prefatory text

There are two versions of prefatory text in *MoA*; I describe the longer version here. This prefatory text states that *MoA* is meant for everyone willing to learn the science of alchemy. Previous alchemical works are described as purposefully obscure. The prefatory text gives two reasons for this obscurity: 1) When the 'old philosophers' found something written in figurative language, they had also experienced the phenomenon discussed; and since they already knew what the intent of other authors was, they did not need to clarify it in their own writings. 2) Alchemy is a secret and a gift of God, and therefore should not be shown to those who are not worthy of receiving this gift, but only to those whom God helps and gives his grace. The prefatory text addresses itself to this very audience, and promises that the seven chapters following will reveal the full and whole craft of alchemy to the reader. The prefatory text claims to write out the seven chapters plainly, without the obscurity common to previous alchemical texts.

Chapter I: Defining alchemy[29]

The first chapter briefly discusses the origins of alchemy, reminding the reader to consider the words of Hermes the philosopher saying that alchemy is a bodily substance perfectly joining together precious things. Another definition is mentioned: alchemy is a science teaching to transform all manner of substances into each other as is shown openly in philosophers' books. An etymology for alchemy is given: the name derives from a philosopher named Alkemus. Alchemy teaches how to make an elixir which, if cast upon imperfect substances, makes them perfect.

Chapter II: The properties of the seven metals

The second chapter lists the seven metals known in early alchemy, although it actually only discusses six of them: gold, silver, tin, lead, copper, and iron (quicksilver/mercury is not discussed). The metals are listed along with their planetary synonyms: the Sun/gold, the Moon/silver, Jupiter/tin, Saturn/lead, Venus/copper, and Mars/iron. They are described in terms of the kind of mercury and sulphur that they are formed of. *MoA* subscribes to an alchemical theory in which mercury and sulphur are essential, described in Section 2.1.3, and the descriptions in Chapter II of *MoA* are based on that theory. For instance, gold is a pure and perfect body, engendered of pure, fixed, and clear mercury, and clean, fixed, clear, red sulphur; and it has no flaws. The other metals are described likewise according to their kinds: all the other metals apart from gold are flawed in some way. Chapter II, thus, is theoretical, giving a sense of the alchemical underpinnings of the work.

Chapter III: The substance that should be chosen for preparing the Elixir

The third chapter proceeds from the composition of metals to a crucial matter in the alchemical process: what substance should form the basis for creating the Elixir or Philosophers' Stone. Chapter III is the longest and most theoretical in *MoA*. It proceeds from the premise that any substance chosen will be imperfect to start with, but will be made perfect through the processes of alchemy, with mercury and sulphur. The substance chosen should be similar to the desired end product: citing Aristotle, the text states that two natural contraries may not be together in a single body, so things with a single nature should be chosen. All substances are formed of

[29] For the sake of clarity, the chapter topics here are the same as in Table 1.1 in Section 1.3; that is, they are my own summaries of the chapter's main content, and are not the same as the chapter titles in the witnesses.

mercury and sulphur. In six conclusions, *MoA* shows what substance should be chosen for extracting this mercury and sulphur from:

1) The matter should *not* be chosen from vegetables such as trees, since drawing the mercury and sulphur out of plant-based materials is a long and futile operation.

2) The matter should *not* be from animals or of animal-derived substances such as human blood, hair, or urine, or hen's eggs. This is proved through the same reasoning as the first conclusion: the operation would be lengthy and futile.

3) The matter should *not* be chosen out of 'middle minerals' such as magnesia, marcasite, alums, or salts.

4) The stone should *not* be made of *common* mercury and sulphur, because they would need to be mixed in proportions that surpass human wit. This is unnecessary, since there are substances in which mercury and sulphur already exist in due proportion. (The reader is cautioned to keep this secret.)

5) The substance should *not* be made of gold or silver. This is proved by claiming that gold and silver are perfect, but they are not *more* than perfect – which is what is needed for the Elixir. This fact is proved by restating the properties of gold and silver as in Chapter II.

6) The matter *should* be chosen from a substance that has within it both mercury and sulphur in equal proportions. Then, through alchemical processes, this substance can be made a thousand times more perfect than substances that are created by natural heat.

Chapter III ends with the claim that the reader has now been clearly shown which substance to choose as the base for the Elixir, even though the sixth conclusion does not say it explicitly. However, the reader should understand it if their wit is not dull.

Chapter IV: The process of working on the chosen substance

The fourth chapter turns to more practical aspects: how the alchemical process works. The chapter is concerned with how to make the chosen substance – and therefore the Stone/Elixir – more than perfect with human labour. The natural formation of metals/minerals is described: the continual heat in the mineral hill (i.e. the depths of the earth) affects the water, which is eventually made into mercury. Sulphur is made in the same way, as are other substances engendered from mercury

and sulphur. So, the alchemist should follow nature. Instructions follow, although they are somewhat unclear. Mercury and fire will suffice, and heat fulfils all things. The alchemist should boil, boil, and boil again. The fire should be soft and easy, not too great nor too little. The craft is performed with one vessel. The substance should be broken a hundred times with fire. A metaphor is given for the alchemical work, likening it to the rearing of a human infant: as an infant is first nourished with light food and drink, and afterward with heavier food and drink, this is how the alchemical work should progress, first keeping the fire low and then gently increasing the heat.

Chapter V: How the vessel and furnace should be made

The fifth chapter is also of a practical nature. It describes the vessel and furnace which should be used for the alchemical work (see Figure 2.2 in Section 2.1.4). The furnace should mimic nature; that is, it should be like the 'mineral hill' in which metals are formed. The text describes how mercury and sulphur are created within the hill, and how the vapour of sulphur comes together with the vapour of mercury in the veins of the earth to create metals. Thus, the alchemical furnace should be stony on the outside and firmly closed so that no heat can escape. If heat escapes, mineral bodies cannot be generated. The vessel containing the matter to be transmuted is also described: it must be round, of glass or of glazed clay. Its neck must be small, and the mouth of the vessel must be firmly sealed. The vessel should not be in immediate contact with the fire, so the vessel needs to be closed within another vessel in order for the heat to be more temperate.

Chapter VI: The colour stages appearing in the work

The sixth chapter describes the different colours that appear during the course of the alchemical work – and as such, describes the various stages of the process of making the Philosophers' Stone (these stages are described in more detail in Section 2.1.4). These stages were traditionally associated with various changes in colour. The first stage is when the stone becomes black. Whiteness must then be drawn out of that blackness. Before the white, however, there are other stages. The next stage after black is when the stone becomes yellow, or citrine. The stage after that is green; and right before the stone turns white, it will be the colour of a peacock, i.e. multicoloured. After the peacock stage, the stone will soon shine like fishes' eyes, and then it will turn white and be congealed. When the whiteness has been found, redness is still hidden within. The stone must then be boiled until it turns red. Between white and red, there is a stage where the stone becomes like grey ashes – which must not be despised, for the final stage will follow. This is described with

the metaphor ‘a king will be crowned with a red diadem’: a common alchemical metaphor for achieving the red stone, or pinnacle of the work.

Chapter VII: Achieving the white and red Elixir

The seventh chapter describes the final stages of the alchemical work: the craft of projection (the actual transmutation process) and what substance it will best work upon. The white Elixir will change metals into silver, and the red Elixir will change them to gold. The chapter goes into a more theoretical section debating what substance to choose for the transmutation. Some substances are closer to perfect than others, and therefore such substances should be used as the starting point rather than substances which are far from perfect, as the latter will require more work. The reader is reminded that if they are witty and wise, they will already have realised (through reading the previous chapters) which substances should be used. There is a section with quotations from other sources, with adages such as ‘nature rejoices in its nature’ and ‘likeness rejoices in its likeness’. This section seems to give further reasons for choosing a substance that is close to the desired end product. In the fulfilling of the work, all bodily things are made spiritual (what this means is somewhat unclear).

The chapter gives some numbers, although their exactness is debatable: the Elixir should be cast, or projected, upon a million or more parts of the desired substance, and they will be changed. The chapter ends with ‘one more secret’ given to the reader. This section is almost recipe-like (cf. Grund 2003). One part of the Elixir should be mixed with a substance close to it in kind, and put in a closed vessel. This vessel should be placed in a furnace with an easy fire, which is slowly increased over the space of three days until the substances are firmly joined together. Last of all, every part of the elixir thus produced should be cast upon another thousand parts of substances that are close to the desired outcome: this is a work of either one day, or one hour, or even just a moment. The work closes with a *finis* in Latin.

This summary of *MoA* shows that this treatise deals with many crucial concepts in alchemy, as the central focus is on transmutation. In the following sections, I will describe the alchemical theories and practical applications that will explain the alchemical content of *MoA*.

2.1.3 Alchemical theories

> "wherfore þ^{e} trowthe ys . þ*a*t All bodyes Ar*e* made of M*er*curij & sulpho*ur*" (*MoA*, **T**, ll. 111–112)
>
> 'which is why the truth is that all substances are made of mercury and sulphur'

Theory was always important for alchemy; and as *MoA* also includes theoretical sections concerning the nature of metals and composition of matter (notably Chapters I–III), I will give some background for the theories underlying the treatise. In general, alchemical theories relate mostly to worldview, to how the world was constructed. Alchemy was much concerned with the nature of physical things, seeking to know for instance what substances are formed of, what the nature of matter is, and how substances change from one to another. These are questions that Greek natural philosophy was much concerned with long before alchemy emerged as a discipline (Principe 2013: 14).

In this section, I use the terms *transformation* and *transmutation*. The first of these refers to all sorts of changes in physical substances, and I confine the latter to signify the specific process which changes one metal to another. That is, I consider transmutation a subcategory of transformation. Transformation, in general, is an essential feature of the alchemical worldview espoused in *MoA*. Since a major goal of alchemy was to change one substance to another, the worldview of an alchemist must contain the potential for material transformation. Indeed, the culmination of the *magnum opus*, the alchemical Great Work, involved achieving a functional Stone/Elixir to enable transmutation.

MoA claims that the Philosophers' Stone can transmute base metals to gold and, moreover, multiply the resulting riches manifold. Principe encapsulates the worldview necessary for explaining this miraculous event: "one thing can be turned into another because at the deepest level they are really the same thing" (Principe 2013: 26). This is the fundamental worldview underlying the alchemy of *MoA*. When abstracted enough, metals are formed of similar things, and thus they can be transmuted from one into another.

A notable text for the worldview underlying *MoA* is an early one, "[t]he ill-arranged fragments" (Sheppard 1959: 44) called *Physika kai Mystika*.[30] This fragmentary work was attributed to the early Greek philosopher known as Pseudo-Democritus (1st or 2nd century CE). In it, the necessary information for transmutation

[30] 'Natural and Secret Things' (as translated by Principe 2013: 12).

is summarised: "Nature delights in nature, nature triumphs over nature, nature masters nature" (Principe 2013: 12–13, translating from Martelli ed., 2011: 184–187).[31] This information content is echoed in *MoA*.[32] It is a staggering example of how deep into alchemical textual history the roots of *MoA* reach. Pseudo-Democritus's maxim tells the reader that the material for transmutation should be chosen from something close to the desired result in nature: "[t]he materials had to have mutual sympathy" (Reidy 1975: lvi). This notion is taken further in *MoA* with another common notion: 'likeness rejoices in its likeness'.[33] In other words, success will be achieved with something related to the desired end result – that is, gold.

Gold was one of only seven metals which were distinguished in early science (Principe 2013: 36). *Gold* and *silver* were the 'noble' metals, and the 'base' metals were *copper, iron, tin, lead*, and *mercury*. The seven metals of alchemy corresponded to the seven celestial bodies of astrology, as shown in Table 2.1; this is the most obvious connection between these two early sciences. Astrology as a science is related to alchemy, and alchemy could from some perspectives be seen as a practical application of astrology (Campion 2009: 64–65).

Table 2.1. The seven metals and their celestial bodies in *MoA*.[34]

Metal	**Celestial body**	**Sigil**	**Properties in *MoA*[35]**
Gold	Sun	☉	pure and perfect
Silver	Moon	☾	clean, almost perfect
Tin	Jupiter	♃	almost clean, imperfect
Lead	Saturn	♄	unclean, imperfect
Copper	Venus	♀	unclean, imperfect
Iron	Mars	♂	unclean, imperfect
Mercury (quicksilver)	Mercury	☿	[not described]

31 Sheppard (1959: 44) has a more opaque translation: "The nature, in such a case, is charmed by the nature: in such a case, triumphs over it; in such a case, dominates it". The full story of how Pseudo-Democritus got this information involves such things as raising the dead, and is described in e.g. Reidy (1975: lvi) and Principe (2013: 13–14).

32 See Best-Text Edition, ll. 274–276.

33 See Best-Text Edition, l. 276.

34 Ordered according to the order in which they are referred to in *MoA*.

35 There are further distinguishing properties (Best-Text Edition, ll. 71–88), related to what kind of mercury and sulphur these metals are formed of (see below), but they are too complex to list in this Table, as they are somewhat different in the different versions of *MoA*. However, they further distinguish lead, copper, and iron from each other.

In alchemical texts, the metals are often referred to with the celestial bodies' names or the astrological symbols. Some manuscript copies of *MoA* use the astrological names, also in Latin (e.g. *Sol* and *Luna*), a common feature of alchemical writing (see Section 2.2.2). At least in *MoA*, the astrological context is confined to the use of the celestial bodies' names. There is no mention in *MoA* of any theories whereby e.g. certain alchemical operations would only work during a certain astrological event. The seven metals were considered to have different properties; in *MoA*, these are listed in detail. Table 2.1 shows the main properties, revealing that at least in this treatise, only gold is seen as perfect. *MoA* lists only six metals: mercury is not mentioned as a metal, and appears throughout the treatise as a more theoretical concept (see below).

Many alchemical theories differ based on what they consider the seven metals to be formed of: that is, what 'building blocks' the metals consist of. In present-day science, all of these seven metals are elements in the Periodic Table of chemistry. In medieval and early modern scientific thought, however, metals were considered compounds. I will now discuss two theories concerning what these compounds were formed of.

Early science had the concept of elements, although the term did not mean the same as it does today. The Aristotelian theory of the *four elements* – water, earth, fire, air – is one of the theories underlying the alchemical worldview of *MoA*. The elemental theory on the constitution of matter was influential for alchemy (Holmyard [1957] 1990: 21). According to Aristotle, all matter is formed of elements, which are "the ultimate constituents of bodies" (Crowley 2013: 162). This is part of Aristotle's idea of the *primary qualities* (or *contraries*) in all matter. That is, Aristotle considered all matter to include the basic qualities of hot and cold, wet and dry (Principe 2013: 37). Hot/cold and wet/dry are contraries, and thus cannot be joined together (Holmyard [1957] 1990: 22). However, these qualities, joined in appropriate pairs, form the four elements, as shown diagrammatically in Figure 2.1:

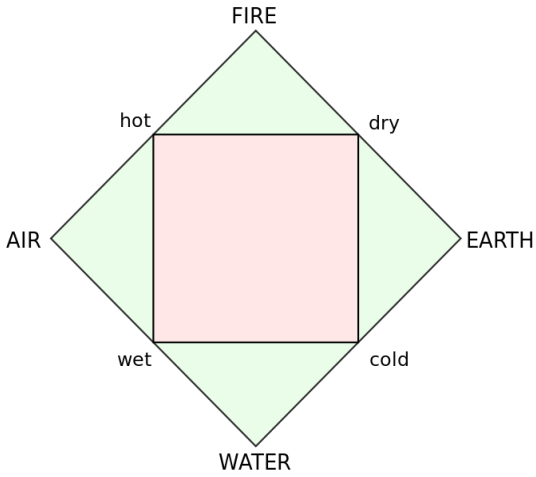


Figure 2.1. The four elements and their qualities. Adapted from Read (1957: 3, Fig. 1).

The first quality predominates over the other, and by changing it, one element can be changed into another. For instance, fire (hot/dry) can become air (wet/hot) by increasing the heat; and air (wet/hot) can become water (cold/wet) by applying wetness. These are logical ideas based on observing the natural world. While elements are formed of these qualities, all other matter is formed in turn from the elements in differing proportions (Holmyard [1957] 1990: 23). If elements can be transformed one into another, it was reasoned that this should be possible for all other matter.

This is the crux of the logic behind the transmutation of metals, and the logic behind the alchemy of *MoA*. If all matter consists of the same primary qualities, it is possible to change the matter itself with alchemical procedures affecting those qualities. The four elements are not explicitly referred to in *MoA*, but there is a reference to 'two natural contraries' which cannot coexist in one substance.[36] This must refer to the primary contraries of hot/cold, wet/dry, which, as opposites, indeed cannot coexist in a substance. Overall, the worldview of *MoA* has characteristics of Aristotelian thinking, such as the two contraries.

Although the elemental theory influenced the worldview of *MoA*, another specifically *alchemical* theory is essential for understanding the treatise. This is known as the mercury-sulphur theory, and it forms the basis for the alchemical thought behind all the witnesses of *MoA*. The essence of this theory is that all metals

[36] See Best-Text Edition, ll. 102–103.

are formed from two components: mercury and sulphur. These substances are "an intermediate stage between elements and metals" (Grund 2011b: 64). Metals were thought to form this way even in nature, which is why alchemists sought to combine mercury and sulphur in their workings, to imitate natural processes.

This theory appears to have arisen in the writings of Jābir. Again, Aristotle's influence can be seen: Jābir derived the mercury-sulphur theory from Aristotelian theories (Principe 2013: 35; see also Holmyard [1957] 1990: 24). The secondary literature on this topic differs as to what was considered an innovation by the far earlier Jābir, and what was introduced by the medieval Geber (cf. Taylor 1949: 80–81; Holmyard [1957] 1990: 75; Principe 2013: 35–36 and 54–58). Grund considers the theory to arise mainly from Geber (2011b: 64), and indeed, *Summa perfectionis* features it prominently (Newman ed. 1991: ii). Regardless of where the theory ultimately comes from, it is fundamental to *MoA*.

The mercury-sulphur theory was long-lived. It was prominent throughout the Middle Ages and well into the early modern period (Reidy 1975: lix), and formed a part of chemical workings even up to the 18th century, "almost a thousand years after it was first proposed" (Principe 2013: 36).[37] The logic was that vapours of sulphur and mercury arose within the earth, and those two in turn combined in various proportions to form minerals and metals (Read 1939: 18). Metals were generated in 'mines' or the 'mineral hill', i.e. deep within the earth, where no heat can escape from. Sulphur is connected to the hot and dry qualities, and mercury to the cold and wet properties (see Figure 2.1), so together they form a contrasting pair. What is notable, though, is that the words *mercury* and *sulphur* by no means always denote the physical substances of mercury and sulphur. In fact, in the theoretical construct of the mercury-sulphur theory, these terms correspond to more abstract, hypothetical concepts "to which ordinary sulphur and mercury formed the closest available approximations" (Holmyard [1957] 1990: 75).

These hypothetical substances are known as *philosophical* or *sophic* sulphur and mercury (Read 1939: 25). Principe (2013: 64–65) considers that the names *mercury* and *sulphur* may have had properties of being used as 'cover names' for their abstract counterparts (see Section 2.2.2 for more on alchemical cover names). This leads to potential confusion in alchemical writings, as it can be difficult to distinguish references to ordinary sulphur and mercury from philosophical sulphur and mercury.

[37] Principe (2013: 36) suggests that one reason for the persistence of the mercury-sulphur theory is that it appears to be supported by some actual chemical phenomena. For instance, powdered copper burns bright from contact with fire, and smells like sulphur in the process: thus the notion of it being formed partly of sulphur is understandable.

MoA has one direct reference to philosophical mercury,[38] and otherwise merely calls the two substances mercury and sulphur (with various terms). I suspect that *MoA* may refer to the philosophical mercury and sulphur throughout. In any case, the theoretical chapters of *MoA* place the treatise firmly within the framework of the mercury-sulphur theory.[39] *MoA* quite simply claims that all substances are made from mercury and sulphur, and thus both are needed for the Stone/Elixir.

The theories presented in the present section represent the logic and mindset behind *MoA*: a worldview in which matter is mutable. I will discuss how these theories were put into practice in the following section.

2.1.4 Alchemical practices

> "þe^{n} put yt In A phelosophers furnase of fusyo*u*n w*ith* An*ne* esye fyer*e* at þ^{e} begynenyn*g* & so forth Incressyn*g* þ^{e} fyer*e* be þ^{e} space of . 3^{m}. dayes" (*MoA*, **T**, ll. 288–290)
>
> 'then put it in a philosopher's furnace of fusion with an easy fire at the beginning, and so forth increase the fire in the space of three days'

I have included two types of concept within *practice* in the present section: both the various *substances/products* which were made with alchemical means, and the *processes* used to achieve those substances. Alchemical practices are perhaps the most significant for the heritage of alchemy overall; alchemical laboratories and the apparatus used in alchemical processes were the predecessors for present-day laboratory practice and chemical apparatus (Taylor 1949: 3). Thus, the laboratory practice of alchemy continued on into chemistry (Taylor 1949: 190).

The practices described in *MoA* mostly conform to the mercury-sulphur theory described in the previous section. The choice of substance as the basis for the Philosophers' Stone, for instance, is based on the theory that one should choose a substance as close as possible to 'philosophical' sulphur and mercury. *MoA* is vague as to what this substance actually is. However, as I will discuss below, *MoA* conforms to Geber's theories, according to which this substance should be derived from minerals, not vegetables or animals.

[38] See Best-Text Edition, l. 138–139.

[39] So much so that Read (1939: 24) quotes from the 1597 printed edition of *MoA* as an example of medieval alchemical works referring to the mercury-sulphur theory.

MoA also mentions many other substances such as orpiment, magnesia, and alums.[40] However, in this section I focus on the major alchemical product, the practical end goal of the Great Work: the Philosophers' Stone and Elixir, and their interplay when it comes to terminology. I will give an outline of the common procedures used to attain the Stone/Elixir, and how the process in *MoA* compares to the procedures outlined in histories of alchemy. Finally, I will briefly describe the equipment needed to produce the Stone/Elixir – the vessel and furnace.

The Philosophers' Stone and the Elixir

The Philosophers' Stone (*lapis philosophorum*) is the *magnum opus*, the culmination of the great alchemical work: the main goal of transmutational alchemy. Many alchemical texts, including *MoA*, are concerned with preparing the Philosophers' Stone. Read (1939: 118) may be romanticising the matter when he says that "[t]he history of science contains no parallel to the quest of the Philosopher's [*sic*] Stone; it contains nothing else so impressive or romantic"; but there is no question that the Stone is part of the enduring legacy of alchemy, and *MoA* is far from the only alchemical work to focus on this elusive goal.

The concept of a specific substance acting as the agent of transmutation seems to have arisen sometime during the first centuries CE, although it is not possible to pinpoint a precise genesis for the Philosophers' Stone (Read 1939: 119). The name *Philosophers' Stone* comes up "no earlier than the seventh century" CE (Principe 2013: 26). Pursuit of the Stone soon became the alchemists' ultimate objective. The primary function of the Stone was to transmute base metals into a nobler form: incorruptible gold was the ultimate goal. Silver was also a major goal. There were two 'colours' of Stone for transmutation: the *white stone* would produce silver, and the *red stone* gold.

As mentioned in the Introduction, the Philosophers' Stone is often used interchangeably with another concept in alchemical writings: that of the Elixir, or elixirs. It is often difficult to tell whether these names refer to the same thing or not, as the Elixir also comes in red and white, and is also an agent of transmutation. In the secondary literature, the two are often referred to as synonyms (e.g. Read 1939: 121; Holmyard [1957] 1990: 15). Pereira (1998: 29) claims that the Elixir, "an agent of material perfection", cannot truly be divorced from the Philosophers' Stone: the two concepts intersect in so many ways, and are so often used synonymously in

[40] These other substances are discussed in the commentary to the best-text edition, and defined in the glossary.

alchemical writings, that trying to separate them is futile. One possible difference between the Stone and the Elixir is that the Stone might be solid or powdery in form, and the Elixir liquid, but this is not a clear-cut distinction; and in *MoA*, no such distinction seems to be made.

In some of the witnesses of *MoA*,[41] the concept of Elixir ('for the white and the red') appears already at the start, as the goal towards which the work will proceed. In *MoA*, *Elixir* and S*tone* are both synonymously used as concepts. I therefore use the two terms interchangeably. The use of the term Elixir in a certain passage in *MoA*, however, introduces an additional synonym. The Elixir is referred to once with the term med*icine*, and here, the Elixir seems to be used as a subcategory or type of medicine: 'a medicine called elixir'.[42]

According to the *OED* (s.v. *medicine*, subsense 1c (now obsolete)), *medicine* can also mean 'the philosopher's stone [*sic*], the elixir'; the alchemical meaning 'a transmuting agent' also appears in the *MED* (s.v. *medicin(e*, subsense 1b). As the dictionary entries suggest, the history of alchemy ties in with medical history. Indeed, alchemy has many links to medicine. Already early on, the two were linked: the word *elixir* derives from the Greek word *xērion*, originally referring to a medicinal powder, through the Arabic *al-iksīr* (*OED*, s.v. *elixir*, n., subsense 1a).

Pereira (1998: 27–31) summarises the history of the concept of the Elixir. The Elixir appears as a concept in the very earliest alchemical treatises translated into Latin from Arabic (Pereira 1998: 27). Although *MoA* is not concerned with medical aspects of alchemy, the metaphorical concept of the Elixir/Stone as a *medicine* occurs in the text. Pereira mentions that "[a]lchemy and medicine have been closely linked in the western scientific tradition since the time of Roger Bacon" (1998: 27; see Section 3.1). One connection of alchemy to medicine is related to the notion of perfection. If metals could be perfected, it was considered logical for the human body to also be granted health (and long life)[43] through alchemical means.

MoA describes the Elixir/Stone as being perfect, most excellent, and a medicine for metals. It can make both silver and gold infinitely in its white and red forms. In

41 The copies in Trinity College Cambridge MS O.5.31, Cambridge University Library MS Kk.6.30, Bodleian Library MS Ashmole 1486, and Kongelige Bibliotek MS GKS 1727 (the second copy of *MoA* in that MS). See Section 5.1 for the connections between these witnesses.

42 Best-Text Edition, ll. 60–61.

43 It should be noted that even in European alchemy that concentrated on prolonging life, the Elixir was never about attaining immortality – unlike popular conceptions of 'the Elixir of Life' (Principe 2013: 5, 72). The pursuit of immortality was a predominant feature of Chinese historical alchemy, not European (Holmyard [1957] 1990: 41–42).

MoA, the Elixir may be cast upon the substances it is meant to transmute, but casting does not specify anything regarding the form of the Elixir – whether it is powdery, solid, or liquid.

The stages of the Great Work

MoA's Chapters IV, VI, and VII are the main chapters describing how to achieve the Stone/Elixir. In what follows, I will describe the prototypical process for making the Stone or Elixir in order to provide a general framework; then, I will discuss how similar the process described in *MoA* is to the processes described in histories of alchemy. First, there had to be some substance to start performing operations on; the matter of what to start the alchemical process with is significant for *MoA*. Throughout the history of alchemy, there have been disagreements on what this substance should be like. The main division is between organic and mineral substances. Organic substances, in this case, mean e.g. vegetables, hen's eggs, urine, human hair, and blood. In some alchemical treatises, organic substances (especially blood) were considered the best starting point for the Stone/Elixir (Reidy 1975: lxiii). Others rejected this and considered the best starting point to be substances that nature has already given perfection, i.e. gold and silver "that like seeds of perfection can, by means of a defined set of manual operations, give birth to the elixir" (Pereira 1998: 32). This is related to the notion of 'like calls to like'.

Geber strongly "proscribes all 'organic' reagents such as blood, hair, and urine" (Newman 1997: 334; see the edition of *Summa perfectionis*, Newman 1991). This seems close to the ideas posited in *MoA*, as Chapter III of *MoA* states decisively that vegetable and animal substances should *not* be used as a basis for the Stone. Even though *MoA* is attributed to Roger Bacon, Bacon's actual thoughts on alchemy seem to be quite the opposite (see further Section 3.1). Indeed, based on what substances the Elixir/Stone should be made of, I consider *MoA* to fall into a generally Geberian alchemical framework instead of resonating with Bacon's ideas.

MoA seems to go even further than Geber, though, claiming that ordinary silver and gold are not good enough for a starting point, as even they are not *more than perfect*. The description 'more than perfect' in *MoA* indicates that a substance needs to be even better than perfect if it is to transform other substances into a perfect form. After all, it needs to be mixed with substances that are *imperfect*, and thus the average of perfection can only be achieved with the help of something more than perfect (cf. Principe 2013: 126). Perfection, as a concept, is central in *MoA*; the notion of the Stone/Elixir needing to be *more than perfect* appears especially in Chapters III and IV of the treatise.

After the right substance had been chosen, the work could commence. The process of making the Stone/Elixir was complex, and especially medieval alchemical recipes present a dizzying array of options as to how to produce the Stone. However, in the early modern period alchemists began to have a consensus regarding the order of operations (Principe 2013: 123). In order to give a clear picture of the process, I will describe this early modern consensus. The basic idea was that first, the alchemist would make the *white stone*, which would transmute lesser metals into silver. The white stone could be further refined to become the *red stone*, which would produce gold. The process of making the Stone is described in detail in several scholarly works (e.g. Read 1939: 131–142; Taylor 1949: 142–143; Reidy 1975: lxx–lxxv, pertaining to Thomas Norton's *Ordinal*; Grund 2011b: 66–68, pertaining to Humfrey Lock's alchemical treatise; Principe 2013: 123–25). Reidy (1975: liv), describing the *tingeing* or colouring of metals, mentions a slightly different sequence of colours, "black, white, yellow, purple", and says that in the 15th century, only black, white, and red were essential in alchemical writings. As will be seen, this is not true of *MoA*, and thus I describe the full sequence of colours found in alchemical literature.

Grund (2011b: 66–67) distils the procedures for making the Elixir into six general stages: (1) purifying a base material; (2) preparing the prime matter[44] with various processes; (3) the white stone; (4) the red stone; (5) multiplication; (6) transmutation. On a basic level, this is also the order of operations in *MoA*, although transmutation can also take place before multiplication. In the following, I will describe the alchemical process on a more general level (drawing on Principe (2013), who bases his concise description on primary sources.[45] The sequence of stages outlined by Grund (2011b: 66–67) can be applied to this description (I indicate the stages in Grund's outline with numbers below).

The substance is placed in a sealed vessel,[46] put in a furnace, and heated for a long time (30 to 40 days). Applying heat to a sealed vessel was not simple, as glass vessels of the medieval and early modern period were thick and thus susceptible to cracking from heat: explosions must have been relatively common at this stage (Principe 2013: 123). At 40 days, assuming no explosions, the substance turns black. *Putrefaction* has been achieved (stage 1).

44 The treatise edited by Grund (2011b) considers the primary component of the Stone to be mercury (2011b: 66).

45 For instance, *Stone of the Philosophers*, an anonymous 17th-century work printed in *Collectanea Chymica*.

46 Principe (2013: 123) points out that the closure of the vessel was often called "the seal of Hermes", and that this reference to alchemy's mythical founder is echoed by the present-day concept of 'hermetically sealed'.

Nigredo, blackness, is merely the first stage of the Stone/Elixir's development. Following putrefaction, the alchemist continues to apply steady heat to the vessel for some weeks. The next stage is *cauda pavonis*: the name means 'peacock's tail', and refers to the variegated colours seen in the substance at this point (cf. stage 2). The alchemist continues to heat the vessel until the almost liquid substance becomes white. *Albedo*, whitening, is a major milestone, as now the alchemist has the chance to remove some of the substance from the vessel. Having *fermented* the removed substance – that is, added some silver to it – the White Stone/Elixir is now complete, and the alchemist can transmute base metals into silver (stage 3).

However, the White Stone is not the end of the work. The alchemist reseals the remainder of the substance in the vessel, and gradually increases the furnace's heat. The white substance gains a sheen of yellow in the stage of *citrinitas* (yellowness), and eventually darkens to *rubedo*: redness, the final stage of *incubation*. The alchemist can now ferment the Red Stone/Elixir by adding some gold to it, and must *incerate* the Stone by adding a liquid such as philosophical mercury so that the Stone becomes "a deep red, extremely dense, brittle, and fusible substance capable of penetrating metals the way oil does paper" (Principe 2013: 125). The Red Stone/Elixir is now complete, and can be used to transmute base metals into gold (stage 4).

The alchemist proceeds to *project* the Stone onto the material to be transmuted (stage 6). This means placing the chosen base metal (e.g. lead) into a crucible, and heating the metal until it can heat mercury to almost boiling temperature; this is known as *fusion*. The alchemist then takes a little of the Red or White Stone/Elixir and tosses it into the crucible: the act of *projection*. After projecting the Stone onto the base metal, the alchemist waits until the contents are liquid enough to be poured into an ingot. If the alchemist has made a powerful Stone, this process can be repeated several times. However, the Stone can also be made more potent through *multiplication* (stage 5), subjecting the re-dissolved Stone to the operations of the different colours again.

The above, then, is a generalised description of the operation of producing the Philosophers' Stone. With this framework in mind, I will outline the procedures in *MoA* below, with the caveat that *MoA* is often fairly vague as regards the actual practical descriptions, and so it is difficult to draw a coherent picture of what is actually suggested in the treatise.

MoA mostly seems to slot into the general procedure described above. *MoA* claims, in Chapter IV, that the alchemist should follow nature in the formation of minerals (into which gold and silver are classified). The work should be done in a single vessel. Heating, often described as boiling, is a major factor in the process. The fire's strength is described: at first it should be soft and easy, but it should be

gently increased as the work progresses. Chapter VI says more about the process, as the purpose of that chapter is to describe the different colours that appear during the course of the work.

The colours/phases are not all named in *MoA*, but I will give the conventional terms for them here for ease of reference. The colour sequence in *MoA* is as follows: black (*nigredo;* the process of *putrefaction*); yellow/citrine (*citrinitas*, the process of *congelation*); green; the colour of a peacock, i.e. multicoloured (*cauda pavonis*); a shining colour like fishes' eyes (cf. Holmyard [1957] 1990: 18); white (*albedo*); an ashen grey; and finally red (*rubedo*, achieved through *liquefaction*). This sequence of colours is not identical with that in Reidy (1975: liv) or Principe (2013: 123–25). The peacock's tail and the yellowing stage come at different points, and Principe's description does not include green at all, nor the colour of fishes' eyes, nor ash-grey. *MoA* is therefore a good example of the multifariousness of descriptions (and presumably, the reality) of the alchemical process in historical alchemical writings.

Chapter VII of *MoA* discusses the final concepts of the alchemical process: projection (casting the Elixir upon a substance) and multiplication (in which the substance will be multiplied manifold). The chapter spends some time discussing which substance should be chosen to project the Elixir upon in the first place, noting that the reader will already know the answer if they have read the previous chapters carefully. The process of projection is described as the Elixir being cast on a million or more parts of the substance that should be changed, and then the change will be effected. Chapter VII gives the reader a final secret – this is the recipe-like section at the very end of the treatise. This secret is multiplication, and the process described is very similar to that described in general above. *MoA* thus presents an alchemical process that is overall very like the general alchemical process, although it differs when it comes to the particulars of colour, and the sequence of change in colours.

The overall logic behind the Philosophers' Stone is that alchemists considered it to operate within the confines of natural laws: that is, transmutation was not considered supernatural or magical as a process (Principe 2013: 125; cf. Newman 1991: ii). Principe (2013: 126) gives some very practical examples of why people in medieval and early modern times would have believed metallic transmutation to be possible: after all, a very small amount of rennet affects huge amounts of milk, coagulating the milk and transforming it into cheese. This and other such natural events made it logical that the Stone could work in a similar way. *MoA* also stresses the importance of 'following nature' throughout the treatise, and there are no hints of magical procedures: it is clear that *MoA* considers the Stone to operate according to natural laws. This is similar to Geber's *Summa perfectionis*, which includes the notion that alchemical processes should follow nature's "generative methods" as closely as possible (Newman ed. 1991: ii).

The vessel and furnace

Finally, I will give a brief note concerning the implements with which the Stone and Elixir were practically achieved. The vessel and the furnace are both described in some detail in *MoA*, specifically Chapter V, which is dedicated to those very things. Again, the concept of imitating nature's processes is paramount: the furnace as described in *MoA* should be as like the 'mineral hill' as possible: made of stone on the outside, heated from below, and firmly closed so that heat does not escape, because escaping heat prevents the formation of 'mineral bodies'. This is in accordance with the theories on how metals were formed. The 'philosopher's furnace' referred to in *MoA* probably refers to a kind of furnace called an athanor, which maintains a constant heat (cf. *OED* s.v. *athanor*). Figure 2.2 shows the kind of furnace and vessel that seem intended in *MoA*.

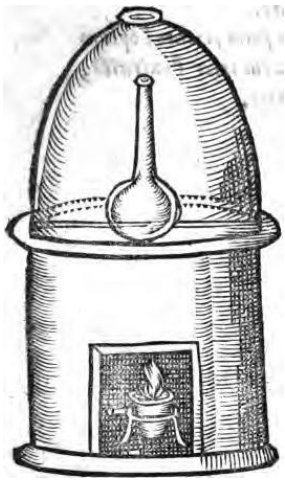


Figure 2.2. The vessel and furnace. From Jean de Beguin's *Les élémens de chymie*, 1626 (3rd edn.), p. 84.

The vessel is described in Chapter V. It should be round and made of glass, or of earth having 'some thickness of glass', which I take to mean that the vessel can either be entirely of glass, or then some kind of glazed pottery. The neck of the vessel should be narrow, and the vessel's mouth must be firmly closed, for instance with *lute* – a cement made of clay and other ingredients used for hermetically sealing vessels (*MED* s.v. *lute* n.(2), sense 1). *MoA* notes that the vessel must not be in direct contact with the furnace's fire so that the heat is temperate enough; this is achieved by enclosing the vessel within another vessel.

The alchemical practices described in the present subsection had a strong theoretical framework behind them, theories which had roots in the murky

beginnings of alchemy and were developed through the centuries of this early science. Section 2.1 overall has presented the historical and scientific contexts that are essential for understanding *MoA* in terms of its alchemical content.

2.2 Medieval and early modern scientific writing

In the current section, I will contextualise *MoA* in terms of medieval and early modern scientific writing. *MoA* is far from an outlier: in many ways, this treatise conforms to the traditions and features common to other early scientific texts. The scholastic tradition of early science and knowledge has influenced the style in which *MoA* is written, which will become relevant for my analysis later in this study; thus, I first provide an introduction to scholastic writing. Next, I focus on other aspects of style that have influenced *MoA*, particularly with regard to alchemy: the features of style and material that are common to alchemical (manuscript) texts.

2.2.1 The influence of scholasticism

Although *MoA* posits itself as, in its way, a simple introduction to alchemy, it is written in a style that feels foreign to present-day readers. Some features of the treatise will therefore open up when viewed in the context of medieval scientific writing in general. In order to facilitate reading of the edited text, and to introduce themes used in my analysis in Chapter 6, I will discuss the influence of scholasticism on *MoA* in what follows.

Scholasticism was a major part of medieval scientific thought; the word is related to *schola*, which implies a connection between universities and scholasticism. Indeed, scholastic influence in alchemy must have originally come from alchemists who were university-taught, familiar with the trivium and quadrivium (as has been mentioned, alchemy was not taught at university).[47] Characteristic features of scholasticism – which I will discuss in more detail below – include the importance of tradition; being concerned with language; believing that the world is knowable; systematicity; and reasoned argumentation (Cabezón 1998: 4–5). As my analysis in Section 6.1.2 will suggest, *MoA* exhibits several features that align it with the

[47] See Seb Falk (2020: 83–86) for the rise of the seven arts in European universities (Chapter 3, 2020: 81–122 examines medieval universities). However, Barbara Obrist (1990: 5) notes that "the treatment not only of natural but also of artificial transformation of metals took place at university level", so alchemy may also have been discussed at universities.

traditions of scholasticism as a thought-style. I use *thought-style* following e.g. Irma Taavitsainen and Päivi Pahta in their research on 'scientific thought-styles' in English medical writing and how those have changed through time.[48] Briefly put, scientific thought-styles are defined "as the underlying scientific concepts, objects of enquiry, methods, evaluations and intellectual commitments related to the epistemology of science" (Pahta & Taavitsainen 2011: 2). For the purposes of the present study, the *influence* of scholasticism as a thought-style is the most salient matter.

Despite the medieval origins of experimental science (see Thorndike 1923–1934, vols. I–IV), scholasticism only truly began to give way to empiricism in the 16th century (Taavitsainen & Pahta 1998: 162). Although scholasticism was to some extent looked down upon in the early modern period (Cabezón 1998: 2), it is a relevant context also for the early modern witnesses of *MoA*, since the content and style of the treatise remained in essence the same also in these later witnesses, as I will show in Chapter 5. This is why, even though different scientific thought-styles had already emerged at the time when the later copies of *MoA* were being copied (cf. the articles in Taavitsainen & Pahta ed. 2011), those thought-styles are not relevant for understanding *MoA* as a treatise.

In what follows, therefore, I will outline four especially prominent characteristics of scholastic writing: 1) references to authorities, 2) reliance on definitions, 3) prescriptive phrases, and 4) reliance on Classical models. These characteristics were present in Latin treatises, and were transmitted into English when those treatises were translated. They are useful for determining how a work is indebted to the scholastic tradition, and I compare *MoA* to them in Section 6.1.2.

1) References to (often Classical) authorities as a source of trustworthy knowledge were common in medieval scholastic science (e.g. Taavitsanen & Pahta 1998: 167; Pahta & Taavitsainen 2004: 2). Reliance on ancient authorities and deferring to their knowledge is an essential part of the scholastic framework. Such references are peppered throughout scholastic texts, and as the very term suggests, they are considered to have a great deal of authority in the matters they discuss. This often led to texts being spuriously or falsely attributed to famous authors.

Unlike popular conceptions of the Middle Ages as 'the dark ages' might suggest, the knowledge amassed in Classical Antiquity did not disappear during the medieval

[48] The relevant articles outlining their methodology and aims are Taavitsainen and Pahta (1995, 1998); see also Pahta and Taavitsainen (2004) and Taavitsainen (2001, 2004), and the *Scientific Thought-Styles* project website (2016).

period: far from it.[49] Indeed, especially when the influence of Arabic science began to reach Western Europe, in alchemy as in other sciences, there was a revival in knowledge about Classical authorities, and ancient texts were translated and circulated (Falk 2020: 86–88). According to the scholastic model, they were referred to in later writings, and the thoughts expressed in them were further expounded upon.

One of the most influential of these Classical authorities for scientific writing was Aristotle. His elemental theory deeply influenced alchemical theoretical frameworks, as discussed earlier. However, Aristotle's influence extended far wider than the actual Aristotle's writings, and Pseudo-Aristotelian writings abound (Dod 1982: 47). In the scholastic period, Aristotle was often referred to simply as 'the Philosopher' – he was the quintessential authority on natural philosophy (Minnis [1988] 2010: 80, 116). *MoA* also refers to 'the philosopher', meaning Aristotle.

Aristotle was not the only Classical authority oft-referred to in alchemical writings – for instance, Hermes Trismegistus was also hugely popular (Thorndike 1923, vol. I: 288–289, 292; Principe 2013: 31). However, medieval Western alchemy also developed its own canon of authorities. These included actual proponents of alchemy and alchemists such as Albertus Magnus (Holmyard [1957] 1990: 114–117), Avicenna (Holmyard [1957] 1990: 92–97), and Arnald de Villanova (Holmyard [1957] 1990: 124–126), as well as scholars who may have written on alchemy but did not necessarily practice it – such as Roger Bacon, as I will discuss in Section 3.1. "Pseudo"-versions of these authors – that is, false attributions – often made alchemical authorities of people who were in reality actually opposed to (especially transmutational) alchemy, such as Ramon Llull (Holmyard [1957] 1990: 127). Arabic authorities such as al-Rāzī (known as Rhazes in Latin) were commonly referred to in Western alchemical writing (Principe 2013: 46; cf. Amr & Abdulghani 2007).

References to authority have to do with the nature of evidentiality in science, i.e. what is considered a valid source of information. Taavitsainen and Pahta (1998: 162) introduce the modes of knowing, reliability, and sources of knowledge of various thought-styles; they posit that in scholasticism, the mode of knowing is hearsay (e.g. Classical authorities), with high reliability, and with language (texts) as the source of that knowledge. By contrast, in the thought-style of empiricism, the mode of knowing is induction, with low reliability, and the source of knowledge is observation.

[49] Falk (2020), for instance, argues throughout his recent book for the scientific achievements of the Middle Ages to be recognised (on alchemy, see Falk 2020: 117).

The references in scholastic texts are often similar linguistically, with specific formulae used (Taavitsainen & Pahta 1998: 174), e.g. "*X says that* or *as X says*", other verbs with similar denotations, or teaching or explaining, appearing too. Verbs expressing uncertainty do not tend to appear in this sort of construction (Taavitsainen & Pahta 1998: 175). Another construction commonly used is "phrases which do not contain a verb at all: *after X* and *by the authority of X*" (Taavitsainen & Pahta 1998: 174), for instance.

As for the second feature listed above, 2) definitions are another central feature of the scholastic style. The importance of definitions and references to authorities, taken together, are the most obvious indication of the "logocentric mode of knowing" (Taavitsainen 2004: 50) of scholastic science. As Taavitsainen and Pahta (1998: 167) have phrased it: "Scholastic science is logocentric in nature: scientific knowledge was to be obtained by analysis of language and by establishing the correct definitions of things". This focus on proving things through the writings of others, and through definitions, is clearly apparent in *MoA* as well.

3) Other features of scholastic treatises include the use of prescriptive phrases such as *it is to wit* (Taavitsainen 2001: 195). Taavitsainen and Pahta realised this feature already in their first study on scientific thought-styles (1995: 520): in medieval academic writing, "authoritative phrases like *it is to be known that* or *it is to wit that* are used frequently to introduce new paragraphs". Authoritative phrases like this have a persuasive function (Taavitsainen & Pahta 1995: 527). It is interesting that the depersonalised mood that characterises modern scientific writing was used even in the medieval period in scientific texts (Taavitsainen and Pahta 1995: 520–21). I will briefly examine prescriptive phrases, as well as features 1 and 2, in Section 6.1.2.

4) Argumentation based on classical models is also a central feature of the scholastic thought-style (Taavitsainen 2001; e.g. Taavitsainen and Pahta 1995). Greco-Roman writing formed a model for English scientific prose, aiming "to transfer features of Latin scientific writing to the vernacular" (Taavitsainen & Pahta 1998: 159). As Taavitsainen remarks (2004: 45): "Discourse forms in Latin scientific and medical texts provided the models for vernacular texts." Concerning scholastic science, Taavitsainen and Pahta (1995: 520–21) say: "The English texts follow their Latin exemplars and imitate their style, though the translators and adaptors often faced severe problems in rendering Latin constructions in the vernacular." The aspect of translation is central to *MoA* and this dissertation, as *MoA* is a translation from *Speculum alchemiae*: I discuss translation further in Section 2.3.3, building a foundation for the translation-focused analysis in Chapter 6.

Before exploring vernacularisation and translation, however, I will move from the general features of scholastic scientific writing discussed in the present section to some features that characterise alchemical writing in particular.

2.2.2 Compositional features of alchemical texts

Scholasticism is not the only tradition that influenced *MoA*. The treatise also displays features that are common (although not, as individual features go, unique) to alchemical texts. In this section, I outline some features of content, genre, and style that pertain particularly to alchemical texts, showing how *MoA* exhibits these features or where the lack of them is significant. This all gives further textual context to my edition of *MoA*, and for the chapters that follow. My focus here is particularly on English-language alchemical texts.

The concept of *information content* will become especially important in Chapter 5 of this study. Information content simply means the information that is conveyed – not tied to the linguistic form it is conveyed in. Alchemy, like other scientific writings, tends to concentrate on the information content rather than on copying a text as verbatim as possible. As Mari-Liisa Varila has said concerning astrological texts – applicable also to alchemical material – "The scribes do not only copy *text*; they also copy *information*" (Varila 2016: 331; emphasis original). That is, although scribes may copy very accurately word for word, they can also just extract the information from a passage and reframe it in different words. Chapter 5, in which I compare the witnesses of *MoA* with each other from a textual angle, has plenty of emphasis on whether the different witnesses of this treatise include the same essential information content. I use this as a key factor in identifying whether the witnesses derive from the same source or not.

Information content is much related to the fluidity of early scientific textuality, and how one defines 'text' in the first place. I introduced the concept of *textual fluidity* in Section 1.3; I will now examine the relevance of this concept for alchemical texts such as *MoA*. Like other early texts, particularly early scientific texts, alchemical manuscript texts were prone to a great deal of textual variation. Scribes/compilers could and did combine texts from various exemplars, sometimes in complex ways, as I will show for *MoA* in Chapter 5. This makes it sometimes very challenging to determine what an alchemical text or work actually is. Indeed, Grund (2013: 435) calls this "[t]he most fundamental problem" for editors of alchemical texts. Grund (2013: 437) says that scribes may have modified texts "in accordance with their own experiences or in recognition of procedures found in other texts". This echoes Halleux (1979: 90):

> En outre, les textes alchimiques appartiennent à la catégorie des textes vivants, dont la tradition manuscrite est extrêmement mouvante. Le copiste, qui est un praticien ou se croit tel, se donne toute liberté d'abréger, de modifier, d'ajouter du matériel nouveau en fonction de son expérience personnelle.[50]

Halleux considers alchemical texts extremely mutable also because the scribes may be versed in alchemical practice, and may thus revise the texts they copy based on their own knowledge of alchemy.

Grund (2013: 438) suggests that this fluid way in which scribes treated alchemical texts is related to another feature typical of the content and style of alchemical writings, particularly texts in English: *practicality*. According to Grund (2013: 434), Middle English alchemical prose texts tend to concentrate on "alchemical practice rather than theory" (cf. also Grund 2006a). The alchemical theories I described in Section 2.1.3 were major background assumptions, but overall, ME alchemical writings tend to focus on the practical rather than the theoretical. Other ME scientific texts also tended to be practical-oriented (cf. Tavormina 2019: xxvi on ME uroscopies). This is reflected in *MoA*.

This practicality is also to some degree reflected in the *genres* typical of English alchemical writing. These genres of range "from recipes and notes to long treatises and compendia" (Grund 2013: 432). Keiser (1998b: 3627–3637) lists treatises, also in verse, as well as recipes (however, as his Manual is organised according to *work*, the genre division is not clear). The genres within other scientific fields are also similar: treatises and recipes (or recipe-like instructions, in the case of astrological texts) abound.[51] Medical texts have been divided into three categories: 'academic treatises, 'surgical texts', and 'remedybooks' (Voigts 1989a; Taavitsainen & Pahta 2004: 14); Pahta and Taavitsainen (2004: 15) suggest the alternate terms 'specialised treatises', 'surgical treatises', and 'remedybooks and *materia medica*'. No similar division of alchemical texts has yet been made, as the range of alchemical texts have not yet been studied sufficiently. In general, a rough classification of alchemical material into treatises and recipes certainly seems to hold true; and especially in early modern material, genres such as laboratory notes also appear. The genre relevant for the present study, of course, is the alchemical treatise, as *MoA* falls into this genre (I

[50] 'Additionally, alchemical texts belong to the category of dynamic texts in which the manuscript tradition is full of variation. The scribe, who is a practitioner or thinks of themself as such, gives themself full liberty to abridge, to modify, to add new material based on their personal experience.' (Translation mine.)

[51] See Taavitsainen (1988) and Means (1992) for genre-related studies on astrological material.

analyse this in Section 6.1.2). According to Honkapohja (2017: 125), "[a] treatise can be defined as a prose text that treats a certain subject in a systematic way"; this is certainly true of *MoA*, with its clear structure and chapter divisions.

Finally, I will deal with the *style* in which these alchemical treatises were written. A stereotype attached to alchemical writings is that they are mysterious, awash with impenetrable metaphors. However, this is not the only truth about alchemical writings. Indeed, *MoA* is an example of almost the opposite of veiled language. *MoA* is, on the whole, rather practical, and there are only two actual metaphors in the entire treatise: one of them, in Chapter IV, compares the feeding of the alchemical fire to feeding an infant; and the other, in Chapter VI, describes the Stone/Elixir turning red with the metaphor of the king being crowned with a red diadem.

However, these scant metaphors are not the only way in which *MoA* exhibits features of a 'traditional' alchemical writing style. The category of *Decknamen*, or 'cover names', are a subcategory of alchemical metaphor. As Principe (2013: 18) puts it: "Instead of using the common name for a substance, the alchemical writer substitutes another word – usually one that has some link, literal or metaphorical, with the substance intended." *Decknamen* "simultaneously conceal and reveal" (ibid.): they obscure what is intended, but in a way that opens up to those 'in the know'. *Decknamen* are, indeed, the very essence of the 'confusion' that alchemical writing can cause, as they can be very elaborate.[52] *Decknamen* are like professional jargon: they must be able to be interpreted by those who know the field. Alchemical *Decknamen* often relate to assumed binaries such as male/female; for instance, sulphur and mercury are occasionally called the father and mother of metals. Sulphur was seen as masculine and mercury as feminine. They represent binary, complementary principles that come together to form something new (Principe 2013: 122).

MoA mainly has simple *Decknamen*, such as the metals being referred to by the names of the planets they corresponded to, whether in Latin or in English. Referring to a metal in Latin in an otherwise English text might also be another level of obfuscation assuming that not all readers would know Latin. In *MoA*, *Sol/Sun* and *Luna/Moon* are used as cover names for gold and silver, as shown in the quotation at the start of this subsection. *MoA* also often refers to "our*e* stonne".[53] This kind of construction belongs to a subspecies of *Decknamen* achieved with personal pronouns: the first-person possessive pronoun is often used in conjunction with

[52] For instance, Lyndy Abraham (1998) compiled a whole dictionary dedicated to explaining alchemical imagery and metaphors.

[53] See e.g. Best-Text Edition, l. 169.

words such as *stone* or *mercury* (*our stone, our mercury*) to indicate that specifically alchemical meanings are intended.

Another stylistic feature of alchemical texts is the use of *sigils.* In this case the term refers to symbols with alchemical meaning – the simplest example of this is the use of originally astrological sigils such as ☉ and ☾, 'sun' and 'moon', to mean *gold* or *silver*. I use the term *sigil* for symbols of this kind, following Voigts (1989b). Voigts, like Gettings (1981: 7–9), considers 'symbol' and 'sign' to be imprecise words for referring to the particular kind of sign/symbol that can be found in early scientific and occult writings; 'brevigraph' and 'abbreviation' are likewise insufficient (Voigts 1989b: 92). Voigts suggests using either *sigil* (1989b: 92) or its synonym *carecter*, used in actual Middle English texts (1989b: 94), when discussing items of this kind in late-medieval scientific writings.

Sigils perform a similar function to *Decknamen*, obscuring the meaning for the uninitiated but revealing it to the knowledgeable. I would even call sigils a subcategory of *Decknamen*, with a visual, not verbal component. In addition, they function in a way similar to abbreviations, making the text quicker to write and easier to skim through. Voigts (1989b: 94–95) points out that there are two reasons for the ubiquity of sigils in 15th-century scientific and medical writing: firstly, Western science has always depended on signs of various sorts (consider mathematics); and secondly, like numerals, sigils are independent of language and can thus help the reader to move fluidly between languages in a multilingual situation – *5* (or *V*) can be read as *five* or *quinque*, ☾ can be read as *moon* or *luna*, but the sigils retain the same meaning regardless of language (Voigts 1989b: 97).[54] Sigils are thus also a part of the multilingual nature of early scientific writing (see below). Something to consider with regard to the sigils and other 'obscure' features of alchemical writing is that they do not differ entirely from present-day scientific writing with its jargon and special symbols. As Taylor remarks (1949: 51), modern chemical notation relies on shorthand such as H_2O for 'water'; knowing this does not differ so much from knowing that ☉ means 'gold'.

The present section has shown some essential features of alchemical composition, such as what kind of style the texts tended to be written in. In the next section, to wrap up this chapter, I will return to the broader level of scientific texts in England.

[54] In code-switching research, language-neutral sigils such as these would be called *visual diamorphs* (for the term, see e.g. Wright 2011: 203).

2.3 Vernacularisation of scientific texts in England

I will now turn to an aspect of early scientific writing that shaped the course of science during the medieval and early modern periods, and thus affected science as it is today. Vernacularisation "refers to the transposition of texts from a high-status language, usually Latin, into a vernacular language that typically has lower prestige as a written language" (Crossgrove 2000: 47). In English historical linguistics, this term refers to the gradual shift away from Latin as the literary and official language, and towards the rise of English. Vernacularisation took place in all areas of English writing during the course of the 14th and 15th centuries (Corrie 2006: 98–99), but in what follows, I will discuss the vernacularisation of *scientific* texts in England, and how Latin gradually gave way to English as a language of science.[55] As discussed above, English scientific writing (including *MoA*) is indebted to the Latin tradition; scholastic features are one indication of this tendency. Latin influence on vernacular scientific texts is not surprising, because the majority of ME scientific texts were translated or derived from Latin (or French) texts (Pahta & Taavitsainen 2004: 13).

The present section forms an essential background for the analysis in Chapter 6, in which I analyse *MoA* from the point of view of translation. In order to understand how *MoA* and its witnesses stand within the overall context of vernacularisation, a sense of the timeline of vernacularisation developments is needed: firstly, I outline this chronology, with a focus on scientific texts. I refer to alchemical material whenever possible; however, most of the research on the vernacularisation of scientific texts is on medical writing, which colours my account somewhat. Vernacularisation can only happen in a context where multiple languages with different levels of prestige are at play; the witnesses of *MoA* are mostly multilingual to at least some extent, and at the very least they are the product of multilingualism by being translations. Secondly, thus, I discuss the multilingualism of early science and alchemy and the translational aspects of this multilingualism. As *MoA* is a translation of a Latin text (*Speculum alchemiae*, introduced in Section 3.2), discussing the transmission of alchemical texts through translation is relevant for understanding *MoA* as a treatise.

2.3.1 Timeline and technologies

In this subsection, I outline the timeline of vernacularisation in England, concentrating on the vernacularisation of scientific texts (cf. Crossgrove 1998).

[55] The further development of English becoming a global language of science is a different matter.

Medicine was at the forefront of the vernacularisation of science in England; it is therefore no surprise that it has also been studied the most (see e.g. Pahta 1998; Taavitsainen & Pahta 1998; the studies in Taavitsainen & Pahta eds. 2004; Crespo 2012), and many of the studies referred to in this section are on medicine. The vernacularisation of other early sciences in England has not been the subject of enough study to enable a similar consensus. Alchemical vernacularisation, for one, has not been studied nearly enough; and while *MoA* does exhibit many features common to the general 'story' of the vernacularisation of science (see Section 6.1), this single case study cannot be used as a generalisation of the vernacularisation of alchemy in England.

A brief note on the vernacularisation processes in other domains of writing is a helpful starting point for examining how the vernacularisation of science fits into the picture. Early medieval England used the vernacular in addition to Latin, as the surviving texts in Old English attest to (see e.g. Gretsch 2013). The general consensus is that the linguistic effects of the Norman Conquest of 1066 caused a decline in the use of written English, as French initially became the language of those in power, and Latin was the prestigious language of learning and the church (Townend 2006: 66–67). English began to be used more widely again after 1350 or so, especially in literary texts from the time of Chaucer (Catto 2003: 36–38). Until the mid-14th century, all written English remained at the sidelines. By the late 15th century, the use of English had spread at least somewhat into all domains; for instance, José Miguel Alcolado Carnicero (2015) explores how English spread into the register of business over the 15th century. Vernacularisation was connected with nationalistic movements in England, and the spread of English could be connected to ideological notions of Englishness (Taavitsainen 2001: 190; cf. Wogan-Browne et al. eds. 1999). Connected to this, vernacularisation influenced the emergence of a standard English, as Latin provided a model of standardisation (Pahta and Taavitsainen 2004: 3; see also Wright ed. 2000; Pearsall 2006; Schaefer 2006).

Like with other domains, use of the vernacular in English scientific, especially medical, writing is first attested already in the Old English period, with the earliest such texts, such as Bald's Leechbook, from the 9th century (see Cockayne ed. [1864–1866] 1965). After the Norman Conquest, however, there was a break in the transmission of science in English as in other domains. Voigts (1995: 183) points out that the processes of vernacularisation of scientific and medical writing were different in England compared to continental Europe: Old English writings aside, scientific and medical writing in English, like in other domains, only resurfaced in the 14th century. By comparison, many continental European countries have traditions of vernacular scientific writing from the 11th century on; for instance Catalan scientific writing flourished in the 14th century (Pereira 1999: 344).

Universities in Europe still operated in Latin, but the needs of actual medical practitioners, for instance, were wider, and vernacular medical texts were in great demand all over Europe (Pahta & Taavitsainen 2004: 9–10). For medicine, then, practical concerns were one reason for vernacularisation. The same may not be true for alchemy, but alchemy may have followed on the wave of vernacularisation following medicine. Alchemical texts could be found in miscellanies with medical texts (cf. the alchemico-medical research material of Honkapohja 2017), so it is possible that alchemical texts were first translated from Latin as a part of medical miscellanies. Further research into this is needed.

As mentioned, after 1350, scientific and medical writing, which had previously been in Latin and French, began to resurface in English (Honkapohja 2017: 123). Establishing English as a language of science – a prestigious Latin domain – may have been one way to increase the prestige of English (Taavitsainen 2001: 191). Voigts (1995: 186) notes that from about 1350 to the end of the 15th century, "English reasserted itself"; a great number of scientific and medical texts in English survive from that period, especially after 1375 or so (Voigts 1989a: 352). Voigts considers the vernacularisation of science to be "largely complete by 1475" (Voigts 1996: 814). She justifies this by noting that at that time, complex university treatises (on medicine and astronomy) were being written, and moreover can be found in English-language manuscripts with very little or no Latin in them, such as the interconnected manuscripts of the Sloane Group (Voigts 1996: 814, 816). Thus, English had achieved a status comparable with Latin even in prestigious scientific contexts. This is the case for medicine and astronomy/astrology, at least; alchemical texts did not appear in university contexts.

In the late 15th century, Latin was still an important language of science, but English was becoming its equal (Voigts 1989b: 95). The late 15th century certainly saw "an explosion in vernacular text production" (Pahta & Taavitsainen 2004: 11), and indeed, this is the time to which the earliest manuscripts of *MoA* can be dated. Even though the broadening of the English-language repertoire of genres is often considered to have taken place in the 16th century, the Late Middle English period was the start of the process (Pahta & Taavitsainen 2004: 10–11). Practical writings of all kinds in English became widespread.

Indeed, Voigts (1989a: 383) notes that the common view of the Middle Ages as featuring "a mutual exclusivity of learned, Latin culture on one hand and popular, vernacular culture on the other", and considering this division to be breached only in the 16th century, is not supported by the evidence from the 15th century: in England, this "disjunction had been bridged" by science and medicine. Notably for the purposes of the present study, the first alchemical writings (translations) in English appear in the 15th century (Pereira 1999: 345). As mentioned in Section

2.2.2, a wide range of English-language alchemical genres can be found in the 15th century, including complex treatises. This shows that the divide between learned Latin and popular English had also been bridged in the domain of alchemical writing.

Although Voigts considers the late 15th century to be when the vernacularisation of science was mainly complete, the processes of the vernacularisation of science continued through the 16th century on into the 17th. Taavitsainen and Pahta note (1995: 520) that the mid-17th century was another important juncture for the development of scientific language, as by then, only a small portion of medical works were still published in Latin in England.[56] The vernacularisation of medicine can be said to be complete by 1700: at that point, in England, English had already become the primary language used in medical writing, and was "used as the original medium of communicating new scientific discoveries" (Pahta & Taavitsainen 2011: 4). There is not enough research on alchemical texts as yet to make similar claims for alchemy.

Early modern English scientific writing was still greatly indebted to earlier (medieval) writings; this has been shown to be true of medical texts (Pahta & Taavitsainen 2011: 3), and Grund (2013: 432) points out that many originally ME manuscript texts survive in copies from the early modern period. Based on the extant material, therefore, early modern English alchemy "reflects the intense interest in medieval alchemical texts in the later period, as practitioners sought to recover earlier knowledge" (Grund 2013: 432). An example of this is Grund's (2011b) edition of Humfrey Lock's treatise on alchemy – as well as *MoA*, as is evident from the fact that the majority of the *MoA* witnesses are from later than the 15th century.

The material context influenced the spread of vernacular writing. An aspect of note for vernacularisation is the effect of various bookmaking technologies. Changes in book production began to affect the vernacularisation of scientific texts well before the invention of moving type: notably, the spread of paper as a writing surface, instead of parchment, made book production much cheaper and more accessible (although as Da Rold 2020: 58 points out, this is partially a simplification). This enabled more copying of texts, and thus less prestigious texts (such as vernacular scientific ones) could be copied more. At least in England, many developments which have earlier been thought to be part of the development of scientific printed books – such as frequent illustration and the use of English – actually took place earlier, in manuscript books (Voigts 1989a: 386).

However, printing certainly had a part to play (cf. Hirsch 1950 on the influence of printing on the spread of alchemical knowledge). Early modern scientific writing

[56] As Taavitsainen & Pahta put it (1995: 520), "according to statistics, 207 of the 238 medical works published in England between 1640 and 1660 were in English and only 31 in Latin", referring further to Webster (1975: 267).

was greatly influenced by printing technology, as printing enabled scientific texts to circulate to far broader audiences than manuscript copies had (Pahta & Taavitsainen 2011: 4). However, the first alchemical text in English was only printed in 1583, very late when one considers the large number of other books printed in English before that year (an *ESTC – English Short Title Catalogue* – search produces 8,220 editions).[57] Only three other alchemical editions were printed before *MoA* was printed in English in 1597 – and one of these three was a new (1596) printing of the 1583 edition.[58] Thus, from a printing point of view, alchemy was far behind in the vernacularisation process. It should be noted, though, that even medical texts were not frequently printed in English before the 1550s, due to the market for such texts simply not being big (Taavitsainen et al. 2011: 10). In the 17th century, printed books on alchemy increased manifold: almost 100 editions can be found in *EEBO*, especially from the years 1650 to about 1680. However, handwritten texts were still a major form of disseminating scientific knowledge (McKitterick 2003: 27), especially, perhaps, the more secretive knowledge hidden in alchemical manuscripts. Thus, even though printing was influential for the wider dissemination of alchemical material, this technology by no means dominated over alchemy even towards the end of the early modern period.

2.3.2 Vernacularisation and translation

Translation is intrinsically linked to vernacularisation – indeed, it is one of the cornerstones of the processes of vernacularisation. After all, without translations, knowledge and texts would not be transferred from prestigious languages of science into vernaculars in the first place. In this section, I will survey previous research on translation concerning early English non-literary writing in particular. This and other aspects of early translation are essential for my analysis in Chapter 6.

57 I searched *ESTC* with the variables 'language: English' and the years 1475–1583. The printed edition from 1583 (STC (2nd ed.), 19179.5) is *A hundred and fourtene experiments and cures of the famous phisition Philippus Aureolus Theophrastus Paracelsus, translated out of the Germane tongue into the Latine [...]*. This edition also included other alchemical works. An interesting thing to note is the influence of the bookseller William Cooper (1639–1689), who published alchemical works in print as well as a catalogue of English alchemical books. Cooper's work explains a mid-17th-century increase in alchemical print publication. The arrival of the 18th century saw a decline in the number of alchemical works being printed (Norja 2017).

58 The two new editions were *The Compound of Alchymy [...]* by George Ripley, 1591 (STC (2nd ed.), 21057) – a work widespread in manuscript since the 15th century – and *A breefe aunswere of Iosephus Quercetanus Armeniacus [...]*, 1591 (STC (2nd ed.), 7275).

Translations form a central part of all early English scientific writing. Translation is also central to the development of English alchemy. According to Grund (2013: 433), "the predominance of translations or adaptions of Latin works rather than original Middle English compositions" is a major trend in medieval English alchemical writing. Translating the essential works of alchemy into English from Latin or other languages was of course an important way of developing alchemy in the vernacular. In the previous section, I suggested that the 15th century was a key point for the vernacularisation of alchemy. Taavitsainen reflects on the timeline from the point of view of translation as follows:

> English translations [for Latin alchemical writings] appear at the beginning of the 15th century and increase in number towards the end of the Middle English period. There is a lag in alchemical activity at the beginning of the 16th century, but in the latter half of the century alchemy enjoyed greater popularity than ever. Several translations of medieval Latin texts date from this period. (Taavitsainen 1995: 83)

The proliferation of English alchemical translations in the 15th century is reflected in the witnesses of *MoA*. However, the lag that Taavitsainen mentions does not appear in the witnesses of *MoA*: although the dating is not certain, at least one manuscript copy of *MoA* seems to date from the turn of the 15th and 16th centuries, and another from the mid-16th century (see Section 4.2.2).

Translation is an inherently *multilingual practice* (cf. Pahta et al. 2018: 4 for this term). Pahta et al. remark (2018: 4–5) that "one way or another, virtually all historical texts are multilingual", and "they may be translations although not necessarily acknowledged as such". In order to examine the translation of alchemy, therefore, I will briefly outline the multilingual situation of early English science. It should be noted that as there is not much code-switching in *MoA*, the following account will not discuss the plentiful research on that form of multilingualism in early English (cf. Pahta 2004; Schendl & Wright eds. 2011).[59]

Early science was multilingual by nature, and alchemy was no exception. This is evident already from the history of alchemy: drawing from Egyptian, Greek, and Arabic influences before alchemy's entry into the Latin West (with its vernaculars), it is obvious that many languages came together in the furnace of medieval and early modern English alchemy. Vernacularisation is intrinsically connected to the multilingual sociolinguistic situation of the time. The evidence for historical

[59] For a recent study on multilingualism in non-literary texts, see Schipor (2018).

multilingualism of course comes from written sources, and it was not just people who were multilingual: manuscripts containing alchemical texts in both Latin and English, for example, are numerous (Voigts 1989a: 380–81, 1989b: 95).

Voigts (1989a, 1995, 1996) has noted the multilingual tendencies of medieval scientific and medical codices. Especially earlier English scientific texts occur in manuscripts also featuring Latin and/or French texts (Pahta & Taavitsainen 2004: 11; see also Section 4.3). In earlier scientific manuscripts, vernacular texts occur in predominantly Latin manuscripts, but the situation is reversed by the end of the 15th century (Pahta & Taavitsainen 2004: 12; cf. Voigts 1995). Regardless, there is evidence also in the witnesses of *MoA* that alchemy was of great interest to people who were not proficient in Latin. Of course, this is the core reason behind vernacularisation in the first place: giving access to scientific information that had previously been behind the wall of a foreign language.

Alchemical texts were translated into Latin from Arabic and Greek; many Arabic texts had been translated from Greek originals (Principe 2013: 28–29).[60] Thus, even though the immediate multilingual context of *MoA* is in Latin and Indo-European vernaculars like French, the heritage of alchemy included other languages as well, as the importance of Arabic authorities suggests. For *MoA*, there are two languages that have affected the outcomes of the English work through translation: Latin and French (one of the witnesses of *MoA* was translated from French). I will discuss the lexicographical consequences of this multilingualism in Section 6.3. The influence of Latin on medieval English resumed its previous status after a few generations of French being the dominant influence (Skaffari 2009: 52–55). Multilingual situations often result in plentiful loanwords, and indeed, from the late 14th to the end of the 15th century, medieval Latin was a more considerable source of loanwords for English than French was (Skaffari 2009: 54).

Vernacularisation has often been taken to mean that texts previously only available to the learned – i.e. those who knew Latin – were then available to a broader audience. However, as Peter Murray Jones (1989: 62) has pointed out, due to multilingualism, we cannot assume that vernacularisation only meant popularisation. While having scientific texts in the vernacular must have expanded the reading audience of these texts, vernacular texts were not only targeted at people who could not read Latin. This noteworthy point seems applicable to alchemical texts as well, especially since alchemy – even in English – was by no means a science available to everyone. Alchemy required specialised knowledge of the procedures even if one

60 The situation is similar for the science of astrology, with Arabic being important for the development of the science (Campion 2009: 660–661).

read a text such as *MoA* in English. The language barrier is not the only barrier to understanding.

Translations thus brought alchemy also to readers who did not know Latin. However, although the spread of texts in English must no doubt have opened up new possibilities for such readers, they could not have been the translators themselves. "The process of vernacularisation must necessarily have been initiated by people who knew what was available in Latin", as Pahta and Taavitsainen (2004: 17) note. Texts and scientific knowledge could hardly be transmitted into the vernacular if the translators did not know the source language. All of this points to the fact that translated texts are the end product of a multilingual process. Translators are, by definition, bi- or multilingual: in order to translate, they need to know (at least a little of) the languages of their source text and target text.

Translation was and is an essential part of the spread of scientific and other knowledge (Lambert 2008: 4). Alchemy was a multilingual science from its very beginnings, and was certainly such by the time the first texts were translated into English. The multilingualism of the ancient and medieval world thus led to translations in the first place. Scientific treatises were widely translated in the Middle Ages.[61] England was of course not alone in translating science: the articles in De Leemans et al. (eds. 2008) explore the translation of scientific texts from Roman times to the Renaissance in Europe, examining "how translation has occupied a central, almost monopolized position through the centuries in the formulation of knowledge" (Lambert 2008: 7).[62] Science, thus, was translated into various European vernaculars during a long period of time.

Despite the profusion of translations throughout the history of the English language, surprisingly little attention has been paid to the fact that many major English texts are in fact translations. Already Voigts (1989a: 382) remarked that as with medical texts, the majority of other scientific treatises in English are also translations. However, Blake (1992) discusses translation in the history of English, noting that it had not been much explored in historical linguistics at that time. Blake says (1992: 4) that "the overall importance of translation and its continuous influence on the language are subjects which remain untouched by historians of English". He acknowledges that e.g. editors of medieval texts refer to aspects of translation if the edited text is a translation; however, in the case of editions, the broader influence of translation is not acknowledged, as the focus is on a certain text. Taavitsainen (2001:

61 See Montgomery (2000: 17–185) for an examination of the translation of astronomy in Western Europe.

62 This multilingual volume has articles both in French and English, on languages including Latin, Arabic, French, and Dutch.

193, fn. 15) agrees, making an important point on translation in English language history: "the overall importance of translation and its influence have remained marginal in the histories of English" (although cf. e.g. Burnley 1989). This would still appear to be the case in the present moment, although recent research acknowledges translation more (e.g. Kranich et al. 2011 on language contact through translation).

MoA, as a scientific treatise, is a non-literary text. The studies on translation in the history of English have mainly concentrated on literary materials, however. An early study on translation in history is Matthiessen (1931), focusing on translation as an Elizabethan art. Copeland (1991) is a seminal study of translation in the Middle Ages, but Copeland herself notes that her arguments do not extend "to translation of scientific and technical works" (1991: 5). However, her chapter on French and English translations of Boethius's *Consolatio Philosophiae* is an example of historical translation analysis (Copeland 1991: 127–50).

Although there is not much research on non-literary translated texts, this topic has not been devoid of scholarly interest. A good example of a study of a ME translated text is Pahta (1998), an edition and study of *De spermate* and how it was transferred into the vernacular.[63] This study has influenced my own, with its contextualisation of *De spermate* in the medical discourse of its time and the treatment of the edited text itself. Another salient study on non-literary translations in the history of English is by Peter Murray Jones (1989); he studied the four ME translations of the *Practica* of John of Arderne. Arderne originally wrote this medical work in Latin in the 1370s, and the four independent translations are found in eight manuscripts from the 15th century. The presence of many translations of the same Latin original suggests that none gained particular popularity (Murray Jones 1989: 70). Murray Jones (1989: 88) concludes that the rearrangements of textual structure and other editorial practices found in the English translations suggests that the transmission of scientific texts in English was more prone to textual rearrangements than the Latin versions.[64]

My own analysis in Chapter 6 reflects many of the same themes as Murray Jones's study. One of the things uniting *MoA* and John of Arderne's *Practica* is that both occur in multiple translations. Multiple translations of early scientific texts have been studied before; Voigts (2004) is also a study of translations of the same work: like *MoA*, some of the witnesses of the astrological work she examines derive from different versions of that work.

63 Merisalo & Pahta (2008) explore the Latin textual history of this work.

64 This tendency for English specialist texts having different variation from corresponding Latin ones is echoed in terms of abbreviation practices in Honkapohja (2018).

Relevant information content was a major factor for why multiple translations of a work – possibly in different versions – should appear through the decades and even centuries. Barker and Hosington (2013: xx) note that "The contents of the work could be old, […] but a translation could only find an audience if people found its contents to be relevant." *MoA* was clearly considered a relevant treatise, as its translations span almost two centuries (the 15th to the 17th).

Concerning the translation of alchemical writings, Taavitsainen (1995: 83) notes: "It is also possible that important works were translated and retranslated at various times so that several versions of these tracts circulated at the same time." Taavitsainen, here, uses *retranslated* as a concept for alchemical works. However, *retranslation* is a specific term in translation studies used for translations of the same text. There can be many reasons for retranslation: for instance, ageing, the deficiency of a previous translation, or lack of knowledge that a previous translation exists (Koskinen & Paloposki 2010: 296). Using retranslation for historical texts is potentially problematic, however, since the term has been developed in the context of modern literary texts (e.g. Paloposki & Koskinen 2004, 2010); although it has also been applied to the study of historical texts (see e.g. Wardle 2011; Edwards 2013). Notably, the concept, as used in translation studies, presupposes a stable, single version of the work being translated. That is, retranslation requires the multiple translations to be translating the same *version* of the work – and I argue in Chapter 5 that this is not the case for *MoA*, as there are four different versions at play. I thus consider *multiple translations* to be a more useful and less problematic concept for *MoA* than *retranslation*.

As Pahta and Taavitsainen remark (2004: 13): "Multiple translations provide especially fruitful material for analysing the range of translation strategies". Even though my analysis of *MoA* in Chapter 6 is not in the field of translation studies, I will point to some strategies used in *MoA*, and thus a short description of medieval translation strategies is in order.

The main, and most basic, concepts here are those of translating 'word for word' (literal) or 'sense for sense'. This distinction had been part of the European discussions on translation already early on, and was essential for medieval translation, both theory and practice (Copeland 1991: 2; Pahta & Taavitsainen 2004: 13). The distinction is fairly transparent in terms of definitions: translating word for word means focusing heavily on the source text with regard to syntax and lexicon, often to the detriment of the target text's linguistic integrity. Translating sense for sense means more adaption in order for the target text to be more fluent, and means the translation is a rhetorical work in its own right (cf. Copeland 1989).

There is, of course, no iron-clad divide between the two: literal and free translation form a continuum (Pahta & Taavitsainen 2004: 13), with

incomprehensible, Latin-based English on one end, and the translator as compiler and editor on the other end. As Blake (1992: 6) notes, in past centuries, translation as a concept was broader than it is today: translation could also involve excerpting and moulding the source text to a far greater degree than would be considered acceptable now. In some cases, translators might make the text more accessible to non-educated readers by lessening the theoretical complexity of the text, and replacing Latin loanwords with native options or explaining the Latin terms (Pahta & Taavitsainen 2004: 10). Vernacular versions of Latin texts might be faithful to their original, or excerpt and adapt the text more freely (Pahta & Taavitsainen 2004: 10). For more on medieval translation theory and practice, see Pahta (1998: 62–72); see also Evans et al. (1999: 316–317) for an overview of Middle English translation studies.

As discussed in Section 2.2.1, scientific writing in medieval England is connected to the tradition of scholasticism, and the vernacular traditions of scientific writing must be viewed against the backdrop of a long history of the conventions of Latin scientific writing (Pahta & Taavitsainen 2004: 1). New strategies – on the levels of e.g. lexis, grammar, and discourse – for expressing scientific thought in English had to be developed. Translating a text also meant transferring those strategies (see Taavitsainen 2004). Indeed, Taavitsainen (2001: 185) argues that the development of the scientific register "started earlier and was more extensive than has usually been recognised". The present study examines the scientific register of *MoA* mainly from the perspective of specialised terminology (analysed in Section 6.3.2).

In this chapter, I have situated *MoA* within the broader historical context of alchemical developments and scholasticism, and explored the phenomenon of vernacularisation as it relates to early scientific texts. The next chapter moves the discussion away from the broader strokes of alchemy and the general textual and cultural background of *MoA*. Chapter 3 acts as a bridge, narrowing down my focus from the general to the particular. In order to discuss the witnesses of *MoA* in Chapter 4, light must be shone on the Pseudo-Baconian texts that *MoA* is part of, and in particular, on the work that *MoA* is a translation of: *Speculum alchemiae.*

3 Pseudo-Baconian alchemy

In this chapter, I situate *MoA* within the context of Pseudo-Baconian alchemical texts, and, crucially, introduce the Latin and French works that the *MoA* witnesses are translations of. As *MoA* is a work previously attributed to a famous author, I will first discuss the importance of this practice, pseudepigraphy, in alchemical literature, and the reasons for its prevalence. I will also introduce Roger Bacon as a historical figure and his actual writings on alchemy, and discuss why he became a revered alchemical authority long after his death (Section 3.1). Next, I will introduce the Latin and French antecedents of *MoA* (Section 3.2): these include the source texts for *MoA*, that is, the texts it was translated from. They will become essential for the translation-focused analysis in Chapter 6.

3.1 Pseudepigraphy and Roger Bacon

> "False ascription of authorship."
>
> (*OED3*, s.v. *pseudepigraphy,* n.)

Pseudepigraphy, or works being attributed to authors who did not write them, was common in the premodern age, and alchemical writing is no exception (Taylor 1949: 27–28).[65] It was part of medieval textual culture, which valued authority: attributing one's writings to a more acclaimed authority increased their worth. In the Middle Ages, authority was hard-earned, and ancient authorities such as Aristotle were considered to be the most trustworthy. Taylor (1949: 27) claims that the reason for alchemists' pseudepigraphical attributions "was, in all probability, the enormous

[65] Indeed, quoting Multhauf (1966: 102), "From beginning to end alchemical literature has been attributed to notable personages, nearly all of whom have been relieved of the burden by modern criticism."

respect of the ancients for the still more ancient, and their belief that the world was regressing from a state of wisdom and goodness to that of folly and impiety". This was a common medieval notion, and "the best writers were the more ancient" (Minnis [1988] 2010: 9). Thus, it is not surprising that earlier medieval authorities such as Roger Bacon and Arnold de Villanova also became pseudepigraphical authorities in the later Middle Ages and the early modern period: "the only good *auctor* was a dead one" (Minnis [1988] 2010: 12).

Scholars have not always viewed this kind of practice favourably. Holmyard, in his history of alchemy, casts the practice of pseudepigraphy in a decidedly negative light:

> In order to give some show of authority to their nebulous doctrines, alchemists busied themselves in composing treatises that they then attributed to any philosopher or celebrity of earlier times whom their whim led them to select. (Holmyard [1957] 1990: 27)

However, it should be noted that pseudepigraphy is not the only thing Holmyard casts in a negative light. Throughout, he calls the pursuits of alchemists "pure products of the imagination" ([1957] 1990: 29) and Roger Bacon "credulous" ([1957] 1990: 121). I do not think it is fruitful to view the textual and scientific practices of a past age with such censorious attitudes. It is also worth noting that even if whoever originally attributed a work to some authority may have known that the attribution was false, the scribes and compilers who later copied and excerpted that work did not have any way of knowing the origin of the work. It is only through the thorny trails of centuries-later scholarship, using methods and resources that were previously unavailable, that more evidence of pseudepigraphical work has emerged.

Pseudepigraphy plays a large part in the bibliography of alchemical manuscript texts. Catalogues often list works under their putative or actual authors. For instance, Keiser (1998b: 3804–3808) mostly lists unedited alchemical works under the author they are attributed to. Keiser's category 199, under which some of the manuscripts of *MoA* are listed, is "Works by or attributed to Roger Bacon" (1998b: 3805). As Richard Sharpe remarks (2003: 26), "Pseudo-" is often used as a qualifier to indicate that while the work was attributed to that author and possibly transmitted under their name for centuries, it is not actually a work by that author, but a pseudepigraphical attribution. Once the attribution has been reified for instance by a printed edition, it "can be difficult to dislodge, even when shown to be mistaken" (Sharpe 2003: 26). The persistence of the attribution applies to *MoA* and its source texts, as the attributions of the Latin work will show in Section 3.2.2 below. However, already Singer (1932: 80) noted that there were only very few alchemical writings that can

be reliably attributed to Bacon – and *MoA* is not in that short list. Thus, *MoA* is a *Pseudo*-Baconian work.

Roger Bacon (c.1214–1292?) was a scholar and Franciscan friar who later rose to great fame in alchemical circles. His reputation as a great alchemist and magician was notable even centuries after his death. The numerous pseudepigraphical works that survive are evidence "that his name was on many men's tongues and that they desired to possess his works, however they may have misinterpreted his thought" (Singer 1932: 80). In order to examine why Roger Bacon became a favourite to attribute alchemical writings such as *Speculum alchemiae* (and hence *MoA*) to, I will briefly outline his life and writings.

The chronology of Bacon's career is somewhat in dispute (Hackett 1997a: 9). He studied and taught in Oxford; he also taught Aristotelian natural philosophy in Paris around the mid-13th century, and entered the Franciscan order in c. 1257 (Molland 2004). His clerical superiors appear to have ordered him to cease his scientific activities and focus on a friar's duties; indeed, in 1260 a Franciscan statute was given forbidding friars from publishing writings without their superiors' permission (Hackett 1997a: 17). Bacon bypassed this statute when he was given a mandate by Pope Clement IV to write to said pope on scientific matters (Hackett 1997a: 17), and he produced the major works of his career (see below). Bacon was a controversial figure in his lifetime, and his scientific activities may have been deemed suspicious (Molland 2004). In c. 1278, the Franciscans condemned Bacon's teaching because it contained "certain suspected novelties", and as a result Bacon was imprisoned (Crowley 1950: 68). He may have been released as late as 1290. The last datable piece of writing certainly written by him is from 1292; he probably died that year (Molland 2004).

Considering the difficulties Roger Bacon faced, he wrote much on many sciences of his time: for instance, optics, mathematics, and astrology. These writings include some related to alchemy. Like many of his contemporaries, Bacon admired Aristotle.[66] Bacon knew English, Latin, Greek, some Hebrew, and perhaps a smattering of Arabic (Molland 2004); this multilingualism may be part of why he had highly negative attitudes towards translation (Lemay 1997: 37). Rather hypocritically, Bacon appears to have made plenty of use of translations from Arabic (Lemay 1997: 38).

[66] Bacon considered errors in Aristotle's works to result from subpar translations rather than errors in the philosopher's thinking. Despite Bacon being such a source of translated works from Latin into English, his opinions about translation were mostly negative (Burnley 1989: 49).

The topic of what was actually written by Bacon is contentious (Hackett 1997a: 21). There are only three works that can be reliably attributed to the historical Bacon: *Opus maius*, *Opus minus*, and *Opus tertium*, written between 1266–1268 (Hackett 1997a: 22). These works summarise a great extent of knowledge gleaned from various sciences of the time, including experimental science. In the latter 13th century, Bacon worked on another longer treatise, of which only fragments survive. There are thus three works that can, through ancillary evidence, be confirmed to be genuinely written by Bacon. Some additional works also seem to be authentically Baconian (e.g. *De multiplicatione specierum* and *De speculum comburentibus*, ed. Lindberg 1983); see Hackett (1997a: 21–23).

Scientia experimentalis, experimental science, was important for Bacon (Hackett 1997b). Indeed, Bacon was seen in the 19th century as a precursor of the modern scientific method (Hackett 1997b: 279). This is a romanticised image; and e.g. Taylor's (1949: 97) claim that Bacon "was quite certainly a practical laboratory worker" seems unfounded. However, Bacon emphasised the power of observation and experience, so there is also some measure of truth to the image (Molland 2004). Bacon did not use experimental methods as present-day science would define them, though (Hackett 1997b: 280), since experimental science, in the medieval sense, is not a direct precursor of modern, empirical-based science. In some cases – such as his study of optics – Bacon seems to have made experimental observations (Molland 2004), but in others, he operated according to scholastic models.

Although Pseudo-Baconian alchemical writings far overwhelm Bacon's genuine alchemical writings, his own writings do include thoughts on alchemy. Bacon defended the use of alchemy in *Opus tertium*; he argued that human art was stronger than nature, and thus that alchemical gold is in fact better than natural gold (Newman 1997: 318).[67] However, Bacon's major vision for the uses of alchemy was in a medicinal sense, to prolong life (Gruman 1966: 62–65; Getz 1992, 1997). This relates to the uses of the Elixir to heal the body from aging.

Bacon divided alchemy into speculative (theoretical) and operative/practical (relating to transmutation); he was the first to make this distinction (Newman 1997: 318; Pereira 1998: 29). Bacon's theories regarding the medical applications of alchemy were in fact rather original in some ways (Newman 1997: 324).[68] He believed in the power of alchemy to purify pharmaceutical substances (a notion that became popular in the early modern period; cf. Read 1957: 98). Bacon's theories on how to slow down old age and heal the body's defects seem fantastical now, as they

[67] Human-made copies of naturally occurring substances being superior to those found in nature is one of the underpinnings of modern chemistry (Principe 2013: 60).

[68] However, his alchemical views have also been criticised as vague (Brehm 1976).

involve such things as ingesting gold and concentrating "the starlight coming from beneficent celestial bodies" (Newman 1997: 327). *MoA* does not focus on medical alchemy, which is an indication that its attribution is pseudepigraphical.

As mentioned in Section 2.1.4, Bacon seems to have had different notions as to what material one should start alchemical processes with. Where *MoA*, based on the Geberian mercury-sulphur theory, firmly claims that a mineral substance is fundamental to success, Bacon considered human blood to be the best starting point (Newman 1997: 330).[69] This discrepancy in fundamental views gives another indication of *MoA* being a Pseudo-Baconian treatise. As Newman (1997: 335) says of works attributed to Bacon, "there are few that betray a genuine knowledge of Roger's alchemy".

Despite Bacon's range of scientific writings, he was not often referred to by name in the context of other sciences. However, for alchemy the case is different, and, as mentioned previously in this study, there is a wealth of alchemical pseudepigrapha attributed to Bacon, even though his actual alchemical writings are not numerous (Molland 2004). Perhaps one reason for Bacon gaining such fame among alchemists in the later Middle Ages and beyond is that he was associated with the other 'great doctors' of the Middle Ages such as Arnold of Villanova and Albertus Magnus – authorities who also have a wealth of pseudepigrapha attached to their names (Halleux 1979: 100).[70] As Newman puts it (1997: 335), "It seems [...] that his was a name to conjure with, at least in alchemical circles, and that this conjuration was based on hearsay rather than close analysis of his genuine views."

In addition to his fame amongst alchemists, Bacon was also later known as a magician, although the historical Bacon strongly opposed magic (Molland 2004; cf. also Molland 1993). The major culprit for this side of Bacon's reputation is probably an anonymous romance which later became a play by Robert Greene, *The Honorable Historie of Frier Bacon, and Frier Bungay* (1594; STC (2nd ed.) 12267). The play portrays Bacon as a dark magician receiving advice from demons.[71] Linden (1992: xxxiii–xxxiv) even suggests that the success of Greene's play may have partially

69 Bacon's ideas on the process of making the Elixir are described in Newman (1997: 330–332).

70 One of the alchemical poems examined by Timmermann (2013: 141) mentions Bacon after a list of other alchemical authorities such as Aristotle, Geber, Hermes, and newer authorities such as Arnold de Villanova: "bacon allso the greate clerk".

71 The tale includes the most famous magical episode attributed to Bacon, in which he and Friar Bungay constructed a brazen head with the help of demonic advice. This brazen head was to gain the power of speech to help protect England, but it uttered the mysterious words "Time is—Time was—Time is past" when the two friars were asleep, and promptly exploded (Molland 2004).

prompted the publishing of the 1597 edition of *MoA*. The play certainly led to Bacon being vilified for his supposed magical practices in the late 16th and early 17th centuries. On the other hand, he was also defended as a scientist, for instance by mathematician and astrologer John Dee (1527–1609; Dee was influenced by Bacon's works: Hackett 1997b: 314, fn. 100; Molland 2004). General attitudes towards Roger Bacon began to change around the mid-17th century, when he began to be 'reclaimed' as a reputable scholar (Linden 1992: xl–xli). Indeed, "during the course of the seventeenth century, he has passed from black magician and necromancer to an esteemed mathematician and natural philosopher" (Linden 1992: xliv). Attitudes towards Bacon thus changed from reverence to ridicule to respect.

3.2 *Speculum alchemiae*

In this section, I will turn to the antecedents of the English *MoA*: the Latin *Speculum alchemiae* and its witnesses, and the French *Miroir d'alquimie*. I will first discuss the 'mirror' as a concept used in titling works: what it means that *MoA* and its antecedents are connected to the words *speculum/miroir/mirror*. In the following subsections, I will briefly describe the Latin manuscript and printed tradition of *Speculum alchemiae*, as well as the French manuscripts and especially printed editions. As mentioned, the source texts for *MoA* can be found in these Latin and French versions, so introducing the earlier witnesses lays the groundwork for my analysis in Chapters 5 and 6, in which comparison to the source texts provides a valuable accompaniment to the witnesses of *MoA*.

3.2.1 The mirror-title as a metaphor

I will examine the titles of the witnesses of *MoA* in Chapter 5, and as *The Mirror of Alchemy* is called a *mirror*, some context for this style of title is needed. The same applies to *MoA*'s Latin and French source texts discussed below, commonly known as *Speculum alchemiae* and *Le miroir d'alquimie*. These titles are far from unique: the roots of the 'mirror' reach deep into medieval culture. Especially in earlier English literature, the mirror is a central textual metaphor (Grabes 1982: 4). Mirrors were used in art, in science,[72] and in daily life, and mirror-making technologies developed through the 13th to 17th centuries (Grabes 1982: 4–5). The most common metaphorical meaning is that the mirror enables the reader to see the world, or

[72] For instance, Roger Bacon's studies on optics involved some experiments with mirrors (Molland 2004).

whatever topic is being treated, as it is. Like a mirror, works with a mirror-title reflect back at the reader (Grabes 1982: 228).

The philosophical basis and history of this metaphor have been examined extensively by Herbert Grabes (1982).[73] Grabes's focus is on literature and poetic imagery, but his discussion extends to non-literary works. He examines works from the 13th to 17th centuries which explicitly refer to mirrors under various terms "such as *speculum, mirror* and *looking-glass* and their derivatives" (Grabes 1982: 11). I will first briefly introduce the history of the metaphor, and then introduce the categories of mirror relevant to the discussion of *MoA*.

The "vogue" for mirror-titles first appears in Latin, as *Speculum alchemiae* demonstrates (Grabes 1982: 19). Other metaphorical book titles also occur in the medieval period, and *Speculum* is among the most frequent types after *Liber* and *Summa* (Grabes 1982: 19). Mirror-titles were prominent in England in the Middle Ages (Grabes 1982: 29), although the mirror-metaphor was used around Europe. In the 14th century, vernacular mirror-titles increased (Grabes 1982: 28); this is in line with general developments in vernacularisation, as discussed in the previous chapter. Fashions come and go, however: mirror-titles decreased noticeably in the 15th century before flourishing in the early modern period (Grabes 1982: 28). This may explain why the earliest manuscript copies of *MoA*, dating from the 15th century, do not have mirror-titles (in fact they do not have titles at all; see the discussion on titles at the beginning of Chapter 5).

Early modern England saw the heyday of mirror-titles: Grabes (1982: 12, 14) considers the period 1550–1650 to be an "Age of the Mirror" for English literature. After 1500, vernacular mirror titles predominate in England; Grabes mentions that translations are not often found (Grabes 1982: 30). However, both the Latin and French antecedents as well as *MoA* were printed in the 16th century with mirror-titles. After 1500, more new mirror titles appear in printed books, not manuscripts. This is probably related to the general rise of printed works. There is an especial increase of mirror titles in the mid-16th century (Grabes 1982: 32), and the mirror-title was at the height of its popularity in England in the mid-17th century (Grabes 1982: 33).

Grabes (1982: 39) divides mirror-titles into four basic types: (1) factually informative mirrors, (2) exemplary mirrors, (3) prognostic mirrors, and (4) fantastic mirrors.[74] The first group, factually informative mirrors, means mirrors that reflect facts as they were known at the time of writing. Thus, *MoA*, from a time when

[73] This book includes as an appendix a list of mirror-titles (in all the languages studied by Grabes) from the very earliest (early medieval) to 1700.

[74] That is, mirrors that show "what only exists in the mirror or in the writer's imagination" (Grabes 1982: 39).

alchemy was considered a science, belongs to the first category. Grabes mentions this himself, using the Latin *Speculum alchemiae* as an example of factually informative mirrors (1982: 40). Mirrors of the first type are a clear example of the mirror metaphor: the title has been chosen because of "the clear analogy between the representational or expository function of a book (such as a *Speculum alchimiae*) and the reflecting function of a mirror" (1982: 40). That is, the mirror-text reflects whatever subject it deals with. Grabes notes (1982: 44) that most factually informative mirrors deal with "an individual subject or branch of knowledge [...] in a more or less comprehensive manner". This is certainly true of *MoA*.

Grabes (1982: 42–48) further divides factually informative mirrors into three subgroups: (i) encyclopaedic mirrors, (ii) the mirrors of the compendia, (iii) mirrors of specific branches of knowledge. Encyclopaedic mirrors (i) cover extensive areas of knowledge, while mirror-compendia (ii) are comprehensive but concise writings on a broader topic. Mirrors of specific branches of knowledge (iii), which are the most common kind of factually informative mirror (Grabes 1982: 44), treat some particular topic. Grabes classifies *Speculum alchemiae* in the third category, and thus *MoA* also belongs to category (iii). Indeed, as the treatise deals with a very specialised branch of knowledge, categorising it as (iii) is unproblematic. *MoA*, then, is a factually informative mirror that reflects the reality of a specific branch of knowledge at the reader. The same is true of the source texts which *MoA* was translated from. I will now move to discussing the first of these: the Latin *Speculum*.

3.2.2 Latin witnesses of *Speculum alchemiae*

In my textual analysis in Chapter 5, I use potential or confirmed Latin source texts to help determine textual relationships between the English witnesses of *MoA*; in Chapter 6, I examine the relationships of the English witnesses to their source texts. Thus, in this section I will introduce the Latin witnesses in order to use them in my analysis in the later chapters of this study. The witnesses of the Latin *Speculum alchemiae* consist of manuscript copies from mainly the 15th to 16th centuries, but also printed editions from 1541, 1602, and 1702. As *MoA* is a translation of *Speculum alchemiae*, the basic content of *Speculum alchemiae* corresponds to *MoA*'s contents. Therefore, I will not focus on the content of the work in this section, but rather on the contexts that the various witnesses are found in.

No scholarly edition of *Speculum alchemiae* exists, and thus the information in the present section is based on my own research. In order to find out the witnesses for this Latin work, I have used Little (1914; *Speculum alchemiae* is item number 49); Singer's catalogue (*Speculum alchemiae* is item number 194); and eTK, i.e. the digital Thorndike and Kibre *Catalogue of Incipits of Mediaeval Scientific Writings*

in Latin (Thorndike & Kibre 1963; a companion to eVK2). An added level of complexity in this search is that there is another alchemical work also known under the same name, but it is not the same work as the seven-chapter *Speculum alchemiae* which is my focus (see Section 4.1.1). The incipits of these works – that is, the words they start with – are different, so if a catalogue has an incipit, it is usually simple to determine if it is the work examined in this study or not. However, if catalogues do not indicate an incipit, it is uncertain whether a witness is truly *Speculum alchemiae* in seven chapters or the other work.

I have uncovered 35 extant and identifiable manuscript copies of *Speculum alchemiae*; some of these copies are fragmentary. Due to the vagaries of cataloguing, there may of course be others in existence which I am not aware of. The identifiable manuscripts are all listed in Tables I and II in Appendix 2. For the purposes of this study, in this section I focus on the manuscripts I have been able to personally consult, and furthermore, those which are particularly relevant to my analysis of *MoA*.

Of the 35 copies of *Speculum alchemiae*, 19 are in repositories in the UK. To supplement my research on *MoA*, I have personally consulted all of the UK manuscripts, 18 *in situ* and one in its digitised form. Since not much scholarly attention has been paid to most of these manuscripts, Appendix 2 contains short descriptions of the manuscripts which I have viewed *in situ*.[75] I will thus concentrate on the UK manuscripts in the following overall description of the manuscript copies of *Speculum alchemiae*. The other 16 copies are in repositories elsewhere in Europe and in the US; they are listed in full in Appendix 2. There are also three printed editions containing the work (see below): I have consulted all of these printed editions either *in situ* at the British Library or as digitised copies.

In my analysis, I make particular use of 12 Latin manuscript copies held in the UK which seem to be close to the witnesses of *MoA*. I have conducted similar levels of research on all the UK manuscript copies, but since these 12 manuscripts supplement my analysis of the English work, only they are shown in more detail in Table 3.1. In addition to these manuscripts, of which eight are from the 15th century, there are five more from the 15th century among the UK manuscripts not shown in the table, as well as one from c. 1528–1529 and one from c. 1565.

[75] Keiser (1998a: 116) recommends viewing manuscripts of the source text if possible when editing a translation (such as *MoA*).

Table 3.1. Select manuscript witnesses of *Speculum alchemiae* in UK repositories.

Dating	Manuscripts (12 copies)
15th c.	• Cambridge, Gonville & Caius College 181/214 • Cambridge, Trinity College R.14.44 • London, British Library Add. 15549[76] • London, British Library Harley 3528 • London, British Library Sloane 1118 • London, British Library Sloane 3744 • Oxford, Bodleian Library Bodley 484 • Oxford, Corpus Christi College 185
c. 1500	• London, Wellcome Library 758
c. 1565	• London, Wellcome Library 384
1579–1594	• London, Wellcome Library 719
16th or 17th c.	• Edinburgh, Royal College of Physicians ERG/1/1/1-52

The above manuscripts will appear later in this study as comparisons to the English witnesses of *MoA*. The manuscripts that I have consulted vary a great deal (see Appendix 2). Some of them, like BL MS Sloane 1118 and BL MS Add. 15549, are upmarket productions with a unified decoration scheme and rubrication (writing in red ink). However, finely decorated manuscripts are in the minority: most of the UK manuscripts of *Speculum alchemiae,* such as Gonville & Caius MS 181/214 or TCC MS R.14.44, are plain yet neat, functional compendia. This points to *Speculum alchemiae* being circulated as a practical alchemical work.

Table 3.2 gives an overview of the manuscript witnesses in repositories not in the UK. I have not been able to access these manuscripts in person. Here, I do not give manuscript shelfmarks, merely indicating how many manuscripts there are from which century as well as which cities the manuscripts are held in. As mentioned, Appendix 2 contains more information on these manuscripts.

[76] Linden says, of BL MS Add. 15549 (Linden 1992: xiv): "The text of the *Speculum Alchemiae* (fols. 101–110) is dated 1474, and the later printed versions follow this manuscript very closely."

Table 3.2. Manuscript witnesses of *Speculum alchemiae* in repositories elsewhere.

Dating	Manuscripts (16 copies)
14th c.	2 witnesses (Bologna, Marburg)
15th c.	8 witnesses (Bernkastel-Kues, Bologna, Boston, Cambrai, Montpellier, New Haven)
15th–16th c.	1 witness (Bologna)
16th c.	4 witnesses (Florence, Leiden, Stockholm)
16th–17th c.	1 witness (Modena)

Taavitsainen (2004: 38) considers 33 Latin manuscripts of Guy de Chauliac's medical works to be evidence of a widespread distribution. Chauliac's works were translated into "most vernacular European languages" (ibid.), unlike *Speculum alchemiae,* of which the only extant translations are into English and French. Nonetheless, the number of Latin manuscripts may be a valid point of comparison with *Speculum alchemiae*. In other words, with 35 extant copies, *Speculum alchemiae* could have been fairly widespread in its time.

As can be gleaned from the tables above, and as Figure 3.1 shows, most of the manuscript copies, both from the UK and elsewhere, are dated according to catalogue entries to the 15th century – that is, the century when the first copies of the English *MoA* also appear. Two Latin manuscripts are dated to the 14th century; altogether 21 copies are dated to the 15th century; one is dated to c. 1500; one to the 15th–16th centuries; eight to the 16th century; and two to the 16th or 17th century.

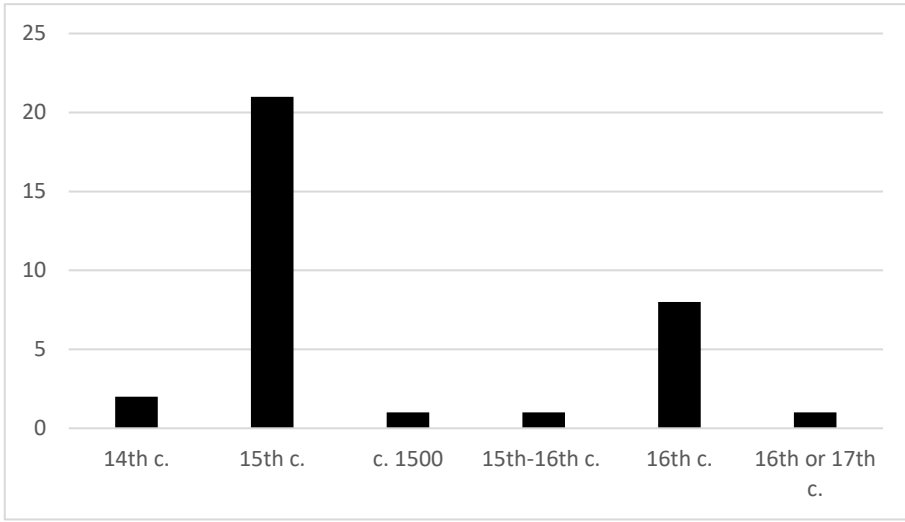


Figure 3.1. Dating of the *Speculum alchemiae* manuscripts (all).

The 15th century is thus when this work appears to have flourished the most in manuscript (later, it was printed, as seen in Table 3.3 below). However, the work may not have been written in the 15th century, as there are two copies that may originate already from the 14th century.[77] Consultation of the manuscripts would be required to establish their dating reliably, so it is possible that either the two 14th-century copies should be dated later or that they are not the *Speculum alchemiae* in seven chapters; of course, it is also possible that the seven-chapter *Speculum alchemiae* may have originated in the 14th century.

Alchemical compendia were also printed (see Kassell 2011: Appendix 1). The printed editions of *Speculum alchemiae* are listed in Table 3.3. The first printed version of the work appears in *De Alchemia*, printed in 1541 by Johannes Petreius in Nuremberg.[78] *De Alchemia* was an alchemical compendium including several works. It was reprinted in 1545 (Linden 1992: xii). Linden (1992: xii) notes that many works included in *De Alchemia* along with *Speculum alchemiae* were also included in later printed editions which featured *Speculum alchemiae*. The works included in *De Alchemia* are Geber's *Summa perfectionis*; Roger Bacon's *Speculum alchemiae;* Richardus Anglici's *Correctorium alchemiae; Rosarius minor*; Calid's *Liber Secretorum alchemiae;* Hermes Trismegistus's *Tabula smaragdina*; and Hortulanus's commentary on the *Tabula*.

Table 3.3. Printed witnesses of *Speculum alchemiae*.

Dating	Printed by	Place of printing	Edition title	Pages	USTC number
1541	Johannes Petreius	Nuremberg	*De Alchemia*	257–271	665853
1602, 1613	Lazarus Zetzner	Strasbourg	*Theatrum Chemicum* (*SA* is in vol. II)	377–385 (1613)	-
1702	Jo. Jacobi Manget	Geneva	*Bibliotheca Chemica Curiosa* (*SA* is in vol. I)	section III, 613–616	-

De Alchemia formed an indirect predecessor for the later *Theatrum Chemicum*; indeed, the latter is indebted to the former (Prinke 2005). *De Alchemia*'s Petreius envisioned an even broader compilation of alchemical material, but he died before

77 Bologna University Library MS 1062 (2082) and Marburg Universitätsbibliothek B 20b; see Appendix 2, Table II.

78 See Keunecke (2001) for a brief biographical sketch of Petreius (in German).

he could realise these plans (Gilly 2003: 452). *Theatrum Chemicum* is a massive alchemical compendium, originally printed by Lazarus Zetzner in Strasbourg.[79] It became a complex project spanning the years 1602–1660. A detailed account of the genesis of *Theatrum Chemicum* can be found in Gilly (2003). It was first printed in 1602, in three volumes; a reprint was issued in 1613, along with an additional fourth volume containing more treatises. Zetzner's heirs helped produce a fifth volume in 1622; and finally, a definitive edition of all volumes, and an additional volume, was produced in 1659–1660 (Prinke 2005).[80] All volumes of *Theatrum Chemicum* are available in an electronic facsimile edition (as *Theatrum Chemicum Electronicum*, Prinke 2005); however, only one edition per volume is included, and thus the entire printing history of the compendium is not represented in this edition (this causes some issues with regard to my study of source texts; see Section 6.2.4). *Theatrum Chemicum* is a vast collection, "the most extensive one ever printed" (Gilly 2003: 451). This compendium's name derives from all the works being presented "all together 'as in a theatre'" (Gilly 2003: 457).

Bibliotheca Chemica Curiosa was printed in Geneva, in two volumes, by Johannes Jacobi Manget in 1702.[81] It contained 35 treatises which also appeared in *Theatrum Chemicum* – among them *Speculum alchemiae* (Prinke 2005). *Bibliotheca Chemica Curiosa* is also an alchemical compendium, with texts from (pseudo-) authors such as Hermes Trismegistus, Geber, Arnald of Villanova, and Raymond Lull. As this volume appeared in 1702, it was not influential for the witnesses of *MoA* – unlike *De Alchemia* and *Theatrum Chemicum*, which, as I will discuss in Chapters 5 and 6, were very influential indeed for several of the witnesses of the English work.

The printed editions are all compendia with plenty of other alchemical texts. Similarly, all of the UK manuscripts containing *Speculum alchemiae* are miscellanies of some sort. Twelve of them are *alchemical* miscellanies, containing only alchemical works, whether prose or poetic treatises or recipes (although they may of course contain scribbles and other non-alchemical minutiae). The other seven are *scientific* miscellanies: in addition to alchemy, they also contain other scientific or practical material such as medical or astrological treatises and recipes. *Speculum*

[79] Zetzner did not own a printing-house, but he was well-off and was an active publisher (Gilly 2003: 456). An account of his life and work can be found in Sturlese (1991).

[80] Gilly (2003: 435–446; these pages have a table and bibliography appended to the Italian version of Gilly 2003, coming before the English) presents some differences between the different editions of *Theatrum Chemicum*, also comparing them to *Bibliotheca Chemica Curiosa*.

[81] Also known as Jean Jacques Manget (1652–1742), he also published several volumes of medical texts (see Stolberg n.d.).

alchemiae thus seems to have circulated in the context of either other alchemical texts or generally scientific material.

The printed editions all attribute the treatise to Roger Bacon. This attribution did not come out of nowhere: some of the Latin manuscripts also do so. However, when it comes to pseudepigraphic attributions, the manuscripts of *Speculum alchemiae* vary. With regard to the UK copies I have personally consulted, I can discuss matters of attribution with evidence from the physical manuscripts. The attributions relate to the titles given to the treatise. I will discuss the titles of the English *MoA* witnesses at the start of Chapter 5, as they are part of the evidence for textual relationships. Since comparison with Latin is helpful for my analysis, I will discuss the Latin titles from the UK manuscripts in what follows. Table 3.4 shows the titles in the manuscripts I have consulted (only manuscripts with titles are in the table):

Table 3.4. Manuscript titles of *Speculum alchemiae*. Later additions in parentheses.

Dating	MS	Title	Source of title
1474	BL Add. 15549	Speculum alkemie	main scribe's hand
15th c.	BL Harley 3528	Multipharie (Speculu*m* Alkymie R: B.)	main scribe's hand (additional title in later hand)
15th c.	BL Sloane 692	Liber .7. capitulorum	main scribe's hand
15th c.	BL Sloane 1118	(opus philosophica)	later hand
15th c.	BL Sloane 2327	(Multifarie multisque modis)	later hand (even 19th-c.)
15th c.	BL Sloane 3744	Multifarie multisq*ue* modis	main scribe's hand
15th c.	BLO Bodley 484	Multifarie m*u*ltisq*ue* modis	main scribe's hand
15th c.	WL 517	Tractatus super speculum alchimie	medieval title
15th c.	TCC R.14.44	(Speculum Alchemiæ)	later addition in 17th-c. hand
1528–1529	CUL Ff.4.12	Rosarium Iohanis	main scribe's hand
c. 1565	WL 383	Speculu*m* a rugerij baconis	main scribe's hand
c. 1565	WL 384	Speculu*m* rugerij baconi anglisi	main scribe's hand
1578–1594	WL 719	Doctissimi viri Rogerij Baconis De Alchemia Libellus cui titulu*m* fecit Speculum ~~Anima~~ Alchemiae	main scribe's hand

16th or 17th c.	RCP ERG/1/1/1-52	Doctissimi uiri Rogeri Baconis Angli de Alchemia libellus cui titulum fecit Speculum Alchemiæ	main scribe's hand

As the table shows, some of the copies attribute the work to Bacon in their contemporary titles for the work. Only four copies attribute the work to Bacon in the title. Of these, the attribution in the copy in MS Harley 3528 ("Speculu*m* Alkymie R: B.", f. 149r) is an addendum in a later hand; the medieval title of the work is simply "Multipharie" (see below). The attributions to Bacon are by later hands also in some other manuscripts. In CUL MS Ff.iv.12, the attribution in the original scribe's hand is not to Bacon, but to a Iohannes; however, a later marginal annotator has added a comment attributing the work to Bacon, apparently due to recognising the similarity to the printed version of *Speculum alchemiae* in Manget's *Bibliotheca Chemica Curiosa*. BL MS Sloane 692 also has a marginal attribution in a hand different from the main scribe's. A later hand has also added an attribution to Bacon in TCC MS R.14.44: "Hic liber est Speculum Alchemiæ Rog. Baconis" on f. 117r, in a 17th- or 18th-century hand. BL MS Harley 3528 also has a later attribution to Bacon. The later attributions often also add the title of the work, *Speculum alchemiae*; a reason for this may be that the commentators have encountered the work in a printed copy and thus recognise it when encountering it in an older manuscript. In effect, these commentators were performing textual scholarship themselves.

One of the manuscript copies of *Speculum alchemiae*, that in Wellcome Library MS 719, has been copied from a printed edition, probably *De Alchemia* (1541), as the Wellcome Library manuscript copy has a clear dating to 28 October 1578 after the text of *Speculum alchemiae* (see Appendix 2). Unsurprisingly, due to its exemplar, this version attributes the work to Bacon even in the title. Another manuscript, WL MS 758, attributes the work to Abubachar: this seems to refer to the Arabic alchemist Abu Bakr Muhammad Ibn Zakariya Al Razi, often known as Rhazes in the Latin West (Amr & Abdulghani 2007).

In addition to the author attribution, Table 3.4 shows that the titling of *Speculum alchemiae* is also variable in other ways in the Latin copies. Five copies do not give the work a title at all, beginning with a rubric (a short introductory note) or directly with the prologue. Some of the titles are clearly influenced by the printed edition. Of the manuscripts that give titles, the *medieval* title of the type *Speculum alchemiae* in BL MS Add. 15549 is evidence for this title not being an early modern addition, but something that the work was occasionally identified with earlier. This connects to the discussion in Section 3.2.1 above: the 15th-century *Speculum alchemiae* titles show that the mirror-metaphor was already connected to the work at that time.

However, what is even more notable is the medieval title "Multipharie" (BL Harley 3528). This derives from the first word of the prologue of the work; the prologue begins "Multifarie multisque modis loquebantur olim philosophi", 'the philosophers formerly spoke variously and in many ways'. Sometimes the first three words of the prologue are repeated as a title of sorts (BL Sloane 3744, Bodley 484). However, in both these cases, the prologue is not part of the copied text. Thus, it is possible that "Multifarie multisq*ue* modis" is a truncated reference to the prologue instead of a title for the work. Therefore, only Harley 3528 has a clear "Multipharie" title, as this copy includes the prologue right after the title. "Multifarie" is significant as this title also appears in two English copies, so the first word of the prologue may have acquired a title-like function (see Section 5.1).

This discussion shows that the work may have been attributed to Bacon already in the 15th century, but the attributions increase later.[82] I suspect one reason is *De Alchemia* and people becoming aware of the Baconian attribution through the printed text. Overall, this section has provided background for those copies of *MoA* which have been translated from Latin. However, French also impacted *MoA*, since the English printed edition of 1597 was translated from French. I will briefly look at the French connection in the next section.

3.2.3 *Le miroir d'alquimie*

As with the Latin witnesses, I will also briefly introduce the French witnesses of the work: some background is necessary as one of them, the French printed edition from 1557, is the source text for one of the English versions of *MoA* (I will discuss it further in connection with translation in Section 6.2.3). Remarkably, there do not seem to be many manuscript copies of *Le miroir d'alquimie*.[83] In any case, as only the printed French witness forms a meaningful connection to *MoA* and moreover does not derive from French manuscript sources (see Section 6.2.3 for an analysis of the translation relations), I did not dig deeper into the French manuscripts. There appear to be four manuscript witnesses, of which one is from the 19th century and unrelated to the other witnesses.[84] These witnesses are listed in Table 3.5:

82 Singer (1928: 175) writes of the manuscripts of *Speculum alchemiae* (and *MoA*): "It will be noticed that the MS texts are mostly anon."

83 I searched the BnF archives and manuscripts catalogue (*Archives et manuscrits*) and the *British Library Archives and Manuscripts Catalogue* for "Roger Bacon" and "Miroir d'alquimie". Further and more complex search methods and sources may very well provide more French manuscript sources for the *Miroir*.

84 WL MS 3934 appears to be an independent French translation of the work, translated by medical student and Romantic author Albert Poisson in 1890–1891.

Table 3.5. Manuscript witnesses of *Le miroir d'alquimie*.

Dating	Location	Library	Shelfmark	Folios/pages
16th c.	Oxford	New College	294	ff. 1r–8v
16th c.	Paris	Bibliothéque nationale de France (BnF)	Français 2012	ff. 73r–82r
17th c.	London	British Library	Sloane 3738	ff. 75–76
19th c.	London	Wellcome Library	3934	pp. 51–72

Two of the manuscripts are from the 16th century, and at least one of them – Oxford New College MS 294 – has the French printed edition from 1557 as its exemplar (see below). It starts with a title that is the same as in the 1557 edition. The *Miroir* ends on f. 8v, with the scribe even copying down details about the printing: "Imprimé a Lion par Maré Bonhomme. ~~157~~ 1557."

The copy in BnF MS Français 2012 does not seem to have such an exemplar. It is not attributed to Bacon, unlike in the printed edition; Français 2012 starts with the curious attribution "Cy co*m*mence Le liure du maistre Iuppiter" (f. 73r), 'Here begins the book of master Jupiter'. The treatise in MS Français 2012 is divided into seven chapters which share the content of the chapters of *MoA* (and *Speculum alchemiae*), and the wording, based on a quick analysis of some sections, is rather similar as well.

The final manuscript copy of *Miroir*, BL MS Sloane 3738, is listed in the library catalogue as "Jehan de Meung, dit Clopinel: Le Miroir d'Alquimie". I suspect this may be copied from the printed edition from 1612 (see Table 3.6), although I cannot confirm this, as I have not been able to view this manuscript *in situ* or in digital form.

The earliest French printed edition is connected to the textual history of *MoA*. The printed editions are listed in Table 3.6. Notably, the first French edition does indeed, as the table suggests, contain two copies of the same work (pp. 5–33 and 109–134); they are under different names, as discussed below.

Table 3.6. Printed witnesses of *Le miroir d'alquimie*.

Printed by	Place of printing	Edition title	Pages	USTC number	Dating
Macé Bonhomme	Lyon	*Le Miroir d'Alquimie de Rogier Bacon Philosophe tres-excellent*	pp. 5–33	4733	1557
Macé Bonhomme	Lyon	*Le Miroir d'Alquimie de Rogier Bacon Philosophe tres-excellent*	pp. 109–134	4733	1557
Charles Seveste	Paris	*Le Miroir d'alquimie, avec la Table d'émeraude d'Hermès Trismégiste [...]*	- [85]	6009070	1612[86]

All of these editions contain other alchemical works in addition to the *Miroir.* The first French edition of *Le Miroir d'Alquimie de Rogier Bacon Philosophe tres-excellent* was originally printed in 1557, in Lyon (Linden 1992: x). The *Miroir* is titled *Le Livre du Tres-Savant Philosophe Rogier Bacon, intitule le mirroir de'alquimie*, and is the first work in the volume. It has a short preface and the seven chapters.

Intriguingly, one of the other works in the 1557 edition – listed in Table 3.6 – is actually "a nearly verbatim copy" (Linden 1992: x) of *Le mirroir de'alquimie*. The second *Miroir d'alquimie* appears later in the volume and is attributed to a Frenchman, Jean de Meun.[87] It is titled *Le Miroir de Maistre Jean de Mehun.* Linden suggests that the French edition's compiler wished to attribute the well-known alchemical treatise to a Frenchman, appropriating it from the English Roger Bacon – "but for reasons unknown he has left the evidence of his borrowing writ large", as the two copies are within a hundred pages of each other (Linden 1992: x–xi). There are small differences between the *Miroir*s attributed to Bacon and Meun, mostly related to matters of layout, although there seems to be some textual variation in Chapters IV, V and VI of the treatise.

The edition from 1612, according to Linden (1992: xi), is almost the same as the edition from 1557, with one crucial difference: the *Miroir*, as attributed to Roger Bacon, has been removed. Thus, of the two identical treatises, only the French-

85 There does not appear to be a digitised version of this edition, and Linden (1992) does not mention the pages.

86 Reprinted in 1613 and 1633.

87 (Pseudo-)author of *Roman de la rose*; the poem includes "the conventional alchemical discourse of how art strives with nature" (Collette & DiMarco 2005: 718).

attributed version has been retained in the 1612 edition, and consequently the title of the whole volume has been changed to remove Bacon's name. The *Miroir* in this 1612 edition is titled *Le Miroir d'Alquimie de Jean de Mehun Philosophe, tres-excellent.*

In this chapter, I have discussed the pseudepigraphical legacy of Roger Bacon and why *MoA* and its Latin and French predecessors were often attributed to him. The introductions to the source texts for *MoA*'s witnesses, i.e. the Latin and French manuscripts and printed editions that include the treatise, provide the necessary background for my analysis in further chapters. With this background, it is time to move on to a more detailed look at the primary material of this study and the edition in Part II: the manuscripts of *MoA* itself.

4 The witnesses of *The Mirror of Alchemy*

After the previous chapters' discussions of the alchemical background underlying *MoA* and the broader context of *Speculum alchemiae* and *Le miroir d'alquimie*, my focus in this chapter narrows down to *MoA*: namely, to the extant witnesses of this English-language work which form the material for my study. In this chapter, my focus thus moves onto the level of *document*. When looking at a specific treatise/work, it is useful "to observe its manuscript setting and the company which it keeps" (i.e. what texts the treatise is copied with; Thorndike 1946: 96). This is my intention in the present chapter. My detailed examination of the documents of *MoA* provides essential background for my analysis in the next chapters: my textual arguments in the following chapter often depend on information concerning the witnesses' physical features, and the translational analysis in Chapter 6 in turn depends on the textual analysis.

The witness descriptions in Appendix 1 supplement the discussion in this chapter. Here, I introduce the witnesses of *MoA* in a more unified manner than in the descriptions, painting a broader-strokes picture of the material contexts (various manuscript codices and a printed edition) in which *MoA* was transmitted. I will first discuss how I made my selection of material to edit in this study, and review previous research on the witnesses of *MoA* (Section 4.1). Next, I will examine the witnesses from a material perspective: their dating, formats, scripts, layout, and what these can tell us about *MoA*, as well as what the materiality of the witnesses reveals about attitudes towards *MoA* as a work (Section 4.2). Finally, in a bridge to Chapter 5, I will move on to the textual context, to answer the question of what kinds of texts appear with *MoA* in these manuscripts (Section 4.3).

4.1 Identifying the witnesses

Compared to the Latin manuscripts of *Speculum alchemiae*, there are relatively few English-language copies of this work. As mentioned in the Introduction, the material

for the present study consists of the seven manuscript copies of *MoA* (in six manuscripts) that were extant during my research (see below), as well as one early printed edition. The manuscripts of *MoA* can be dated to the 15th–17th centuries. The two 15th-century *MoA* manuscripts are located in Cambridge (Cambridge University Library, MS Kk.6.30, **C**, and Trinity College Library, MS O.5.31, **T**). There are three copies of *MoA* from the 16th century, two of which are located in the Royal Library of Copenhagen (in the same manuscript, Kongelige Bibliotek MS GKS 1727, **G**); one (formerly BPH MS M199, now PH319) was privately owned during the span of my research (see below). Two copies from the 17th century are in manuscripts located in the British Library in London (Sloane MSS 2405, **S1**, and 3506, **S2**). Oxford's Bodleian Library holds a copy from about 1500 (MS Ashmole 1486, **A**). In addition, a printed English-language edition was published in 1597 (STC 1182, **Oli**). A full list of the witnesses, including their sigla, is in Table 4.1. I will hereafter refer to the witnesses with their sigla; as they have been little researched before, the sigla are my own.

Table 4.1. The witnesses of *The Mirror of Alchemy*.

Siglum	Library location	Shelfmark (STC number)	Folios/pages	Dating
A	Oxford, BLO	Ashmole 1486	III, ff. 42v–48v	c. 1500
C	Cambridge, CUL	Kk.6.30	ff. 50r–56v	15th c.
Ga	Copenhagen, GKS	GKS 1727 kvart	ff. 36r–41r	16th c.
Gb	Copenhagen, GKS	GKS 1727 kvart	ff. 117v–126r	16th c.
Oli[88]	(several)	(STC 1182, 2nd ed.)	pp. (unnumbered p. A2)–16	1597
S1	London, BL	Sloane 2405	ff. 39r–42v	17th c.
S2	London, BL	Sloane 3506	ff. 42r–46v	17th c.
T	Cambridge, TCC	O.5.31	ff. 17v–21v	15th c.
-	Amsterdam, UvA	PH319	ff. 10r–17v	16th c.

BLO = Bodleian Library; CUL = Cambridge University Library; TCC = Trinity College Library, Cambridge; GKS = Gammel Kongelig Samling (The Old Royal Collection); BL = British Library; UvA = University Library of Amsterdam

[88] The siglum for this printed edition comes from the name of the publisher, Richard Oliue (see Section 4.2.3). I have consulted the copies of this edition online through *EEBO* (Huntington Library 35023) and *in situ* in the British Library (C.115.n.11).

As Table 4.1 shows, there are *eight* known manuscript copies of *MoA*, but only *seven* of them are included in my research material. This is because one of the manuscripts – formerly Amsterdam, Bibliotheca Philosophica Hermetica (BPH) MS M199, now at the University Library of Amsterdam as PH319 – was unavailable for consultation for almost a decade. It was sold to an unknown buyer in 2011 and I was not able to locate it; in addition, the BPH did not have scans or pictures of the manuscript.[89] Based on the entries in eVK2, MS PH319 would certainly seem to be a copy of *MoA*: it has the same rubric, start of prologue, and start of the main text as **TCAGb** (see Section 5.1). Fortunately, this manuscript has recently been acquired by the University Library of Amsterdam as part of the Bibliotheca Philosophica Hermetica State Collection, and will thus be available for future research and editorial work on *MoA*.[90] However, as I could not access MS PH319 until shortly before submitting this study for examination, I could not include this manuscript copy in my material.[91]

As mentioned above, **G** includes two versions of *MoA*, and it is hence referred to with the sigla **Ga** and **Gb** when it is necessary to differentiate between the copies. The siglum **G** alone refers to the whole manuscript.

Table 4.1 also includes a printed witness of *MoA*, **Oli** (from 1597). Although this witness is an essential part of my study, I have not included it in the transcriptions in Part II, as **Oli** has been edited by Stanton J. Linden (1992). Linden regularises some

89 During my first enquiry about the matter, the BPH's curator José Bouman (personal communication, 9 December 2015) informed me that the library is "not informed about the present owner"; in addition, no photographs of the manuscript existed at the time. Grund (2006c: 278, fn. 5) studied a microfilm copy of the manuscript. However, consulting a microfilm copy was not suggested to me by the BPH as a research option in 2015.

90 Dr José Bouman, personal communication, 29 October 2020. The collection is on permanent loan from the Dutch State Art Collection to the Allard Pierson Museum, under the University Library of Amsterdam (Dr Stijn van Rossem, personal communication, 20 November 2020). The collection will be catalogued and become available for use during 2021 (see the museum's press release, 'Rijksdeel Bibliotheca Philosophica Hermetica komt naar het Allard Pierson', 12 November 2020).

91 Grund (2006c: esp. 277–280) includes information on PH319 (then M199). The manuscript is "an alchemical miscellany probably compiled in the late sixteenth and early seventeenth centuries. It mainly contains alchemical prose and verse tracts in English and Latin, but it also includes treatises on magic, a condensed and reworked version of the verse dialogue *Sidrak and Bokkus* and the fragment of the *Short Metrical Chronicle*" (Grund 2006c: 277). Grund mentions (2006c: 278) that the only manuscript description for PH319 is from Christie's auction catalogue; I have not been able to access this catalogue, so Grund's descriptions are the only available source for this manuscript. See also Grund (2007: 219–220) for information on PH319.

spellings (e.g. u/v variation; Linden 1992: xlvii), but his edition overall is quite accurate, and thus I did not consider re-transcribing such a recently edited version essential for the present study and edition. However, I include **Oli** in my analysis, as it is an early witness of *MoA* and influenced one of the manuscript copies (**S1**). Extracts from **Oli** are taken from the *EEBO* edition throughout this study, and I have checked the *EEBO* transcription.[92] This is because *all* original orthography, including the variation that Linden standardises, is relevant for my approach.

With regard to other printed works: in his discussion of **Oli** and other related works, Linden (1992: xliv) mentions that *MoA* is also included in *Collectanea Chymica*, published in London by William Cooper in 1684 (Wing / C5103; cf. Linden 1987),[93] noting that this version "is abbreviated and differs widely in content and style from the 1597 translation" (1992: xliv, fn. 40). Having inspected this printed edition in *EEBO*, I can add to Linden's observation: the text in *Collectanea Chymica* is in fact *another* work often called *Speculum alchemiae*.[94] The differences Linden notes are thus explained by this not being the same work as **Oli**, and as such, the text in *Collectanea Chymica* is not part of my material.

Linden (1992: xliv) also mentions a version of *MoA* in a printed edition from 1692 (Wing S434): *Medicina Practica*,[95] printed (and possibly translated) by William Salmon (1644–1713) in London. However, examination of this edition shows that it has not influenced the *MoA* manuscripts, even the ones from the 17th century, and as my research is especially focused on the (previously unexamined) manuscripts, *Medicina Practica* is not included in this study. Unlike the work in *Collectanea Chymica,* the basic content of the work in *Medicina Practica* is the same as in the copies of *MoA* discussed in this study, but the translation and even some of the alchemical content appear to be different from those in *MoA*. This version also has structural differences.

92 See Kichuk (2007) for a thorough discussion of both the problems and the possibilities presented by studying a printed book through *EEBO*.

93 *Collectanea Chymica: A Collection Of Ten Several Treatises in Chymistry, concerning The Liquor Alkahest, the Mercury of Philosophers, and Other curiosities worthy the Perusal.*

94 Classified in Singer's catalogue as number 196; *MoA* is number 194 (see Singer 1928, vol. I: 175, and Section 4.1.1).

95 *Medicina practica: or, Practical physick Shewing the method of curing the most usual diseases happening to humane bodies. […] . To which is added, the philosophick works of Hermes Trismegistus, Kalid Persicus, Geber Arabs, Artesius Longaevus, Nicholas Flammel, Roger Bachon and George Ripley. All translated out of the best Latin editions, into English ; and Carefully Claused, or divided into Chapters, and Sections, for the more Pleasant Reading, and Easier Understanding of those Authors*.

Another printed version of *MoA* was published in 1739, in a volume titled *The Philosopher's Stone*.[96] This version includes a distinct preface discussing Roger Bacon and the merits of chrysopoeia (gold-making), and a commentary to *MoA*; both are reproduced in Linden (1992: 95–108, Appendix 1). Like with *Medicina Practica*, due to its late date the 1739 edition of *MoA* is not included in the present study. The 18th-century commentary to *MoA* is verbose and digressive, but it does elucidate some features of the alchemical content of the treatise. Where applicable, I have used it for my own commentary to the edition in Part II.

A final printed edition of *MoA* exists which is not the scholarly edition of Linden (1992). This edition, from 1975, was prepared by rare book collector William Dailey, using **Oli** as a copy text, as a limited print run.[97] Unlike **Oli**, which contains several treatises, 1975 contains only *MoA* and a short text called *The Smaragdine Table of Hermes*. Accordingly, 1975 changes the title page to reflect the contents.[98] 1975 is self-termed a translation. It is indeed a translation of sorts: a modernisation from **Oli**'s EModE into Present-Day English (PDE).[99] In terms of visual features, 1975 is almost identical to **Oli**. Curiously, 1975 thus brings the text of *MoA* to a 20th-century audience while retaining the visual style of book production from the 16th century. It cannot be called a facsimile, as the spelling is modernised and the page breaks are not identical. Nor is it a scholarly production: there is no introduction or notes. Published by rare book sellers working with a hand press, 1975 is a curio intended for collectors.[100] As Dailey (1975) is a modern recreation, it is not part of my research material. Later printed editions of *MoA* are thus not included in the present study: my primary material is from the 15th to 17th centuries, whether handwritten or printed (excluding *Medicina Practica*, as mentioned above).

96 In full, *The Philosopher's Stone; or Grand Elixir, Discover'd by Friar Bacon; And now Publish'd As a Counterpart to the Degradation of Gold by an Anti-Elixir. With a few Notes, by No Adept*.

97 I viewed this edition *in situ* in the Bibliotheca Philosophica Hermetica in Amsterdam, June 2018. A note at the back of the book says: "Of this translation of *The Mirror of Alchemy* 250 copies have been printed at the Press of the Pegacycle Lady for The Globe Book Store. This is copy number 114". 114 is written by hand.

98 However, 1975 also includes the Latin sentence in **Oli**, "Vino vendibili non opus est hedera", and the same woodcut as **Oli**. However, where **Oli** has "LONDON. | Printed for Richard Olive | 1597.", 1975 has "LOS ANGELES | 1975".

99 The spelling has been modernised (using American English conventions), as well as grammar at least in part: e.g. in the preface to *MoA*, "thou shouldest" becomes "you should" in 1975. However, 1975 preserves all lexis even when it might be confusing to the modern reader: e.g. "Argent-vive" is retained, and words that have undergone semantic change are not translated into their present meanings.

100 The bibliography of this American hand press publisher consists of only 25 books (Dailey n.d.).

4.1.1 Choice of material

As has been mentioned previously, a multitude of anonymous alchemical writings exists. When selecting my primary material I chose to focus on copies of a single work, attributed to a known author, as a narrow focus was needed for the purposes of the present study and edition. My choice of material ultimately derives from George Keiser's (1998b: 3805, item 199) list of Middle English texts attributed to Roger Bacon. Quite a few early English manuscript texts have been previously attributed to Bacon. Keiser (1998b) lists ten texts (divided into four works), and searching the online database *Scientific and Medical Writings in Old and Middle English* (eVK2; Voigts and Kurtz 2000) for alchemical texts attributed to Bacon reveals 22 texts/works from the 15th to 17th centuries.[101] Due to the diversity and number of the Pseudo-Baconian texts as a whole, *The Mirror of Alchemy*, being a discrete work and a rather well-known one, proved a good choice.[102]

However, identifying all the witnesses of *MoA* was not straightforward, as the cataloguing of early English alchemical manuscripts is still not as consistent as with some other domains of writing. Keiser's list was a good starting point, but plenty of initial research was necessary to unearth all the witnesses of *MoA*. Keiser's list has four manuscripts that include copies of *MoA*; this list includes one misleadingly classified version, since (as has been mentioned previously) there are two separate works that may appear under the same name. I have identified the rest of the *MoA* manuscripts mainly using eVK2. I briefly introduced eVK2, along with the earlier history of finding aids for alchemical writings, in Section 1.2. Before the development of eVK2, alchemical texts – and indeed, most other types of early scientific texts – had not been brought together in any consistent way.[103] I located the printed witnesses through *EEBO* and Linden (1992).

The earlier finding aids for alchemical writings include their own classifications for certain alchemical works. *MoA* (and/or the Latin *Speculum alchemiae*) appears in the earliest scholarly work on Pseudo-Baconian texts; the various classification numbers for the manuscript copies of *MoA* can be found in Table 4.2. Bringing the different classifications together clarifies the cataloguing situation for *MoA*. None of these resources mention **Oli** – another example of the division between the study of

101 Roger Bacon is one of the most frequently attributed authors in VK (Voigts 1995: 189; at least, this was the case in 1995), and the attributions to him are "primarily spurious alchemical attributions". This is in line with *MoA*.

102 However, it was not a self-evident choice in the beginning; for further discussion, see Norja (2019).

103 Voigts (1995) describes the beginnings of the VK database project.

printed and handwritten historical material – so the printed witness is not included in Table 4.2. I discuss the classifications and the resources below in the order they appear in the table.

Table 4.2. Manuscript classifications.[104]

Siglum	Little number	DWS number	Keiser classification	eVK2 number
A	-	-	B	3717.00
C	-	751	B	7581.00 (prologue separate, as 2160.00)[105]
Ga	-	-	-	3735.00 (prologue separate, as 2412.00)
Gb	-	-	-	3718.00
S1	-	-	-	2816.00
S2	49	(194)	B	-
T	-	751	B	3116.00

The classification numbers reflect the different capacities and purposes of the finding aids. The medieval focus of many of these explains why two manuscripts from the 16th and 17th centuries, **GS1**, do not appear in most of the resources. **S2** probably appears more because it was known by Little; its not appearing in eVK2 may simply be an oversight. I will discuss these resources in chronological order, as they build on each other's work.

A. G. Little's bibliographical appendix of the works of Roger Bacon places *MoA* under the "doubtful and spurious", or in other words Pseudo-Baconian, works (1914: 407). *MoA* is number 49 in Little's list, "Speculum alchemiae (de transmutatione

104 DWS number = Dorothea Waley Singer number, from her catalogue (1928–31); Little number = from his listing (1914); Keiser classification = his grouping from Keiser (1998b: 3805); eVK2 = Voigts & Kurtz (2000).

105 Voigts (1995: 187) explains the reason for prologues having their own numbers (and thus being more separate from their main texts) in the database: "prologues and texts often have textual histories independent of one another", and the compilers thus separated them in the database for increased clarity. Voigts (1995: 187) notes, rightly, that "[t]he same ME text may be found with or without a prologue, or with differing prologues in different manuscripts, and the same prologue can introduce different texts". The database thus connects prologues and texts, but does not tie a prologue and text together. As the discussion in Chapter 5 will show, the witnesses of *MoA* also include ones without a prologue, and so eVK2's separation of prologue and main text is very relevant also for this work.

metallorum)"; Little includes the Latin and vernacular versions under the same number. He gives 13 Latin manuscript versions, two French, and two English (1914: 411–412). Little's listing is far from complete with regard to the English copies (as well as the Latin; cf. Section 3.2.2). He lists only MSS Sloane 3506 (**S2**) and Sloane 3688. The latter is not a copy of the seven-chapter *MoA* examined in this study.[106] In addition, the Cambridge, Oxford, and Copenhagen copies of *MoA* escaped Little's attention.

Fifteen years after Little's Pseudo-Baconian work, a major alchemical catalogue appeared. Alchemical texts in English manuscripts were catalogued rather early on mostly through the efforts of Dorothea Waley Singer and Annie Anderson, whose three-volume catalogue of alchemical texts was published in 1928–31.[107] However, despite being an essential contribution to the process of the historiography of alchemy, this catalogue is not without its problems. For one, Singer's catalogue has some issues with dating (see Section 4.2.1 below). A second issue is that the catalogue is categorised according to *works* instead of e.g. libraries or manuscripts, limiting its use as a research tool. Halleux (1979: 88) presents a valid criticism of this: "Le classement par œuvres revient à prendre les problèmes à l'envers. Il présuppose une identification de tous les textes, qui n'est en aucune manière assurée."[108] That is, the classification according to works presupposes that the catalogue is correct about the various copies of a certain work. It can also be notoriously difficult to identify and separate alchemical works. Therefore, this catalogue is mostly useful when one already knows which texts/works one wants to explore further, and knows enough about the topic to problematise Singer's classifications.

The catalogue gives numbers to the various items (i.e. works) within it; I refer to these hereon preceded by "DWS". Singer lists three works under the name *Speculum Alkymie* (with various spellings of the title): items 194–196. As indicated by their being under separate numbers, these items are different works. *MoA*, with its seven chapters, is a translation of the *Speculum alchemiae* which is listed under DWS 194 (Singer 1928: 174–176). However, Singer does not list any vernacular versions directly under DWS 194, although a footnote for this item (1928: 175, fn. 2)

106 Its title is "Speculu*m* Secretoru*m* Doctissimi Viri Rogerij Bachonis" (f. 87v). Although this 'mirror of secrets' deals with some of the same alchemical topics as *MoA*, it is not the same work.

107 Anderson is credited as having assisted Singer.

108 'The classification according to works causes problems in the opposite direction. It presupposes an identification of all the texts, which is by no means certain.' (Translation mine.)

mentions **S2** and MS Sloane 3688, citing Little (1914). These copies are not directly listed under DWS 194, though, due to their being from the 17th century. This is why the DWS number is given in parentheses for **S2** in Table 4.2.

The reason why most of the manuscripts examined in the present study are not in Singer's catalogue is that this catalogue, as its full title suggests, is limited to "Alchemical Manuscripts in Great Britain and Ireland, Dating from *before the XVI Century*" (emphasis mine). Most post-15th-century manuscripts are thus not given a mention. The two *MoA* manuscripts included in Singer's catalogue (vol. II, 1930: 402), **CT**, can be dated to the 15th century. However, Singer does not connect **CT** to *Speculum Alkymie* (DWS 194) at all, numbering **CT** separately under DWS 751. This is an illustration of the challenges of cataloguing alchemical material: the connections between texts are so multifarious and subtle that initial forays into the field will inevitably miss some of those connections. In addition, DWS 751 exemplifies an issue with the sometimes fluid textual boundaries of alchemical writings.

Singer also investigated Pseudo-Baconian material in more detail in a separate article (Singer 1932). Drawing in part on Little's work, and on the catalogue, the article lists the medieval Pseudo-Baconian alchemical corpus – both Latin and English texts – so far as it was known to her at the time. *Speculum Alkymie* "in seven chapters" is item 13 (1932: 84–85).[109] Singer notes (1932: 85) that although the work is anonymous in many manuscripts, it was translated later into French and English, continuing to be attributed to Bacon.

Although research on alchemical material continued in the interim, *MoA* classifications turn up next in the 1990s: George Keiser (1998b: 3805, item 199) lists four English manuscript copies of *MoA* under a single group, B, in Volume 10 of the *Manual of the Writings in Middle English*. As Table 4.2 shows, these copies are **ACS2T**. He also incorrectly lists MS Sloane 3688 as a copy of the same work, most likely basing this on Singer and Little. As can be seen in Table 4.2, Keiser adds the medieval copies **CT** (DWS 751) to Group B, in addition to the copies listed under DWS 194. Keiser is correct in this update to Singer's work, as **CT** are indeed copies of *MoA*. Unlike Singer's catalogue, Keiser connects Group B to *Speculum alchemiae*, referring to it as "A Compendyos Abstract of Alkamy (translation of Roger Bacon, Speculum Alkymie)" (Keiser 1998b: 3805). Like Singer's catalogue, Keiser's list is organised according to work.

[109] The next item listed in Singer's article, item 14 (Singer 1932: 85), also bears the name *Speculum Alkymie*, but it is the different work already mentioned above (under item number 196 in Singer's catalogue (DWS), and comprising items 50 and 52 in Little 1914).

The final column in Table 4.2 represents the newest categorisation of alchemical texts: eVK2. The online database is a revised, expanded version of an earlier CD-ROM database. The database is limited to the Old and Middle English periods;[110] however, due to the nebulous boundaries between language periods, eVK2 also includes many early modern manuscripts. The numbers in the database (eVK2 numbers) refer to manuscript copies, not works. This is why the different manuscripts of *MoA* have different eVK2 numbers. There are some other issues with the divisions in eVK2 with regard to *MoA*.[111] As Table 4.2 shows, some of the versions have their prologues listed under a separate number, as is common practice for eVK2. However, **AGbT** – despite having the same prologue as in **C** – do not have their prologues listed separately. eVK2 does not include **S2** at all, perhaps because the manuscript is post-medieval. This may simply be a coincidence, as eVK2 does list certain early modern manuscript versions of ME texts, such as **S1**.

For some reason, eVK2 has two entries for the main text of *MoA* in **A**. They have the same VK number (3717.00) but a different unique database record number (v0022850000 and v0022860000). The only difference seems to be that one of them provides the alternative title (.tl) of *Speculum alchemiae*, while the other has the title from the manuscript (.te), which is transcribed in eVK2 as Liber Multifaris (<Multipharie> is the correct transcription).[112]

A final issue in eVK2 concerns **Ga**. This version of *MoA*, which – as Section 5.2 in the following chapter demonstrates – does not have a prologue, is divided in eVK2 into a main text and prologue, with different eVK2 numbers (3735 and 2412, respectively). I will discuss this further in Section 5.2.1.

The catalogues and resources discussed here form essential aids for researching the witnesses of *MoA*. However, Stanton Linden's edition of **Oli** (1992) also provided initial clues for mapping my primary material. Linden's (1992: xiii–xvi) discussion of the manuscript tradition of *MoA* in his edition of the printed book is based on earlier studies and also surveying manuscripts held in the British Library. Linden (1992: xiii–xvi) discusses the manuscript copies of *MoA* only briefly in his edition, since his focus is on the printed book's history instead of the previous manuscript tradition. He gives the necessary caveat that this survey is "highly

110 The files for eVK2 do not appear to mention periodisation, that is, how they date the end of the Middle English period (a sometimes controversial topic).

111 However, it should be noted that the database is updated annually as research reveals more texts and connections; it is a digital work in progress, and a valuable one.

112 This may be related to the modernisation of spellings in VK incipits for ME: the orthography is modernised in order to make searching easier and to be more accessible to historians of science, not just linguists (Voigts 1995: 188).

selective and intended only to note certain features of these manuscript versions and their transmission in the fifteenth, sixteenth and seventeenth centuries" (1992: xiii). Linden also examines Latin versions of *MoA* in his survey (see Section 3.2.2). However, the two English-language versions in the Sloane collection, MSS 2405 and 3506 (**S1S2**), are included in his list (1992: xv). Linden's discussion of these manuscripts centres on their textual transmission, which I will address in detail from different points of view in Chapters 5 and 6.

Linden (1992: xvi) concludes his discussion of *MoA* by stating that the work, whether in the original Latin or vernacular translations, was widely transmitted in both manuscript and print. As Linden's discussion of the English manuscript tradition is confined to manuscripts preserved in the British Library (**S1S2**), his statement on *MoA* being widely transmitted seems somewhat premature. However, the present study shows that *MoA* was indeed transmitted in manuscript more widely, and earlier, than in the two Sloane manuscripts.

Before moving on to describe the material aspects of the witnesses of *MoA* in more detail, the next section will introduce some codicological concepts essential for understanding the witnesses.

4.1.2 Compilations, booklets, and *MoA*

As my overall focus is not codicological, I will not delve into such aspects of the witnesses of *MoA* – even though the manuscripts showcase many intriguing codicological features. Thus, the purpose of the present section is to introduce concepts relevant to my discussion of the manuscripts of *MoA*. I will begin with the broader level of manuscript compilations, and move on to the units that such compilations were formed of.

The manuscripts of *MoA* are all compilations of various kinds: none of them are units containing only the text of *MoA*. This is understandable, as *MoA* is a relatively short work, and it thus makes sense for it to be transmitted among other writings. I will discuss the nature of the compilations (especially concerning their diversity, or lack thereof, in terms of content) later in this chapter, so a brief discussion on terminology is relevant here.

The terminology for manuscripts that include many different texts/works within them is diverse. Terms such as *anthology, miscellany, assemblage, composite manuscript,* and *commonplace book* are often used for manuscript compilations (the last of these is often used imprecisely, causing confusion: Boffey & Edwards 2015: 264). *Multi-text manuscript* is also used (Connolly & Radulescu 2015: 1). There is no consensus on what term should be used, and the terms often overlap. Margaret Connolly and Raluca Radulescu (2015: 7) point out that modern scholarship seeking

to define and classify the miscellany is in itself potentially at odds with the "intrinsic nature of the medieval miscellany".

As the copies of *MoA* exist in different kinds of manuscripts, different terms are relevant for them. Michael Friedrich and Cosima Schwarke's (2016) terms are useful for this context. Their term *composite manuscript*, referring to a manuscript formed of different physical units that previously circulated independently, is the best term for some of the *MoA* manuscripts; whereas *multiple-text manuscript* (MTM), a codicological unit produced as one single operation, works for the others.[113] Composite manuscripts can be formed at any point in history: that is, regardless of whether the disparate units were put together in the medieval period or afterwards.

Harold Love (1993: 134–137) discusses compilatory practices in 17th-century England; multi-text manuscripts and composite books were thus far from being confined to medieval scribal practices. Nor did compilatory practices end with manuscripts: far from it, as the examples of the printed compendia including *Speculum alchemiae* show. A noteworthy example of this practice is also the early modern profusion of composite volumes called *Sammelbände*, i.e. separate printed works bound together in one volume (see Gillespie 2004 for a study of English *Sammelbände* c. 1480–1550).

Using Friedrich and Schwarke's terminology, I will narrow the focus to a particular feature relevant to composite manuscripts: in the case of *MoA*, this means two of the manuscripts (**AC**). These manuscripts are formed of units smaller than a codex, called *booklets*, which have later been collected into composite manuscripts. Despite being smaller than a codex, booklets are usually formed of more than a single quire (i.e. gathering: a small unit of sheets folded and nested within one another to form leaves).[114] Booklets have been discussed in manuscript studies since Pamela Robinson defined the term in a codicological sense in her seminal article (1980). Robinson defines the booklet as a self-contained unit originating "as a small but structurally independent production containing a single work or a number of short works" (1980: 46).[115] Booklets were often a part of the compilation of medical and scientific manuscripts (Connolly 2011: 140; Voigts 1989a: 353–356).

[113] Beal's *Dictionary of Manuscript Terminology* (2008: 85) defines *composite volume* as being distinct from a compilation or miscellany in that it is made up of "various physically and textually independent units bound together".

[114] Beal (2008: 171, s.v. *gathering*) defines a gathering as "a discrete group of leaves, a series of which units sewn together makes up the volume". He treats gathering and quire as synonymous (2008: 329–331, s.v. *quire*). I use *quire* throughout this study.

[115] *Booklet* is defined in Beal (2008: 44) as a "thin unit or sheaf comprising not much more than one or two gatherings"; this seems very little, and Robinson (1980: 46), for

There are various criteria for defining whether a manuscript codex contains a section that has once been a separate booklet. The first criteria were proposed by Robinson (1980: 47–48):

1. Dimensions: The booklet's leaves may be of a different size compared to other parts of the manuscript.
2. Handwriting: The booklet may be written in a different hand/script than other parts of the manuscript. If the hands used are similar, textual organisation habits may be observed.
3. Decoration: The booklet may employ a style of decoration or illustrations different from other parts of the manuscript.
4. Catchwords: The booklet may have a series of catchwords running only within its own pages, not continuing on to the next quire after the booklet.
5. Quire signatures: The booklet may have its own set of quire signatures, independent from the other parts of the manuscript.
6. Outer leaves: The booklet's outer leaves may be dirty or show other signs of use that suggest it was originally circulated unbound.
7. Number of leaves per quire: The booklet may have a distinct number of leaves in each quire differing from corresponding numbers in other parts of the manuscript.
8. Modified quire structure: The last quire of a booklet, for instance, may differ from the previous quires due to the scribe having either added or subtracted leaves in order to fit the final text in.
9. Blank page: The booklet may have a final blank page (or pages) if the final text in it did not completely fill up the booklet. Sometimes these blank leaves have been cut away when binding the manuscript.
10. Additional text: The booklet's final, originally blank endleaf may have additional text on it (often not related to the booklet's other content), added either by the original scribe or later owners/users of the booklet.

Ralph Hanna III (1986: 108), while problematising Robinson's categorisation, adds the following features:

> instance, mentions that booklets can comprise several gatherings. Beal notes that medievalists occasionally use the term to mean a single gathering/quire: using 'booklet' in that sense seems very misleading to me, however, unless Beal means cases where a short booklet happens to coincide with a single quire (cf. Hanna 1986: 104).

11. Variation in writing support: The booklet may be written on a different material than the other parts of the manuscript, e.g. shifts in paper stock or a shift from paper to vellum.
12. Variation in sources: The booklet may consist of material stemming from different sources than the other parts of the manuscript.
13. Variation in subject matter: The booklet may contain subject matter that is distinct from the other parts of the manuscript.

To my knowledge, two features/criteria have been since added to the lists of how to distinguish a booklet. Gillespie (2011: 18) adds one:

14. Distinctive method of stitching or binding.

Honkapohja (2017: 32), in his study of the Voigts-Sloane manuscripts, also adds an additional criterion (numbering mine):

15. Damage that has affected only part of the manuscript.

When determining which of the manuscripts of *MoA* consist of separate booklets which have most likely circulated independently prior to being bound with other booklets, the following features are meaningful: 1 (dimensions), 2 (handwriting), 3 (decoration), 4 (catchwords), 5 (quire signatures), 6 (outer leaves), 9 (blank page), 10 (additional text), 11 (variation in writing support), and 15 (damage to only part of the manuscript).

Much of booklet research focuses on the book production aspect (Gillespie 2011: 6–11).[116] To put it briefly: sometimes booklets were used as a way to make collaborative production of a manuscript codex more efficient (Gillespie 2011: 6; cf. also Hardman 2000); sometimes they were intended to form short units of material and could be bound in limp vellum bindings. Booklets could also be "a way to delay decisions about the final shape of a book" (Gillespie 2011: 18). I will discuss some possible meanings of booklet production for *MoA* later in this chapter. Booklets were certainly a useful way to circulate material, being more portable than heavy codices: "this flexible format allowed for dynamic and restless circulation of texts" (Gillespie 2011: 9).

I approach the booklets in the relevant *MoA* manuscripts without preconceptions to find out what they can tell us about *MoA*, a single text copied onto those manuscript pages. In the following section, my focus shifts from this more

[116] See e.g. Boffey & Thompson (1989).

theoretical angle to a hands-on approach: I discuss the witnesses of *MoA* in terms of their material presence in the surviving manuscripts and printed edition.

4.2 Material aspects of the witnesses

The focus in this section is on the materiality of the manuscripts and printed edition (MSS **CAGS1S2T** and **Oli**) which form the witnesses of *MoA*: that is, the physical *documents* in which the copies of this work appear. Materiality in textual studies – material text – means a focus on the physical form and its effects on the text, for instance damage caused by water or bookworms, the constraints of the writing surface, and visual features such as diagrams and rubrication. Materiality has been an important part of philology for the past decades as part of the 'New Philology', which recentred materiality when examining texts (see e.g. Nichols 1990).

Materiality is integral to my edition and study of *MoA*. I argue that materiality is relevant to any textual study whose primary material[117] exists in the form of text that was originally inscribed, handwritten, or printed onto a physical writing surface (such as stone, papyrus, parchment, or paper). A work such as *MoA* may 'exist' in the abstract, but it always takes a physical form in the document that it is written upon, and that physical form may be affected by material factors such as limited space to write on, or even cats stepping on the page with inky paws.[118]

For *MoA*, in particular, discussing the material context in which the individual copies can be found matters since we still know very little about all aspects of alchemical texts and especially the manuscripts in which they can be found. Thus, any new information about the physical properties of alchemical manuscripts and their texts adds pieces to the still forming puzzle picture. As I discuss in Section 4.2.5, the materiality of the witnesses can also reveal much about how *MoA* was treated and viewed among both contemporaries and later commentators: marginal comments, scribbles, and decorations all tell their own story.

The discussion in the following subsections integrates manuscript and print as far as possible, since **Oli**, of course, is as much an early witness of *MoA* as the manuscripts. Not all aspects can be described identically, since despite their similarities, manuscript and print also differ as technologies, for instance in the fact that printed books are planned from start to finish. Notably, due to practical limitations I cannot examine **Oli** as a *copy* as fully as the manuscripts. I have

117 Indeed, the very word implies materiality.

118 As, for instance, in a document from the State Archives of Dubrovnik (Dubrovnik, Archives d'Etat, Lettere di Levante, vol. XIII, f. 168r), brought to light by Emir O. Filipović (see Filipović 2013).

examined **Oli** mainly through the digital representation in *EEBO* of Huntington Library 35023, which does not provide much information on material aspects; I also shortly examined the BL copy of **Oli** (C.115.n.11) *in situ*, but due to limited time focused on the pages containing *MoA*. However, I examine **Oli** through these two copies as much as possible in the following sections, although this is still some steps removed from the singular materiality of each individual manuscript copy. Thus, I cannot always give similar facts on **Oli** as on the manuscripts. However, the continuity of manuscript and print is an integral part of the transmission of *MoA*, and thus the discussion of print is essential for a full picture of the witnesses.

In what follows, I present different material aspects of the witnesses of *MoA*. Summaries and details for each individual witness can be found in Appendix 1. The subsections below provide a more general view than the witness descriptions about the physical forms in which the copies of *MoA* exist, in order to facilitate understanding of the following chapters of this study, as well as of the edition in Part II.

4.2.1 Codicological and bibliographical features

My approach to textuality is material-based. Thus, my analysis of the textual relationships in Chapter 5 involves looking at the textual evidence through the lens of materiality. For this purpose, the present section is essential for understanding the following sections on specific aspects of the history and physical nature of the witnesses of *MoA*. In what follows, I will briefly describe the codicological and bibliographical features of the witnesses of *MoA*. Table 4.3 summarises the codicological features of the *MoA* witnesses discussed in this section; the information is based on my own observation of the witnesses as well as earlier catalogue descriptions. Not all information is included for **Oli** as *EEBO* does not give information on binding and size.

Table 4.3. Codicological features of the witnesses of *MoA*.

Manuscript	Writing support	Binding	Size[119]	Format	MS type
A	paper	17th century (commissioned by Ashmole)	c. 280 x 200 mm (Part III)	quarto	composite MS
C	mainly paper[120]	19th century	c. 218 x 150 mm (Part II)	quarto	composite MS
G	paper	16th century	c. 220 x 160 mm	quarto	MTM
Oli	paper	-	-	quarto	-
S1	paper	19th century	c. 195 x 145 mm	quarto	MTM
S2	paper	1984	c. 315 x 200 mm	folio	MTM
T	paper[121]	18th century	c. 350 x 250 mm	folio	MTM

The length of the manuscript copies of *MoA* varies from about five to ten leaves; in the case of **Oli**, the length is 18 pages (9 leaves). This variation depends on the length of the copied text, but also on matters of *size*, *layout* and *script*. There is plenty of variation in the manuscripts with regard to these three aspects. This is not surprising, especially considering the almost 200-year time span from which the copies date. However, although the manuscripts of *MoA* are rather diverse as concerns form and content, one feature unites them: at least the sections including *MoA* are all written on paper. **Oli** is also printed on paper; I have not found evidence to suggest that there were copies printed on parchment.

Format refers not to the size of a book, but to the number of times a sheet has been folded to form a book's leaves (McKerrow [1927] 1967: 165). MSS **S2T** are in folio format and MSS **ACGS1** are in quarto format. **Oli** is a quarto. Folio format means that the manuscript's leaves are formed from sheets folded only once, in which the chain lines of the paper run vertically down the page (Beal 2008: 158, s.v. *folio*). Folio manuscripts are usually formed of bifolia, that is, sheets that have been

119 As a caveat, some of the manuscripts may have been cropped before or during the binding process.

120 The manuscript is formed of several paper booklets varying slightly in size; however, Part IV includes parchment leaves. It is formed of a single, 8-leaf quire which has parchment leaves surrounding it and in the middle.

121 The manuscript has a single dirty parchment leaf at the front.

folded once (making two leaves). Folio format manuscripts – like manuscripts of different formats – vary in size depending on the size of the original sheet of paper that was folded to form the leaves; folios usually tend to be rather large, however. The leaves of quarto format manuscripts, then, are formed of sheets folded twice (making four leaves, hence the name; Beal 2008: 327, s.v. *quarto*). Because of this folding, the chain lines in a quarto run horizontally. Quarto manuscripts are usually smaller than folios; however, Part III of MS **A** is a very large quarto, almost the same size as a typical folio manuscript (cf. the measurements of MSS **S2T** in Table 4.3). I have examined all the manuscripts myself *in situ,* including checking chain lines.

The bindings of some of the manuscripts can help to reconstruct the uses the codices were put to in the past. **G** survives in what appears to be its original 16th-century binding, a simple parchment cover: this is the most revealing of the bindings, as it seems to indicate that the manuscript was intended for practical use. MS **A** (a manuscript formed of separate booklets, discussed below) was bound together in the 17th century at the behest of Elias Ashmole: the binding is in the same style as other manuscripts in the Ashmole collection.[122] Based on a single (dirty and crumpled, but sturdy) parchment leaf at the front of the manuscript, MS **T**, a thin volume, originally circulated bound in parchment; the catalogue mentions that "one cover of a vellum wrapper remains" (James 1900–1905). MS **T** was rebound in millboard covers in the early 18th century, probably before 1738, when Roger Gale donated his collection of books to Trinity College, Cambridge.[123] MS **S1**'s 19th-century binding obscures the original quire boundaries: in the process of conservation, the leaves have all been mounted on guards larger than the original leaves. It thus seems that MS **S1** was very damaged before being bound, and was originally a smaller quarto. MS **S1** has two dirty parchment leaves as its first and last leaves; this would indicate that the manuscript was originally bound in a parchment wrapper.

I introduced the concepts of composite manuscript and multi-text manuscript, i.e. MTM, in Section 4.1.2 (Friedrich & Schwarke 2016); these concepts are one way to categorise the manuscript witnesses of *MoA*, and are revealing as evidence on how *MoA* as a work circulated. **Oli** is an alchemical compendium, and as a printed edition,

122 Elias Ashmole (1617–1692) was an alchemist himself, and claimed to know the true matter of the Philosophers' Stone (Taylor 1949: 105).

123 Sandy Paul of Trinity College Library (personal communication); Professor Emeritus David McKitterick (personal communication). Gale's donation now forms the O collection in TCC. See also Timmerman (2013: 154): "In his case it was most likely antiquarian interests that prompted Roger Gale's acquisition of alchemical works, a passion he had in common with his contemporary Sir Hans Sloane, even if the latter also had his medical background to support his literary alchemical pursuits."

it was certainly produced to form a unified whole, so this categorisation is only relevant for the manuscripts of *MoA*. Most of the manuscripts of *MoA* are MTMs, i.e. codicological units that have been worked on in a single operation. However, I extend Friedrich and Schwarke's (2016) definition of MTM somewhat. That is, I also count as MTMs manuscripts that have been compiled over a longer stretch of time, but by a single compiler: intended as a single collection, no matter how heterogeneous.

With this definition, I count MSS **GS1S2T** as MTMs, as these manuscripts, containing multiple texts of various lengths, were all produced by a single scribe (the later annotations in these manuscripts are not relevant for the original production circumstances). I will discuss the dating evidence in addition to the evidence for single scribes for these manuscripts below in Section 4.2.2; however, for now it suffices to say that for instance MS **G** seems to have been compiled over a period of some decades in the 16th century. This does not affect its categorisation as a MTM, in my view, as MS **G** seems to have been bound for the purposes of one person's own writings, and the manuscript was worked on in a single operation, even though in this case that operation lasted for years. As for MS **T**, in addition to being written throughout in the same scribal hand, the manuscript consists of a relatively small number of leaves, which leads to the conclusion that the manuscript was produced to form a unified whole. MS **S1** was probably composed over some period of time, as it contains so many short excerpts; like MS **G**, it seems to be intended for the personal use of one individual.

One example of why MS **S2** is a MTM appears on f. 113r, where the main scribal hand (see Section 4.2.2) has also written, in pencil, "The Tracts in this book". The scribe no doubt intended to make a list of the tracts copied, but the list has not been filled in. However, this is a sign of the manuscript being a planned compilation. Another piece of evidence for MS **S2** is that there is one blank leaf between most of the treatises, suggesting deliberate planning of the volume. It seems to have been conceived of as a single whole, albeit consisting of a motley collection of alchemical texts.

Most of the manuscript witnesses of *MoA* are MTMs, then. However, there are also two composite manuscripts amongst the manuscripts of *MoA*: MSS **AC**. These manuscripts are composites formed of booklets, some of which may originally have circulated independently; these booklets were at some point in time bound into composite volumes with other booklets. Of the two manuscripts, MS **A** belongs to what Hanna calls "binding accidents" (1986: 101): it is formed of disparate booklets and was possibly simply just gathered together as "alchemical manuscripts" by Elias Ashmole in the 17th century (see below). MS **C**, although formed of separate parts, may even be a medieval compilation: at least Parts I, II, and III seem to have formed

a connected medieval whole, and the other parts of the manuscript may also have been bound together in the late medieval period.

The codicology of MSS **AC** is complex, and discussing these manuscripts in detail is beyond the scope of the present study. Below I will only summarise the evidence for these manuscripts being composite and comment on relevant aspects of the codicology of the booklets in which *MoA* occurs. The manuscript descriptions in Appendix 1 provide some more detail. As my point of reference for evidence of MSS **AC** being composite manuscripts, I will list the booklet features which I consider relevant as evidence below (based on Robinson 1980; Hanna 1986; Honkapohja 2017).

MS **A** includes booklet features **1** (dimensions), **2** (handwriting), **3** (decoration), **5** (quire signatures), **6** (outer leaves), **7** (number of leaves per quire), and **10** (additional text). The manuscript is formed of six booklets, called Parts; they are all paper (some have parchment covers, cf. **feature 6**, outer leaves). The booklets are written in a variety of different hands (**feature 2**, handwriting). The booklet containing *MoA* is the third, Part III, so I will enumerate the signs of this particular Part being a booklet. Part III is an exceptionally large quarto, almost the same size as the folio-format Part I; and in any case, it is different in size from all other parts of the manuscript (**feature 1**). The first recto and last verso of Part III are especially dirty, suggesting independent circulation without covers before it was bound into MS **A** (**feature 6**).

Based on my examination of the manuscript, the Part III booklet seems to consist of three sub-parts (i, ii, and iii). However, the tripartite booklet of Part III is undeniably by the same producers, as the scribe, overall layout, and decoration scheme are the same through the booklet, though different from the other Parts in MS **A** (**feature 3**); also, the content is almost all alchemical. I would thus not call the sub-parts separate booklets. In fact, while MS **A** as a whole is a composite manuscript, Part III within this manuscript is in fact a MTM: a separate MTM within a composite manuscript. These three sub-parts differ a little in their quire signatures (**feature 5**), but most of the quires consist of four leaves, which seems to be a distinctive feature of Part III compared to the rest of MS **A** (**feature 7**, number of leaves per quire). The final leaf of Part III has additional scraps of text and a drawing by later annotators (**feature 10**, additional text).

MS **C** includes booklet features **1** (dimensions), **2** (handwriting), **3** (decoration), **5** (quire signatures), **6** (outer leaves), and **15** (damage to only part of the manuscript). The manuscript description for **C** in Appendix 1 includes my collation for this

manuscript according to each Part.[124] There are six Parts in this manuscript;[125] Part II is the Part containing *MoA*. All Parts in **C** contain alchemical material, and all date to the 15th century (see below with regard to Parts I and II). The variety of hands in **C** (**feature 2**) are just one indication that the manuscript has been bound together from separate booklets at some point in time. Some of the Parts are easier to discern than others, based on factors such as paper size (**feature 1**), different watermarks (see Appendix 1),[126] variable quire markings and the absence thereof (**feature 5**), visible boundaries in the binding, and dirt on some of the outer leaves (**feature 6**). The ruling throughout the manuscript is variable (**feature 3**), with some texts ruled in the outer margins in drypoint, ink, or plummet; many are unruled.

Parts I and II may have originally formed a single unit together. There is also evidence for other parts of the manuscript being connected, possibly even the whole manuscript having been assembled in the late medieval period, perhaps by the scribe/compiler of Parts I and II. In any case, Parts I and II are connected. They share a scribal hand and an almost identical watermark (glove with flower; see Appendix 1), and their paper is of a similar thickness and quality. Parts I and II, I argue, are codicologically separable into two, but they are themselves part of the same compilation. Indeed, they could be said to form a short MTM within the composite manuscript that is **C**. In the following subsections, I will thus focus on Parts I and II. A noteworthy feature of these two paper booklets is that they both have mutilated or excised leaves (see further the manuscript description in Appendix 1).[127] These excisions occur only within Parts I and II, which is another argument for the Parts being interconnected (Honkapohja's **feature 15**). I discuss how these mutilated leaves affect *MoA* in Section 5.1.1. A final booklet feature in Part II is that f. 50r is stained and looks used; the quire which this leaf begins may have been unbound for a while (**feature 6**).

This division into composite manuscripts and MTMs leads to some differences in the following discussion. In the following subsections, when referring to MSS **A** and **C**, the reference is to the booklets containing *MoA*, as the other booklets are not

[124] I gratefully acknowledge the invaluable help of Dr Orietta Da Rold when determining the collation *in situ* at Cambridge University Library (8 November 2017).

[125] Part I: ff. 1–45; Part II: ff. 46–60; Part III: ff. 61–70; Part IV: ff. 71–86; Part V: ff. 87–109; Part VI: ff. 110–141.

[126] There appear to be twelve different watermarks used in **C**; Parts II, III, and VI use more than one watermark. However, the overall changes in paper stock correspond to my suggested Part divisions, thus providing additional evidence for **C** being a composite manuscript.

[127] The mutilated leaves in the manuscript are ff. 2, 13, 27, 29b, 51, and 56. Part II extends to f. 60 (see Appendix 1).

relevant for the production circumstances of *MoA*. In the case of MS **A**, this means Part III of the manuscript; in the case of MS **C**, Part II (although Part I is mostly included as it forms a separate unit together with Part II, as discussed above). The other manuscripts, being MTMs with the same circumstances of production, are described as a whole.

4.2.2 Dating and hands

The witnesses of *MoA* date from the 15th to the 17th centuries. As mentioned in the Introduction, this is a time frame which is commonly divided into two linguistic periods: Late Middle English (c. 1350–1500) and Early Modern English (c. 1500–1700). Editions of Middle English texts often contain a section on the language of the scribe, describing features that connect the scribal language to a particular dialectal area. As the focus of my study is on the textual relationships and tracing the translation history of *MoA* rather than on historical dialectology, information on scribal dialect is only included when the manuscript is in the *Electronic Linguistic Atlas of Late Mediaeval English* (*eLALME*; Benskin et al. 2013). A brief section on language is included in the witness descriptions (Appendix 1): this mainly describes the languages used in the witness, as such multilingualism is more relevant to my study than dialectology. In addition, only two of the eight witnesses examined (MSS **CT**) are dated to the 15th century and thus methods of Middle English dialectology would be limited to a small sample of *MoA*. In any case, my study focuses on *text*, and thus I will only mention features of language change that are evident in writing (not e.g. phonological changes). Chapter 5's discussions on scribal orthography give some insights into scribal language use, however.

Changes in English in the period c. 1450–1700, also evidenced in the witnesses of *MoA*, that are visible in writing include many that are due to spelling regularisation (Lass [2000] 2008: 10): words are simply more frequently written in the same way throughout. As I will note in Chapter 5, this is more evident for printed than manuscript material, but the general tendency for regularisation can be seen in the later manuscripts of *MoA*. However, morphological changes from Middle to Early Modern English are also evident in the witnesses. For instance, the *-(e)n* marker for verb infinitives (e.g. **T** l. 90, "to ben", 'to be') disappears in the post-15th-century witnesses, and the 3rd person singular present indicative ending *-(e)th* (e.g. **T** l. 1, "be gynneth" 'begins') eventually becomes *-(e)s* (e.g. **S2** l. 78, "transmutes") (cf. Lass [2000] 2008: 11).

Keeping in mind that the witnesses thus represent about two centuries of the development of the English language, I will now present the evidence for dating the

witnesses of *MoA*. This evidence comes in various forms, some of which are discussed in more detail in the following sections. In the case of the manuscripts, handwriting/script is often essential evidence for the dating, and thus this section also includes brief descriptions of the hands in the manuscripts.

One of the witnesses, **Oli**, can be dated to the year, as this printed edition (as is usual) has the date of printing on its title-page: 1597 (Figure 4.1). As there are no issues with the dating of **Oli**, the discussion in this section will concentrate on the manuscripts of *MoA*, as their dating is not as straightforward. MSS **CT** can be dated fairly unambiguously although without great precision, as discussed below, and MS **G** can be dated more precisely due to the dates written in it. MSS **S1S2** also have their own issues with regard to dateability. MS **A** (i.e. Part III, the booklet containing *MoA*) is the most intriguing with regard to its dating.

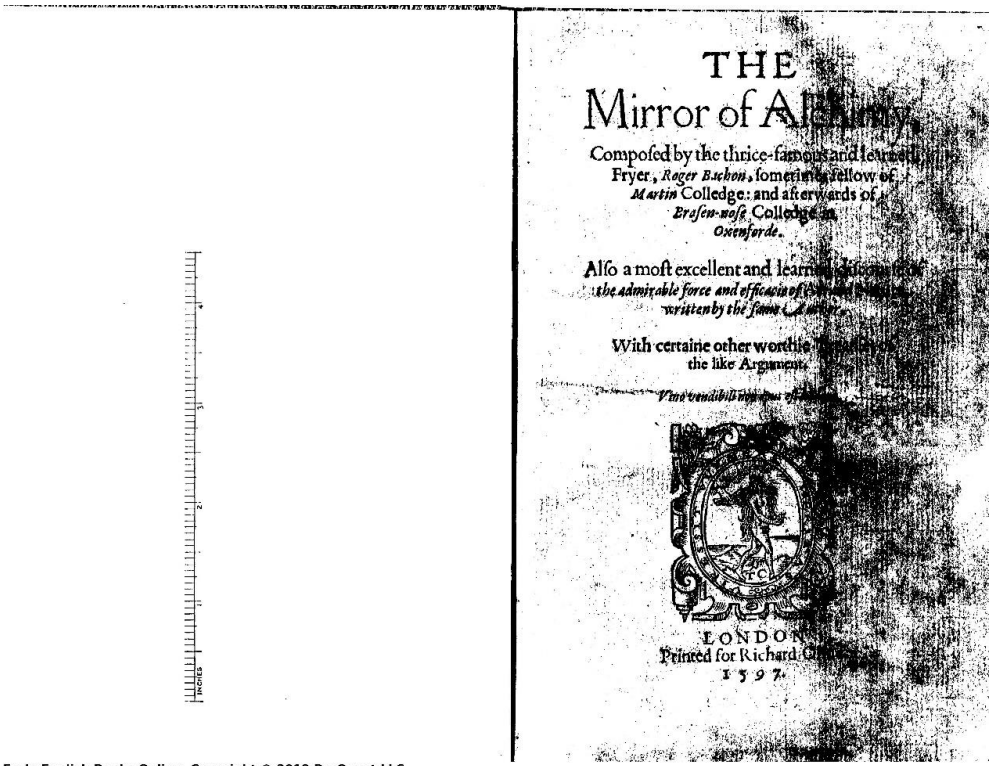

THE
Mirror of Alchimy,
Compoſed by the thrice-famous and learned
Fryer, *Roger Bachon*, ſometime fellow of
Martin Colledge: and afterwards of
Braſen-noſe Colledge in
Oxenforde.
Alſo a moſt excellent and learned
the admirable force and efficacie of
written by the ſame
With certaine other worthie
the like Argument.
LONDON
Printed for Richard
1597.

Figure 4.1. The title-page of **Oli**, from *EEBO* (Huntington Library 35023). Image published with permission of ProQuest. Further reproduction is prohibited without permission. Images produced by ProQuest as part of *Early English Books Online*. www.proquest.com.

As Table 4.4 below shows, two of the manuscript witnesses of *MoA* can be dated to the 15th century, one to c. 1500, one to the 16th century, and two to the 17th century. I have dated the manuscripts on the basis of catalogue datings combined with evidence on e.g. the hands gleaned from *in situ* examinations. I will supplement my descriptions of the hands with references to work on English handwriting (Denholm-Young 1954; Dawson & Kennedy-Skipton 1966; Petti 1977). I will first discuss the manuscripts that can be dated with more ease, in approximately chronological order, and finally proceed to the more complex case of MS **A**.

Table 4.4. Dating of the manuscripts of *MoA*.

Dating	MS
15th c.	**C**
15th c.	**T**
c. 1500	**A**
16th c.	**G**
17th c.	**S1**
17th c.	**S2**

MSS **C** and **T** can be dated to the 15th century. Evidence for this comes from the material context, mainly in terms of hands and decoration/layout. MSS **C** and **T** both have fairly typical late-medieval hands (cf. Petti 1977: 14–15); in fact, as noted below, these manuscripts even share a scribe. The library catalogues for both manuscripts also support the 15th-century datings. The library catalogue for MS **C** states that the manuscript is from the 15th and 16th centuries (Hardwick & Luard 1858: 726); however, the 16th-century hands are later annotators (see the manuscript description in Appendix 1). Voigts mentions that MS **C** (at least ff. 11v and 17v) can be dated to the "middle of second half of 15th century" (1989a: 368) – the folios she refers to are in Part I of the manuscript, i.e. connected to Part II, which has *MoA*; and in any case, all the booklets in **C** can originally be dated to the 15th century. Grund (2006b: 108) also refers to **C** as a 15th-century manuscript. Keiser (1998b: 3805) lists the **C** copy of *MoA* as 15th-century; and based on the script and the Middle English used, this dating is correct.

Concerning the hands in Parts I and II, *eLALME*, which lists MS **C**, includes at least two hands for Parts I and II. According to the *eLALME* entry for **C**, Hand A is on ff. 1r–45r (i.e. all of Part I) and 60r–61r (in Part II), whereas Hand B is on ff. 46r–59r (in Part II). I would argue that the situation is a little more complex. Hand A is indeed the main scribe of all of Part I, although the range extends to f. 45v; and

certainly ff. 60r–61r. However, I make the case for a different interpretation from *eLALME* in the case of 46r–59r. There is more than one hand at work within this range of leaves. Thus, the hands I propose for Parts I and II are the following:

- Hand A: ff. 1r–45v, 60r–61r
- Hand B: ff. 46r–47v, 58v–59v
- Hand C: ff. 47v, 48r–v, 49, 50r–58v, 59v (*MoA* is in this hand).

There are also hands scribbling shorter texts.

I will focus on Hand C in what follows. Hand A, used throughout Part I and shortly in Part II, is a rather small, neat anglicana/secretary hybrid of the late 15th century (cf. Petti 1977: 14, figs. 11b, 13). It is somewhat angular in aspect, and not particularly cursive. Hand B, used in Part II, is also a late 15th-century anglicana/secretary hybrid, but with more secretary features than Hand A (cf. Petti 1977: figs. 13, 15). The ductus of this hand (that is, its overall distinguishing features and appearance) is rather rounded, and it is only somewhat cursive.

Hand C, used in Part II, is the hand that *MoA* is written in (Figure 4.2). It is also late-15th-century, and another anglicana/secretary hybrid (cf. Petti 1977: figs. 11, 13). This hand is similar to Hand A, but they are not the same; Hand C's ductus is messier than Hand A's, and the similarities, again, may merely be due to them being from the same time period and probably from scribes who worked together. However, the letterforms used are mostly the same.

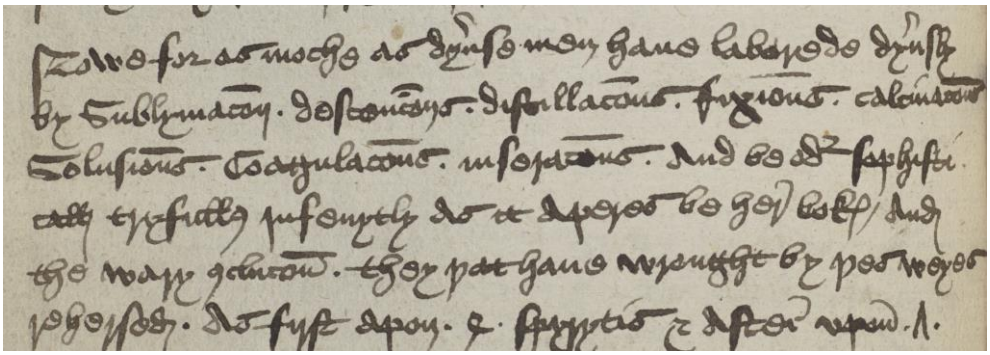


Figure 4.2. Hand C in Part II (*MoA*), MS **C**. Cambridge University Library MS Kk.6.30, f. 50v. Image: Cambridge University Library, reproduced by kind permission of the Syndics of Cambridge University Library.

Flat-topped secretary <g> is used throughout by Hand C (l. 3 in Figure 4.2), as is secretary <w> (l. 1). Anglicana sigma <s> is used word-finally (l. 2). Anglicana looped <d> (l. 1) and reverse <e> (l. 1) are used throughout. The main difference

compared to Hand A is <a>: Hand A uses two-compartment anglicana <a> throughout, whereas in Hand C, two-compartment anglicana <a> is used word-initially (l. 4); there are some instances of word-initial single-compartment <a>, l. 1), and secretary single-compartment <a> is used word-medially (l. 2). Abbreviations are rather frequent, and there are also many strokes that are ambiguous or sometimes otiose (e.g. in word-final consonant clusters such as <the>, <che>).

As all the hands in Parts I and II of **C** can be dated to the 15th century, this is the main argument for dating those parts of the manuscript as such. Some signs of provenance (see Section 4.2.3) also provide additional evidence, as the dates in some nativities written into **C** (f. 49r), some of them written by Hand C: the earliest date there is 1483, possibly giving a *terminus post quem*. A more definite *terminus post quem* is the inclusion, in Part I, of George Ripley's alchemical verse treatise *The Compound of Alchemy*; the treatise is dated to 1471.[128]

The same *terminus post quem* of 1471 applies to MS **T**, which also contains a copy of Ripley's *Compound* (see Section 4.3 and Appendix 1). The library catalogue for MS **T** (James 1900–1905) dates the manuscript to the late 15th century. The script used, the language (e.g. verb infinitives ending in *-(e)n*, as mentioned above), and overall appearance of this manuscript all point to the 15th century. The running text of **T** is written in the same hand, described by the James Catalogue as "a current hand, ugly but clear". The script is a 15th-century anglicana/secretary hybrid, with secretary <g> being used consistently throughout (Figure 4.3, l. 1), and secretary <r> used word-finally (l. 2) except in cases with a word-final *-re* abbreviation (see l. 5); anglicana <r> is used word-initially and medially (l. 4). However, the script used is almost exclusively anglicana, with only these two secretary letter-forms used; e.g. anglicana looped <d> is used throughout (l. 3), as is two-compartment <a> (l. 2). The ink occasionally bleeds through onto the other side of the page: the text is thus sometimes difficult to make out. What is notable is that MS **T** and MS **C** share a scribe: palaeographical comparison shows that MS **T** is the work of the scribe identified as Hand A in MS **C**.[129]

128 This dating is rather certain, as the date 1471 appears in the colophon to the *Compound* (Rampling 2010: 129). I would like to thank Professor Peter Grund for noting this detail during the pre-examination of this study. For more on the contents of MS **C**, see Section 4.3 and the manuscript description in Appendix 1.

129 This scribe is also connected with other alchemical manuscripts from the same period, a fact which merits further investigation. I am grateful to Professor Peter Grund for bringing my attention to MSS **CT**'s shared scribe during the pre-examination of the present study.

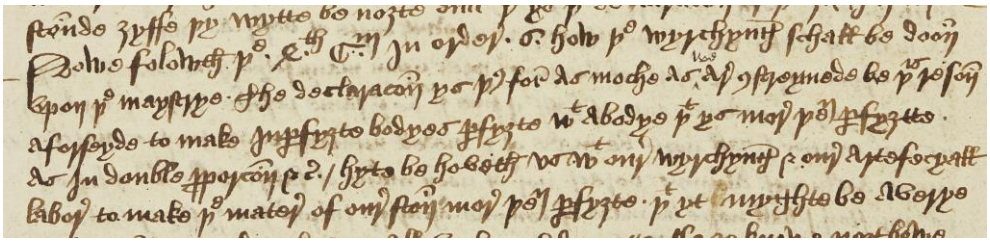


Figure 4.3. The scribal hand in MS **T**. Cambridge, Trinity College MS O.5.31, f. 19v. Image: Trinity College, reproduced with permission. © The Master and Fellows of Trinity College.

Singer (1928: 492) dates both MSS **C** and **T** to the 15th century. However, Voigts has observed (1989a: 352) that "Singer often assigned earlier dates to manuscripts than do recent palaeographers", and considers Singer's conclusions for manuscripts that do not have external evidence for their dating as being about 25 years too early. However, Singer's potentially problematic datings do not seem to cause trouble in the case of the *MoA* manuscripts she dates, as the datings are on the broader level of century rather than e.g. quarter-century.

Of the early modern manuscripts, MS **G** is the most unambiguous to date, since it has dates from the late 16th century written in it in the main scribal hand, in identical ink to the running text. These dates are 1593 (e.g. f. 31r), and 1595 (e.g. f. 23r). Taavitsainen (ed. 1994: 11) also includes the date 1555, although I have not been able to locate this date in the manuscript. The manuscript was thus compiled in the mid-to-late 16th century. The Kongelige Bibliotek online library catalogue gives the creation date for the manuscript as 1593. Additional evidence for the dating comes from the main script used in **G**, which is a typical form of Elizabethan secretary with e.g. its curving <h> (l. 1 in Figure 4.4), reverse <e> (l. 3), and <y> with the descender curving to the right (l. 1) (cf. Petti 1977: 17, fig. 22; Dawson & Kennedy-Skipton 1966: 41, plate 7). Most of **G** seems to have been written in one hand, but there are notes and shorter sections written in other hands: they seem to be later additions, and are as such not directly relevant to the dating. The main scribe sometimes uses a noncursive italic script for emphasis (cf. Petti 1977: 19, fig. 24).

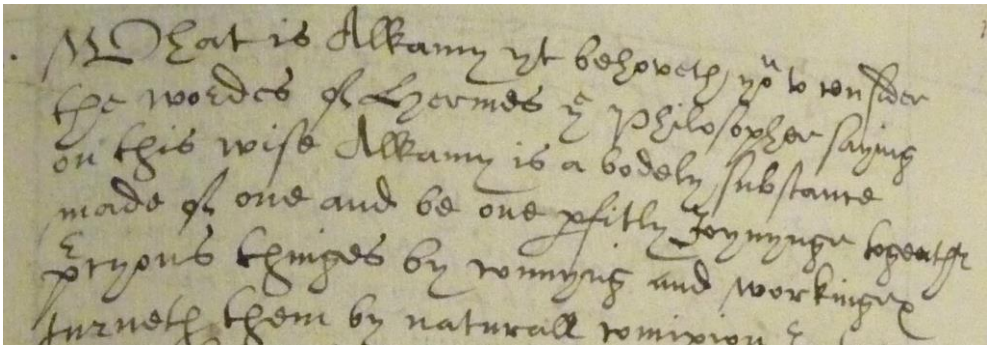


Figure 4.4. The main scribe of MS **G**. Copenhagen, Kongelige Bibliotek MS GKS 1727, f. 119r. Image: Sara Norja, published with permission. © The Royal Danish Library, Copenhagen.

The other early modern manuscripts do not have dates written in them; however, there is other evidence to be found. MS **S1** has a *terminus post quem* of 1597, as the copy of *MoA* in this manuscript has been influenced by **Oli**, printed in that year (see Section 5.3). Taavitsainen (ed. 1994: 8) dates **S1** to the 16th century in a note on MS **G**. However, I would date **S1** later, to the early 17th century: my dating is based on **S1**'s hand, which is a set or book italic (cf. Plate 59, which is a rapid italic but with similar letterforms). The Sloane catalogue dating (vol. 8: 51)[130] also supports a 17th-century dating. **S1**'s use of majuscules also supports an early 17th-century dating, s. xvii^{i}.[131] Dating this manuscript to the early 17th century would seem to resolve the issue with regard to Taavitsainen's dating to the (late) 16th century.

S1 as a whole is mostly in this same hand, apart from later notes and marginalia. The appearance of the hand varies, however. Most of **S1** is in Latin, written in a rapid italic (with e.g. the occasional epsilon <e>, cf. Petti 1977: Plate 59). *MoA* is written in a more steadily and slowly written version of this hand, a mostly non-cursive set/book italic: distinctive features are e.g. the straight-backed <d> (Figure 4.5, l. 3) and the looped <f> (l. 2). The section with *MoA* is among the neatest in **S1**, and the lines are spaced more widely than in many of the other texts. Despite the variation

130 This is the old handwritten Sloane catalogue, which I consulted *in situ* at the British Library. The catalogue says, of **S1**, "XVII Century". There is some ambiguity here, as the current online British Library Archives and Manuscripts catalogue states of the manuscript: "Creation Date: 14th century–18th century". However, in the online catalogue **S1** is called "Aristotle SUPPOSITITIOUS WORKS: Excerpta alchemica ex: 17th cent.", so the creation date must refer to the works within the manuscript, not to the manuscript itself.

131 Dr Samuli Kaislaniemi, personal communication (15 October 2020).

in the hand, the similar letterforms and abbreviations used throughout confirm that the manuscript is the work of a single scribe. The scribe appears to write a neater hand when copying treatises, especially in English, whereas the notes in Latin (and English, when used) are quite messy and appear to be written quickly.

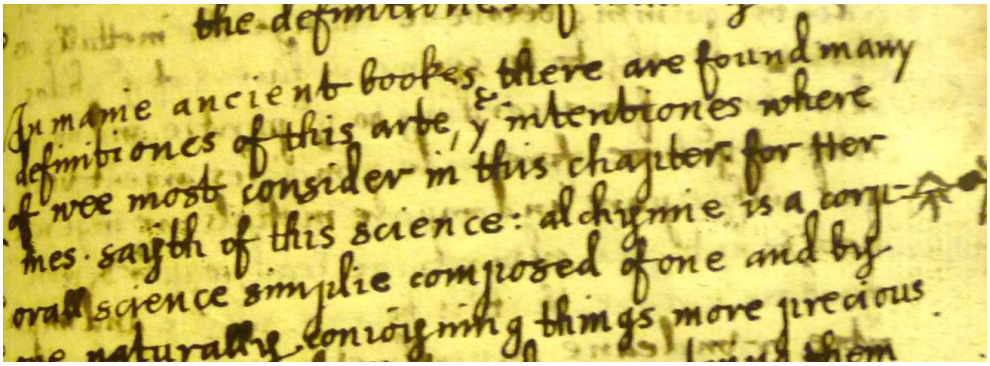


Figure 4.5. The main scribe of **S1**. London, British Library MS Sloane 2405, f. 39r. Image: Sara Norja, published with permission. © British Library Board.

MS **S2** is dated to the 17th century by the handwritten Sloane catalogue (vol. 14: 476). Most of the MS is written in the same English round hand (Figure 4.6). The graphemes are irregularly formed and the ductus is rather uneven. The hand uses secretary reverse <e> but only in <y^{e}>, and round-backed <d>, which appears in round hand in addition to the default straight-backed <d>.[132] Otherwise **S2**'s seems to be a typical round hand (see Petti 1977: Plates 66 and 67). Dating the hand to the late 17th century seems plausible; round hand emerged in the mid-to-late 17th century (Petti 1977: 21). It is possible, however, that **S2**'s hand is early 18th-century.[133] Singer (1928: 175) dates MS **S2** to the 17th century in a footnote, but the caveats concerning Singer's datings must apply here too. Thus, although I have dated MS **S2** to the (late) 17th century, it may well be from the early 18th (especially given that the scribe may have been older at the time of writing, but written in the same hand they learnt as a youth; Petti 1977: 33). The source text can also be used as a *terminus post quem* for **S2** as a manuscript: as I discuss in Section 6.2.4, some texts in **S2** were translated from Volume IV of *Theatrum Chemicum*, which did not appear until 1613. In other words, MS **S2** cannot be dated to before that (nor does the handwriting give any

[132] According to Denholm-Young (1954: 75), secretary <e> and <d> were the longest-lasting secretary letter-forms, and can be found even in the 18th century.

[133] Dr Anni Sairio, personal communication.

indication of such an early dating). In any case, **S2** appears to be the latest of the manuscript copies of *MoA*.

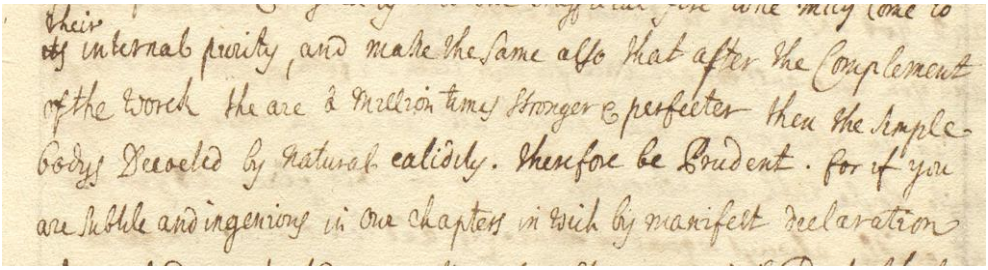


Figure 4.6. The main scribe of **S2**. London, British Library MS Sloane 3506, f. 44r. Image: British Library, reproduced with permission. © British Library Board.

While dating the previous manuscripts is not entirely straightforward, MS **A** (Part III) is the most complicated when it comes to dating, and I will thus discuss it in more detail.[134] Keiser (1998b: 3805) dates **A** (Part III) to c. 1600 in his list of manuscripts including *MoA*, but this dating felt very puzzling when I viewed the manuscript itself: as discussed further in Section 4.2.4 below, the booklet containing *MoA* has a rubrication and decoration scheme reminiscent of the complex decoration in medieval manuscripts, highly unexpected in a manuscript dating as late as 1600. However, my investigation took me further. I date **A** (Part III) to c. 1500, i.e. a century earlier than Keiser. Evidence from the hand used in Part III would seem to support this conclusion.

The main scribe of Part III is the same throughout, but different from any of the previous scribes in the other booklets of MS **A** as a whole. The script appears to be early Tudor secretary (cf. Petti 1977: 17, fig. 19; cf. also Plate 17, dated to 1520), although Black, in the Ashmole catalogue (1845: 1340), claims that the booklet is "written in a common hand of the end of the XVth century". The scribe's hand certainly has some features common for 15th-century secretary hands, for instance <g> without a flat top (Figure 4.7, l. 2; cf. Petti 1977: 14, fig. 13). However, the hand has a firm, flowing ductus reminiscent of hands from the very early 16th century (cf.

[134] The other booklets in MS **A** are dated as follows in the Ashmolean catalogue: Part I to the early 16th century (Black 1845: 1335); Part II to the 16th century (Black 1845: 1338); Part IV is described as being written in an Elizabethan hand, i.e. 16th century (Black 1845: 1341); and Part V was written by John Dee in the late 16th/very early 17th century (Black 1845: 1345). In other words, most of the booklets in MS **A** can be dated to the 16th century, early or late.

Denholm-Young 1954: Plate 26, dated to c. 1509). Titles and headings are written in a more formal script: hybrid secretary, which could be used as a display script in the 15th century (Figure 4.8; Petti 1977: 15; cf. fig.15). In Part III, the writing in red ink seems mainly to have been done by a separate rubricator.

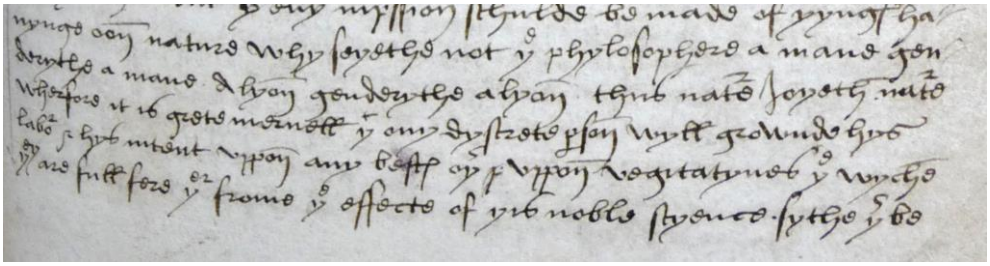


Figure 4.7. The main scribe of **A**, early Tudor secretary. Oxford, Bodleian Library MS Ashmole 1486, f. 44r. Image: Sara Norja, published with permission. Digital Bodleian, Creative Commons licence CC-BY-NC 4.0.

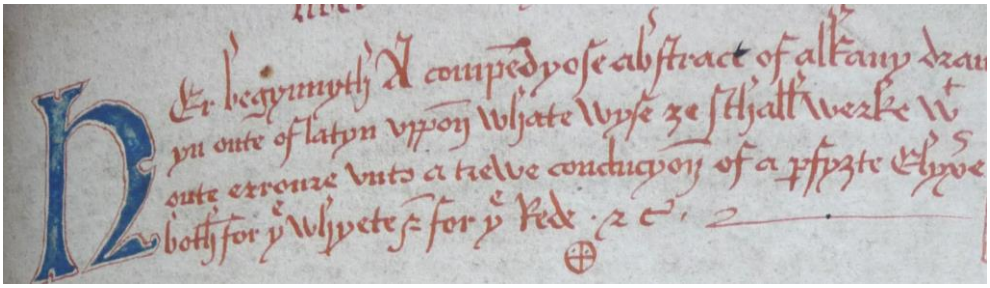


Figure 4.8. The hybrid secretary hand display script in **A**. Oxford, Bodleian Library MS Ashmole 1486, f. 43r. Image: Sara Norja, published with permission. Digital Bodleian, Creative Commons licence CC-BY-NC 4.0.

The text of *MoA* in Part III (in addition to the other works in this Part) is dated to the 16th century in eVK2, which would support my conclusion of the hand dating to the turn of the 15th and 16th centuries or being very early 16th-century. The dating in eVK2 also seems more plausible with regard to the decorative features of the booklet containing *MoA*. Keiser's rather precise dating to c. 1600 still seems strange. I suspected the possibility of "c. 1600" being a typographical error for "c. 1500" in Keiser (1998b: 3805); this would explain the discrepancy when trying to date MS **A**. Indeed, I located an additional reason for Keiser's dating in the Handlist for the Ashmole manuscripts (Eldredge 1992: 100): "R. W. Hunt dates part iii of the MS around 1600, according to Curt F. Buehler". Bühler (1948: 699, fn. 14) in fact refers to Part *II* of MS **A**, *not* Part III. Part II is in Simon Forman's (1552–1611) hand, and one of the texts in Part II is dated 1598 (Black 1845: 1337; see Kassell 2013 for

Forman). Indeed, based on its script, Part II might well be dated to c. 1600. In other words, the dating to "c. 1600" of Part III appears to be a mere slip by L. M. Eldredge, who compiled the handlist – the addition of a single roman numeral, this slip leading "part ii" to become "part iii" – which has been repeated in Keiser's catalogue.

Dating the hand of Part III's scribe to c. 1500 would create a balance between the Ashmolean catalogue's dating to the very late 15th century, and eVK2's dating to the 16th century. As mentioned, in addition to its script and the typographical error in cataloguing, dating Part III of MS **A** to c. 1500 is supported by the evidence provided by the layout and decoration scheme (see below), and I have adopted this dating as the most plausible one.

Table 4.5. Hands used in the manuscripts of *MoA*.

Siglum	Hand(s)
A	15th/16th-century secretary; titles and rubrication in a more formal hybrid secretary
C	15th-century anglicana/secretary hybrids
G	Late 16th-century secretary (various hands, mostly same script); occasional italic for emphasis
S1	17th-century rapid italic hand: texts in English in set/book italic
S2	late 17th-century / early 18th-century round hand
T	15th-century anglicana/secretary hybrid (with very few secretary features)

Table 4.5 summarises the range of hands appearing in the manuscripts of *MoA*. The hands vary from 15th-century anglicana/secretary to 16th-century secretary to 17th-century italic and round hand: as such, the hands are fairly typical of each time period and thus valuable evidence for dating the manuscripts. As discussed above, several of the hands are mixed, i.e. include features from more than one script. As with the discussion above, the table only includes the main scribes' hands, as later annotations are not relevant for the original dating of the manuscripts. I will discuss these annotators in Section 4.2.5 concerning their interaction with the manuscripts.

This discussion of the dating of the witnesses of *MoA* has focused on the manuscripts, because as mentioned, the dating for **Oli** is not in question. The following section will describe the production circumstances of the printed edition in more detail.

4.2.3 Localisation and provenance

Localisation and provenance can reveal much: the more one knows about where a witness was produced and what hands it passed through during its history, the more context one has concerning the circulation and transmission circumstances of the texts within it. For the purposes of the present study, the manuscripts of *MoA* provide more fruitful information, as the two copies of **Oli** I have examined do not provide many clues as to provenance. However, none of the manuscripts of *MoA* can be associated with known historical personages, and little can be gleaned of their provenance for the most part. In this section I will describe what is known about the manuscripts; again, in the case of the booklet manuscripts, my description pertains to Parts I and II of MS **C**, and Part III of MS **A**. I will discuss the manuscripts in approximate chronological order. More detailed information can be found in the manuscript descriptions in Appendix 1.

Of the two 15th-century manuscripts, one is in *eLALME* (as mentioned above): MS **C** has been localised to the area of Rutland (East Midlands) on the basis of the scribal language of Parts I and II. With regard to clues of provenance in the manuscript, there are references in Part I (ff. 30v, 33v) to a John Frynge, rector of Wymenton; this town is in northwest Bedfordshire, rather close to Rutland. According to Singer's catalogue (vol. III, 1932: 1019), the scribe or former owner of this manuscript was "John Frynge, Rector of Wysenton [sic], Canonicus". Singer's mention of "this manuscript" is a little unclear, as MS **C** has several booklets and it is difficult to tell when they were first bound together. Whether Frynge was a scribe or owner of the manuscript, possibly even an author, cannot be verified due to the lack of evidence; however, his name appears at least in Part I, on f. 33v: "Iohen frynge" and later on the same page in a title: "Op*us* rectoris de wymenton Canonici"; and probably on f. 30v, "Op*us* Ioh*ann*is Stywarde" (this probably refers to Frynge). Since an alchemical work was attributed to him (as "opus" implies), Frynge seems to have been an alchemist of some sort.

Another marker of provenance in MS **C** is in the list of nativities found in Part II (f. 49r); the names cannot be connected to known historical personages, but the place name Meratyng is mentioned. This refers to Meriton, a town in Cambridgeshire, and Cambridgeshire borders Rutland. The localisation evidence from *eLALME* and the provenance clues in MS **C** suggest that this manuscript may have originated and circulated not very far from its present repository, Cambridge University Library. Due to its numbering (within the classes Dd–Mm), MS **C** can be assumed to have been part of Cambridge University Library's collections by the 1750s (see Connolly 2009: xxiii).

The second 15th-century manuscript, **T**, is not in *eLALME*, and as discussed at the start of Section 4.2.2, a dialectal survey is not within my focus. There is no evidence of MS **T**'s medieval provenance; the manuscript was donated, along with many others, to Trinity College in 1738 by Roger Gale (1672–1744), an antiquary and Member of Parliament born in Cambridgeshire (Clapinson 2004). The TCC catalogue (James 1900–1905) states that this manuscript is "[p]art of the Gale collection, given to T.C.C. by Roger Gale in 1738. Marked A.30". Roger Gale inherited his father Thomas Gale's sizeable library and continued in his father's antiquary footsteps (Doggett 2004). Roger Gale was educated at Trinity College, which explains why he donated his manuscripts to them. It is not known where MS **T** originated from; as noted above, the manuscript may have been part of Thomas Gale's collection, collected by Roger Gale, or bequeathed to him by one of his peers.

Part III of MS **A** is not explicitly localisable as it is also not in *eLALME*, like MS **T**. There is also no explicit information on this booklet's provenance and history. However, some clues are evident in the booklet. On f. 1v, there is a full-page illustration, of "a hart, lying down on a diapered ground; in the style of a pattern for needlework" (Black 1845: 1338): below the hart, in the bas-de-page, there are two more harts, drawn in a more humorous style.[135] Significantly, in the main image, "Ephemeri vita" has been written within the hart's body (with a leaf drawn close to the words) in the main scribal hand. This may be a family motto. There is a date on f. 14v: 1541. This is included several times in a scribble by a later annotator: the scribble is a list of stables let by the annotator in that year. Personal names mentioned in this list are "Maist*er* garret", "medylton", "Raffe wellet", "the god man beell pykemonger", "Freston", and "Smale". No place names are mentioned apart from the "berre taverne". The name "John Reeve", by a later annotator, appears on f. 41v next to a short recipe in the same hand. This may refer to the scribe of these annotations or the person the scribe got the recipe from.

MS **G** entered Copenhagen's Old Royal Collection (Gamle Kongelige Samling, GKS) by 1787, as the Old Collection was closed after that. In addition to MS **G**, the collection hosts numerous other English alchemical manuscripts; Taavitsainen (1995: 81) compares the GKS collection to the Ashmolean in terms of size.[136] There is no direct evidence for how MS **G** entered the collection, but Taavitsainen (1995: 81) considers it likely that the alchemical manuscripts were all acquired by King

[135] Black's description is heraldic, and indeed, f. 1v is very reminiscent of heraldic imagery (cf. Davis 1984).

[136] The collections also share some textual material; see Section 5.1 for the close relationship between MSS **AG**.

Frederick III (r. 1648–1670). Frederick III was intrigued by alchemy and had alchemists working for him. He founded the Royal Library in the mid-seventeenth century and may have purchased the manuscripts either from England or from Danes who had English connections (Taavitsainen 1995: 81); the alchemical manuscripts form an integral part of the GKS (Erichsen 1786: 42). The English Copenhagen manuscripts may have been previously owned by a high-level English alchemist (Taavitsainen 1995: 81–82), possibly someone connected to John Dee (see Roberts 2004 for Dee).

There are also more explicit signs of provenance in MS **G**. The inner front cover has a signature "Lond. Is. Habrechtt. 1613".[137] This is Isaac Habrecht II (1589–1633), an astronomer, physician, Rosicrucian, and alchemical authority from Strasbourg (cf. Gilly 2003: 459). Habrecht was the editor of the fifth volume of *Theatrum Chemicum* (1622), commissioned by Lazarus Zetzner's heirs (Section 3.2.2; Gilly 2003: 458).[138] Habrecht was also the former owner of many other books in the GKS which formed the basis of the collection (Erichsen 1786: 42). According to Gilly (2003: 467, n. 45), Habrecht's Strasbourg collection of alchemical books came to Copenhagen in the 1670s. In other words, MS **G** was not purchased by King Frederick directly from England. The date 1613 indicates when Habrecht bought the book, and the word that may be "Lond.", may refer to Habrecht having purchased the manuscript from London. That must remain a conjecture, though, as the grapheme in question (what I have transcribed as <n>, and Taavitsainen (1994: 11) as <r>) is not quite clear.

There are other signatures in the manuscript: "Liber Christopheri Tayloris"[139] (f. 96v) (see also Taavitsainen ed. 1994: 11; 1995: 82) and "Thomas Harryson anno 1557" (ff. not given in Taavitsainen ed. 1994: 11). There are also some other signatures in **G**, as well as names mentioned in the texts (e.g. 30 August 1595 – "Nicolas hill gaue me all these noats"; also Mr Tisdale and Mr Robinson). Biographical works such as the *Dictionary of National Biography (DNB)* do not have records of these names. Only one of these is more identifiable: a person named "m^{r} garland" is mentioned often in the manuscript. Taavitsainen (1995: 81) identifies him as either Edward Garland, a friend of Dee's, or Francis or Robert Garland, who are also mentioned in Dee's diary. In any case, MS **G** seems to have been an alchemist's book, and the names mentioned in it presumably belong to other gentlemen interested in alchemy.

137 This is transcribed as "1613 Lord Jr. Habreisst?" by Taavitsainen (1994: 11).
138 Gilly (2003: 459–464) documents Habrecht's plans for the volume.
139 Christopher Taylor also owned MSS GKS 240 and 1747 (Taavitsainen 1995: 82).

MS **S1** does not contain much evidence for its provenance. F. 104 has a note containing a signature, "p: me scriptu*m*: Galf. Bromfield", in what is possibly a different hand from the main scribe's.[140] Bromfield's name is the only potential mark of provenance in the MS; his name does not appear in the *DNB*, however. There is a scribble on f. 1v which may be a name (possibly reading <Lon^{e} Ja>, but it is so faded that establishing a reliable reading is challenging. **S1** has been in Sir Hans Sloane's collections (the foliation is in red ink, as in other Sloane manuscripts), but it is not known where Sloane acquired it.

Finally, **S2** provides no clues with regard to provenance. As **S2** has markings by Sloane and formed part of his original library, like **S1**, the only thing that can reliably be said is that it was part of Sloane's collection by the year 1753, when his collections joined the foundation collections of the British Museum (Mandelbrote & Taylor eds. 2009: x).

For the printed edition, I will first describe what is known of its origins. **Oli** was translated from the French printed edition of 1557 (*Le miroir d'alqvimie de Rogier Bacon philosophe tres-excellent*; see Section 6.2.3). The English edition was printed by Thomas Creede for Richard Oliue. Thomas Creede ran a printing house in London in the late 16th and early 17th centuries (Gants 2004), and printed one other book related to alchemy: Thomas Timme's translation of Joseph Du Chesne's Latin, in English called *The practise of chymicall, and hermeticall physicke, for the preseruation of health* (1605, STC 2nd edn. 7276). Otherwise Creede was more known for printing literary, political, and religious works (Gants 2004), for instance Shakespearean material (for more, see Brazil 1999). Creede was connected with Edward de Vere, Earl of Oxford (1550–1604), who had some alchemical interests (Brazil 1999: 13). There is little information available about the publisher Richard Oliue apart from the fact that he at some point lived on Long Lane; no entry on him exists in the *DNB*.[141] Some entries in the *English Short Title Catalogue* (*ESTC*) indicate that Oliue may have been a stationer, i.e. someone who sold books: e.g. copies of *Havvking, hunting, fouling, and fishing* (1596; STC 2nd edn. 12412) "are

[140] The hand, however, does not appear to be the same as that in the main text of **S1**: e.g. the round-backed <d> of the alphabet is never used by the main hand. However, Bromfield uses the same abbreviation marker for the nasal abbreviation as the main scribe does: a straight horizontal stroke crossed by two diagonal strokes. On the other side of the slip bearing Bromfield's note, i.e. f. 104v, there is some text in Latin in the manuscript's main scribe's hand.

[141] An *ESTC* search for Richard Oliue's name shows that six volumes, e.g. *The vvisdome of Doctor Dodypoll* (1600; STC 2nd edn. 6991), mention him as "dwelling in Long Lane" in their title-pages. **Oli** lacks this additional information.

to be sold by Richard Oliue". Oliue is connected with the name William Holmes in *Parismenos* (1599; STC 2nd edn. 11171.2), but Holmes is also not in the *DNB*. According to the *ESTC*, Oliue published books at least between 1596 and 1601. Finally, an entry in the Stationers' Register from 1593, concerning the plans for translating *MoA* in **Oli** (Linden 1992: x; see further Section 6.2.3), mentions the names Thomas Scarlet, "master Hartwell", and "master Styrrop", who, based on this, were all people involved with the making of this book.

There are no markings in the *EEBO* copy of **Oli** (Huntington Library 35023), probably because the copy has been selected for *EEBO* precisely because of its pristine condition. However, the Huntington Library online catalogue notes the immediate provenance of their copy: "bought by CSmH [the library] from Quaritch, Oct. 1922, cat. 369:75". The BL copy of **Oli** (C.115.n.11) provides more clues. This copy has some scribbles on the title-page, and a name is written in a 16th- or 17th-century italic hand, possibly <Sa : Jeake> with a word which may spell out <poet> and the number 6. These clues do not allow for tracing the actual provenance of the BL copy, but they do show that the copy had an owner (or owners) who used it.

The present section has brought together what is known of the history of the witnesses of *MoA*: many clues appear, although the origins and provenance of most of the witnesses ultimately remain unknown. In the following section, I will describe the visual features of the witnesses.

4.2.4 Decoration and layout

As mentioned previously, matters of decoration and layout can reveal aspects of the owners' or producers' attitudes towards the works contained within the manuscript or printed edition (I will discuss this further in Section 4.2.5). The manuscripts of *MoA*, on the whole, seem utilitarian in nature rather than intended primarily to please the eye: most contain little in the manner of decoration, and are copied in plain black or brown ink instead of having rubricated sections or letters. Many of them show evidence of use, such as marginal notes and drawings as well as later (and contemporaneous) corrections to the text (see Section 4.2.5 and Chapter 5).

Voigts (1989a: 379) mentions that "late medieval English medical and scientific manuscripts are visual in an intensely practical, as opposed to decorative, way". This appears true in the case of the late medieval *MoA* manuscripts, especially the parts of MS **C** relevant to *MoA* (Parts I–II). The text of MS **C** in those parts is only occasionally rubricated. Illustrations of alchemical apparatus in MS **C** (ff. 11v and 17r) are mentioned by Voigts (1989a: 372) in the context of visual presentation in alchemical manuscripts, as being a typical example of the kind of illustrations found in late medieval alchemical codices.

According to Voigts (1989a: 372), English late medieval alchemical manuscripts have "a high incidence of visual presentation": for instance, symbols/sigils and practical illustrations of alchemical processes and equipment are common. However, if this is indeed typical for late medieval alchemical manuscripts, this feature does *not* apply to *MoA* in particular. Neither the manuscript copies nor the printed edition of *MoA* feature any illustrations for *MoA* – not even the 15th-century manuscripts **TC**, nor MS **A**, which is from the turn of the 15th and 16th centuries (as discussed above). However, I must emphasise that this is specifically the case for *MoA*: the manuscripts including this work do have occasional illustrations. For instance, MS **G** is not decorated, but there are some alchemical illustrations (mostly of furnaces) on ff. 78v–79v, 80v, and 84v–86r. These illustrations are functional rather than decorative, and some are only half-finished.

With regard to less practical adornments, there are two exceptions to the lack of rubrication and decoration: MSS **AT**. By rubrication, I here mean writing that is in red ink to visually distinguish individual words or passages. MS **T** starts the text of *MoA* with a rubricated section, with a red manicule pointing at the start of the text, and a rubricated *nota* sign. This rubricated section includes the rubric and part of the prologue – for some reason the prologue in its entirety has not been copied in red ink, but neither has the red been restricted to the rubric. Apart from the rubricated beginning, the copy of *MoA* in MS **T** only has rubrication in the title for the list of chapters on f. 18r – "her*e* ffoloweth þ^{e} Capeto*ur*s In ord*er*" – and the initial <T> of the first chapter, with a large manicule in red pointing at it.

Overall, MS **T**'s decoration is mostly in the form of rubrication and some larger initials; however, although none appear in *MoA*, there are also several rather large illustrations (sometimes taking up a whole page) of alchemical apparatus at the start of the manuscript, accompanying the text up to f. 7v, drawn in the brown ink used by the scribe and usually captioned in red ink. These illustrations have a practical purpose, however, so they cannot truly be called decorations. Even an illustration on f. 21v, for the text directly following *MoA*, may have practical applications concerning interpretation of the text, although the subject matter, a dragon stretching over half the page in the left margin, seems more metaphorical than practical (see Abraham 1998: 59–60, s.v. *dragon*).

MS **A** – specifically, Part III, the booklet including *MoA* – is the most exactingly decorated manuscript of the six. As mentioned in Section 4.2.2 with regard to the dating of this manuscript, the appearance of the booklet in **A** gives an impression of late medieval visual style: it has a rather elaborate and consistent scheme of decoration, including the use of a more formal script (hybrid secretary) for headings and some initials in addition to rubrication (see Figure 4.8). The larger initials are

often filled in with blue ink; red ink is used for rubrics, to highlight numbers and some words, and for textual organisation such as chapter titles. There are some illustrations – although again, not for *MoA* – which are mostly practical and of alchemical apparatus (see Appendix 1). However, there are also a couple of decorative illustrations, such as the hart on f. 1v. There is also a calendar on ff. 2r–7v and an astrological table on f. 8r.

MS **S2** is neatly written and planned, but has no illustrations interspersed among the alchemical texts copied into it. However, the final folios of MS **S2** contain several large illustrations of alchemical furnaces and vessels (see Appendix 1, items 18–20 in **S2**). It is possible that these were added by a later artist into the originally blank pages of the end of the book, since the illustrations seem disconnected from the content of the rest of the manuscript and they seem to be annotated in a different hand.

Oli does not have any full illustrations within the edition, but the title-page has a small illustration of a naked goddess with a crown on her head and a book in her hands. A hand emerging from clouds above her whips her on with a scourge (see Figure 4.1 in Section 4.2.2). This illustration includes the initials TC (i.e. Thomas Creede) and has the text "VIRESSIT VVLNERE VERITAS" ('through wounding, truth is renewed' or 'truth sprouts from her wound'; see Brazil 1999: 12). The printer Thomas Creede used this block-print emblem for most of his books (Brazil 1999: 12), so the emblem is not specific to **Oli** and thus *MoA*.

Despite the lack of illustrations, **Oli** does include some decoration: the first letters of the preface of *MoA* (on the unnumbered page A2r) and its first chapter (p. 1) are formed of ornamental initials. There is a decorative border preceding the Preface (p. A2r). Most of the other treatises in the volume do not receive any such decorative treatment, so this may be an indication of *MoA*'s importance; of course, *MoA* was also chosen as the primary work included in the edition. The other work that has a wood-cut initial at its beginning is "An excellent discourse of the admirable force and efficacie of Art and Nature" (p. 54) – which, like *MoA*, is attributed to Roger Bacon in the edition. Perhaps the connection to Bacon was what earnt these two works their decorative elements.

Oli uses italic typeface throughout for emphasis. **Oli** does not have any alchemical sigils such as the signs of the planets/metals included in its texts, possibly because of the additional printing costs that they would require (as each sigil would require a separate type of its own). Alchemical sigils are not as common in the *MoA* manuscripts as one might think, either. Most of the manuscripts have none whatsoever. MS **C** has alchemical sigils in only a couple of texts (not including *MoA*), and on f. 38v there is a list of alchemical words followed by their corresponding sigils. There is one exception to this trend of few or none sigils: MS

S1 is rife with alchemical sigils. They are used throughout most of the manuscript as a shorthand. *MoA* also has some sigils in its **S1** copy: in addition to rather easily interpretable symbols (mostly signifying metals) in marginal notes to *MoA*, a strange alchemical sigil occurs within the text of *MoA*. This sigil seems to be formed of several individual sigils and is difficult to interpret (I discuss it in Section 5.3.2).

4.2.5 Materiality and attitudes towards the work

The subsections above have described various physical features of the witnesses of *MoA*. According to Timmermann (2013: 204), "the materiality of manuscripts" is "another aspect of historiography that merits a dedicated focus in the history of alchemy". The manuscripts' material features can indeed reveal much about *MoA* as a work. *MoA* is a practical introduction to alchemy, and the manuscripts, as described above, reflect that. Practicality can manifest in many ways, of course. The manuscript may be made of cheaper, affordable materials; it may encourage ease of use with e.g. wide margins to scribble notes in; it may show clear signs of contemporaneous or later use; or it may lack decoration for the sake of decoration, as in e.g. a laboratory setting, the pages might get stained anyway.

Marks of later use do not only appear in the manuscripts of *MoA*, although as mentioned, the *EEBO* copy of **Oli** is unmarked.[142] However, the BL copy of **Oli** shows signs of being used. The pages of the section with *MoA* are somewhat dirty with ink smudges and other stains, indicating that the book was used; the corners of pages are particularly dirty, suggesting that someone has turned the pages frequently (or with dirty hands). An annotator has marked some lines of *MoA* with their own symbols in the margins (mostly three: a shape with three loops; triangles or circles formed of three or more dots; and an <.x.>, on pp. 7, 9–15). There is what is possibly an <R> in the margin on p. 11. A later annotator has thus left their mark on this copy of the printed edition.

As described above, apart from **A** and (to some extent) **T**, the manuscripts of *MoA* are predominantly quite simple and utilitarian in visual style. Despite its decorative elements, **T** reflects issues of affordability: it is written on less thick (and thus less costly) paper and as a consequence, the ink sometimes seeps through the page. However, despite this the text is usually not difficult to make out. **S1** is also written on lower-quality paper that the ink bleeds through. As mentioned in Section

[142] Lauren Kassell (2011) examines printed alchemical editions and their interest especially to members of the Royal Society, with regard to the 17th-century bookseller William Cooper, who published a catalogue of alchemical books.

4.2.1, **S1** appears to be a single person's personal commonplace book, or "a jumble of snippets of information in no particular order" (Beal 2008: 82), and thus was probably not even intended for other people's eyes: in this case, the scribe would be able to read their own handwriting despite the text on the other side of the leaf ghosting through.

The witnesses show that *MoA* as a treatise interested people also in the early modern period: there are more extant copies from the 16th and 17th centuries than from the 15th. This may of course be a fallacy created by medieval copies having been lost, but as alchemy had its heyday in the early modern period, it also seems plausible for there to be more copies of *MoA* from that time.

A particularly revealing aspect of the manuscripts of *MoA* is signs of later use (cf. Timmermann 2013: 155, 159–172). The medieval copies show such signs. MS **C** – in the booklets relevant for *MoA* – does not have many later annotations, as the marginalia are mostly in the hands of the main scribes. I will discuss MS **T** in more detail; it contains annotations to the texts in at least two later hands. One of them is a 16th-century secretary hand, writing interlinear and marginal corrections and comments in a darker black ink (e.g. f. 18v, f. 22r). The other is an italic hand (with some secretary features, such as <d> with a rounded loop) writing with a very thin pen nib (e.g. f. 11v, f. 16r, f. 18r, f. 27r). It is possible that this is the hand of Roger Gale or his father Thomas Gale, which would make the hand s. svii or s. xviii. The notes in this hand are all of an antiquarian, textual scholarly nature. This would seem to be evidence pointing to this being the hand of either one of the antiquarian Gales. For instance, notes on f. 11v and f. 16r connect two texts (and indeed, the original scribe has copied the same text twice).

What MS **T**'s additions in secretary hand show is that a person writing in the 16th century was interested in consulting an alchemical text from a hundred years past. The interest may have had antiquarian motives (cf. e.g. Christian & de Divitiis eds. 2019). However, in MS **T**'s case it does not only seem to be such: some additions to the text of *MoA* seem to reflect alchemical knowledge. There are also many early modern "nota" notes, perhaps in the secretary hand. There are also medieval notes ("nota" signs and manicules), which seem to have been added by the original scribe of **T**.

MS **A** (the booklet relevant to *MoA*) has been annotated by several later hands from the 16th and 17th centuries. *MoA* has also been annotated, e.g. by a 16th-century secretary hand. The annotations of **A** are related to its textual history, and are worth exploring further. They in part even relate to MS **G** (as I will discuss in Section 5.1.2.2, MSS **AG** are related to some extent).

MS **G** is a practical compilation: it includes some alchemical recipes and notes on experiments. This manuscript has layers of textual history on its pages. **G** includes

two copies of *MoA*: both are heavily underlined and have many crossings-out and marginal comments (e.g. "m*ar*ke this well", f. 120v). Some of the marginal comments may be in the main scribe's hand, but many also seem to be in other hands. These are clear signs of the text having been read with intent – and corrected and cancelled, as the frequent deletions show (see Figure 4.9). The manuscript certainly appears to be a practising alchemist's book, and it shows much evidence of being read and processed by people who knew about alchemy.

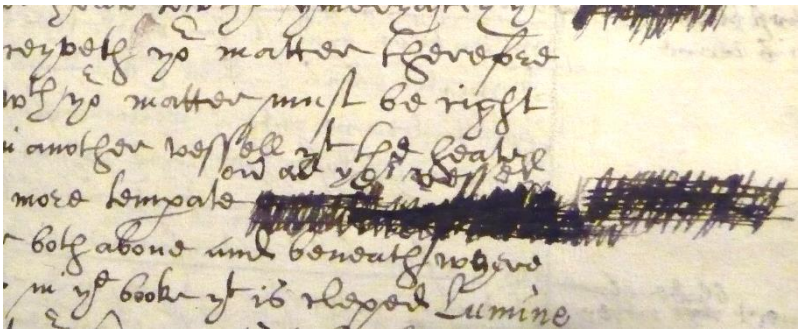


Figure 4.9. Deletions in MS **G**. Copenhagen, Kongelige Bibliotek MS GKS 1727, f. 124r. Image: Sara Norja, published with permission. © The Royal Danish Library, Copenhagen.

Most of the marginalia in **G** (my focus is particularly on the spans of leaves which include the copies of *MoA*) consist of aids to the reader, whether that reader was the original scribe/compiler or someone else. The margins are at times crowded with notes repeating phrases from the main text, drawing attention to a particular section. Clarification and paraphrasing are also among the functions of these notes. There are also some corrections to the main scribe's text. The marginalia are predominantly in English, apart from some *nota*s and very occasional Latin phrases. In addition to the written marginalia, manicules appear on f. 37v and f. 39v. The title of the first instance of *MoA* in MS **G** is a later addition (see Chapter 5).

S1's f. 41v seems to have a candle stain on it; the manuscript may have been used for practical purposes, as there are also other marks of use. However, it is unclear whether this is later use or if the stain occurred when the original scribe used the manuscript.

S2 is of particular interest, since there are signs of its being an antiquarian collection. It is the latest of the manuscripts, and during the time it was written, alchemy was already transmuting into chemistry. **S2** does not contain many instances of marginalia in either the scribe's hand or another (with exceptions on ff. 18r, 69r).

The manuscript may have been copied by someone for their own interest, and thus it is possible that **S2** represents the antiquarian interests of a person who wished to collect famous alchemical works together in one volume.

These, then, are some pieces of evidence showing that *MoA* in these manuscripts was read and used even after being initially written down. On the basis of the printed edition, the 16th century might be considered the starting point for the circulation of *MoA*. However, the two extant manuscript copies from the 15th century (MSS **TC**) show that *MoA* was circulated in manuscript more than a century before the 1597 printing.

The present section overall has been an introduction to the physical aspects of the witnesses of *MoA* – physical aspects which play a major part in any edition of a material text, as e.g. transcription is affected by the script and condition of the manuscript. My argument for choosing the copy most suitable for the best-text edition in Part II (MS **T**), given in Chapter 7, is in part based on the material aspects of *MoA*: for instance, the mutilations in MS **C** affect the text of *MoA* and are thus a textual and editorial concern.

4.3 The company *MoA* keeps: Contents of the witnesses

The previous sections have described the material aspects of the witnesses of *MoA*. This section serves as a bridge from the present chapter to the textual analysis in Chapter 5. As such, I will here examine the witnesses of *MoA* from a more textual viewpoint, and give an overview of the contents of the witnesses: that is, what kinds of texts *MoA* was copied with. I will first briefly discuss the general situation as regards scientific and alchemical texts, especially in manuscripts, and then move on to the witnesses of *MoA* in particular.

"Like was bound with like," says Robinson (1980: 61); she does not refer to alchemical texts, nor to manuscript bindings dating from the early modern period and later, but the same thing can be said of them.[143] The distinction between multi-text manuscripts and composite manuscripts should be remembered here. Although the different booklets in a composite manuscript can be (and often were) also bound together based on their shared subject matter, the texts within a multi-text manuscript are of course more indicative of contemporaneous groupings of texts.

[143] Douglas Sugano (2007: x) also notes that "booklets were bound together according to subject matter, need, or function". The manuscripts of *MoA* certainly attest to this: alchemical booklets were often bound together by later librarians and archivists, and MSS **AC**, the booklet manuscripts of *MoA* consist of alchemical booklets.

However, multi-text or composite manuscripts seem to have been alike in that alchemical texts were often bound and copied with other scientific texts, especially medical texts (Grund 2011b: 76). Grund's (2013: 432) search for alchemical codices in eVK2 (over 70 codices) produced many volumes incorporating more than just alchemical texts; he mentions medical texts in particular. MS Wellcome 564 is an example of a manuscript with both medical and alchemical writings (Voigts 1996: 815). Voigts (1989a: 348–349) mentions alchemical texts copied alongside other scientific writings, especially medicine: for instance, in TCC MS O.1.77, texts on various medicines, uroscopy, the plague, astrology, wine, and alchemy are copied in Latin and ME. This manuscript is included in the Voigts-Sloane manuscript group, studied in detail by Honkapohja (2017); many of the volumes in this group have alchemical content, but there is also medical content.[144] Pereira (1998: 38) also mentions Yale, Beinecke Library, Mellon Collection MS 8: a miscellany dated to c. 1440, in Latin and English (in an English hand), with alchemical and medical texts in both languages.

Latin alchemical texts might occasionally be copied with texts on natural magic,[145] as in Oxford, Corpus Christi College MS 125 and some other manuscripts originating from St Augustine's Abbey in Canterbury (Page 2013: 14–15, 20, 34–35, 43).[146] However, as evidenced above, medicine is the science that is most often connected to alchemy. In the manuscripts I have consulted,[147] especially English-language alchemical texts most often appear with other alchemical texts, whether in English or in Latin.

Another feature that appears to be if not common, then not unusual, with early scientific texts is copying into manuscripts from print exemplars, especially during the slow transition from manuscript to print (Gillespie 2003: 54–55; Varila 2016: e.g. 263–278). As Chapter 5 will show, this tendency is relevant for MSS **S1S2**.

144 Honkapohja (2017: 9, Table 1) lists the contents of the Core Group manuscripts as being alchemy, magic (Sloane 1118); alchemy (Sloane 1313); medicine, magic, ageing (Sloane 2320); alchemy (Sloane 2567); herbals (Sloane 2948); and medicine, some alchemy (Add. 19674). See also Voigts (1990).

145 Natural magic "encompassed properties and processes in nature that were viewed as extraordinary but natural marvels" (Page 2013: 31).

146 Page's book is a case study of a single monastery's collection, so of course her examples of how medieval magic and alchemy could be connected even within the same manuscript may not be representative of the situation in Latin.

147 I have personally viewed 32 manuscripts (including both Latin and English alchemical texts) in the Bodleian Library, British Library, Cambridge University Library, Corpus Christi College (Oxford), Gonville & Caius College, Kongelige Bibliotek, Royal College of Physicians, Trinity College Cambridge, and Wellcome Library.

Alchemical texts in general, then, are often transmitted together with medical or other scientific texts. The witnesses of *MoA* correspond somewhat to these general tendencies. Many of the witnesses of *MoA* are collections focusing solely on alchemical texts: *MoA* is copied together with texts in the same domain. As to the kinds of texts: the manuscripts mostly consist of treatises, but recipes and other items are also included; there is also some alchemical verse. Table 4.6 shows the various kinds of texts included in the witnesses. As in Section 4.2, the composite manuscript **A** only includes Part III in the Table, i.e. relating to the immediate textual context of *MoA*. Likewise, **C** includes the manuscript's first two Parts. However, as a general note, the other booklets in MSS **AC**[148] also consist almost entirely of alchemical material: the people who bound the booklets together were forming collections of the same type of material.

Table 4.6. Kinds of texts in the witnesses of *MoA*.[149]

Siglum	Types of text included
A	Alchemical treatises (mostly prose, one in verse), calendar, astrological tables
C	Alchemical treatises (in prose; one in verse although copied in prose format), recipes (predominantly alchemical, some medical), alchemical notes, nativities
G	Alchemical treatises (in prose, one in verse), lists of alchemical items bought, alchemical recipes, alchemical verse, alchemical notes (experiments etc.), recipe for a drink, medical recipe
Oli	Alchemical treatises (in prose)
S1	Alchemical notes, excerpts, and short treatises (mostly in prose)
S2	Alchemical treatises (in prose), alchemical recipes
T	Alchemical treatises (in prose; one in verse although copied in prose format), alchemical recipes

I have personally examined the *MoA* manuscripts (apart from UvA MS PH319, for the reasons discussed in Section 4.1.1), and uncovered their contents. My manuscript descriptions in Appendix 1 give more detailed contents for the manuscripts that have

148 Voigts (1989a: 368) calls **C** an "English and Latin alchemical and medical compendium". I take this as referring to the manuscript as a whole, but of course "compendium" as a term may acknowledge its composite nature.

149 The kinds of texts are in a rough order from most to least common. Quantification would have been exceedingly time-consuming and I did not consider it necessary for the present purposes.

not been previously described in more detail (MSS **CGS2T**).[150] I will describe some aspects of the contents of the witnesses in what follows.

MS **A**, as noted in Section 4.2.1, is formed of six booklets. They all have a predominantly alchemical focus, but are otherwise diverse. The third booklet (Part III), containing *MoA*, is the only one that seems to have been produced in a more professional context, as mentioned with regard to the layout and decoration. Part III predominantly consists of alchemical treatises, but it opens with astrological material: a table concerning the planets that dominate each weekday (f. 1r), a calendar (ff. 2r–7v), an astrological chart (f. 8r), and an unfinished nativity chart (f. 8v). After that there is a shift to alchemical treatises, two in Latin and the rest in English (although in these, Latin is used e.g. for titles and other paratextual elements: see Chapter 6). There is a very fragmentary contemporaneous list of contents on f. 75v, the last leaf of Part III. This list only includes three items: <in ignotu*m* {sigil} ignocius>,[151] <in Joh*an*n*i* Dastians visio*u*n>, and <in multiphare>, which refers to *MoA*.

MS **C** is formed of six booklets, all alchemical in nature. Part I has alchemical treatises and recipes in English, with some Latin titles. The treatises include *The Mirror of Lights*, ff. 1r–10v (see Grund 2006b). The treatises and recipes are on various aspects of alchemy, such as furnaces, vessels, and alchemical procedures. The Part finishes with extracts from George Ripley's alchemical poem *The Compound of Alchemy*, written as prose (ff. 41v–45v, not catalogued in *DIMEV*). Part II of **C** mostly consists of alchemical treatises, of which *MoA* is the longest, and recipes in English. It begins with some medical recipes, however, after which there is an unfilled calendar chart and some nativities (f. 49r). *MoA* follows, after which there are recipes and two short alchemical treatises, and more recipes. Some of the treatises and recipes are in later, 16th-century hands.

MS **T** consists predominantly of alchemical treatises in Middle English; there are two slightly longer sections in Latin (f. 4r and ff. 13r–14r). Some alchemical recipes appear to be interspersed with the first treatise. *MoA* is one of the longest treatises in **T**, and is attributed to Roger Bacon only by a later annotator of the manuscript. **T** also contains a complete version of Ripley's *Compound of Alchemy*

150 Anke Timmermann (2015) includes descriptions of MSS **CT** in her catalogue of alchemical texts in Cambridge repositories; however, my interpretations of the textual contents differ somewhat from hers. Timmermann includes a list of the contents of the entire MS **C** (2015: 496–501) and MS **T** (2015: 403–405).

151 The alchemical sigil in this note is unclear.

(ff. 27r–37r), written as prose with double virgulae marking line breaks, and a prose epilogue to the *Compound* (f. 37r–v).

MS **G** has a wide range of material in it, all of it in English; there are some Latin headings. There are many alchemical treatises, but also recipes, diary entries, and lists. **G** could perhaps be called a commonplace book, as it has not been compiled in any systematic way, although the texts within it are mostly longer than mere snippets. The material appears to have been accreted over a period of time, and is miscellaneous in nature – but all of it relates to alchemy in some way. Even the account list on ff. 15v–16r details items bought or sold for alchemical work. There are also some alchemical poems amidst the other materials. The only items that are not explicitly alchemical are towards the end of the manuscript: a culinary recipe for "a pleasant drinke", and a medical recipe "for to kill the woormes" (both f. 174). *MoA* is copied twice, in different versions (see Sections 5.1 and 5.2); it is possible that the scribe did not see them as the same work.

As mentioned above, MS **S1**, like **G**, could be called an alchemical commonplace book – and with more reason, as it is mainly formed of very short excerpts. **S1** is an alchemical collection compiled in the 17th century by a single person. Based on its messiness, the presence of many notes concerning how best to perform some alchemical process, and the use of alchemical sigils, it may have been a practising alchemist's personal compilation. **S1** contains alchemical recipes, excerpts, and treatises in Latin and English, with the majority in Latin (see Appendix 1). All of the material appears to be alchemical in nature. *MoA* is followed by some other excerpts in English (see Section 5.3); e.g. f. 47v includes an excerpt from a poem attributed to George Ripley.

MS **S2** as a whole seems to be the work of a single person who collected alchemical treatises and axioms that they were interested in. This person may have been an antiquary rather than alchemical practitioner: the pages are not stained by experiments or touch and the texts copied are mainly treatises, although recipes are also included. The scribe has left a blank leaf between each copied text, possibly to make finding a certain text easier when browsing the manuscript. The volume mostly consists of treatises in English from famous alchemists such as Arnold de Villanova, Paracelsus, Roger Bacon, George Ripley, Nicholas Flamel, Raymond Lully (Ramon Llull), and Calid. There are also various anonymous texts on alchemical subjects, including some recipes, and a treatise on saltpetre (ff. 97r–102v) which concludes with the only alchemical verse in this manuscript. The volume finishes with a series of coloured alchemical illustrations of furnaces and distillatory vessels, with some explanations in French (ff. 103r–112r).

The treatises in **Oli** are listed in detail in Appendix 1. They include Hermes' Emerald Table; a commentary on the Table; "The Booke of the Secrets of Alchimie"

attributed to Calid; and "An excellent discourse of the admirable force and efficacie of Art and Nature, written by the famous Frier *Roger Bacon, Sometime fellow of Merton Colledge, and afterward of Brasen-nose in Oxford*". Unlike *MoA*, which is without doubt a Pseudo-Baconian text, the *Excellent discourse* may have been at least partly written by the actual Roger Bacon (Linden 1992: xxiv; however, it is not in the list of Baconian works in Hackett 1997a: 22).[152] These are all alchemical works, although the *Excellent discourse* is not purely alchemical, as its first part contains "listings of strange occurrences, superstitions, frauds, and deceptions to which humans fall victim" (Linden 1992: xxiv); this part seeks to explain strange phenomena through natural means and human artifice instead of magic. However, the second part is alchemical, and "seemingly carries us beyond art and nature into a realm that is entirely magical" (Linden 1992: xxiv). This alchemical part is obscure and has plenty of allegorical and metaphorical language, making it difficult to understand.

In Chapter 6, I analyse *MoA* from the point of view of translation, how translation is innately a multilingual practice, and how the interplay of Latin and English reflects the different strategies of vernacularisation of the *MoA* witnesses. To give context to the discussion in Chapter 6 as well as to the textual analysis in Chapter 5, I will briefly introduce some previous studies on the topic of the language of scientific manuscripts. Voigts (1989a: 380–381) gives some statistics for languages used in scientific manuscripts in 14th- and 15th-century England (see also Voigts 1989b: 95–96). The main takeaway from Voigts' work is that multilingual manuscripts – containing texts in more than one language – were common in the case of medicine and science, far more common than monolingual ones. Also, "the role of the vernacular both in science and medicine should not be underestimated" (Voigts 1989a: 381). Tavormina (2014: 153, fn. 6) notes that in the case of the uroscopies she studied, the multilingualism is even more striking than in the material Voigts surveyed.

It should be noted that the surveys by Voigts and Tavormina concern mostly medical material, and as such, conclusions concerning the multilingualism of alchemical manuscripts cannot be directly drawn from them. The witnesses of *MoA* consist predominantly of texts written in English; much of the material bridges the traditional periodisation boundary of Middle and Early Modern English, so in this, too, *MoA* is an example of fluidity. Of the two 15th-century manuscripts, **T** consists almost entirely of English texts, although Latin is used for e.g. titles and explicits,

[152] For more on this treatise, see Linden (1992: xxiv–xxxii).

and for two slightly longer extracts (f. 4r and ff. 13r–14r). Parts I and II in **C** are entirely in English apart from some scribbles in French on f. 49v, and some Latin titles. **A** has one treatise in Latin and is otherwise in English, although with numerous Latin titles. **G** is almost entirely in English, apart from some Latin titles and the occasional "finis" marking the end of a text. **S2** is in English, with some Latin titles (such as "Speculum Alchimiæ" for *MoA*). So, MSS **ACGS2T** are predominantly in English, although Latin is used to name texts and in headings. **Oli** is entirely in English, although there is a conventional "finis" after the final treatise (alchemical printed compendia seem to have been predominantly monolingual). The main outlier with regard to language in the witnesses of *MoA* is **S1**: this manuscript is predominantly in Latin, with English as the less common language.

Voigts (1989a: 386) considers the following three features especially characteristic for scientific and medical manuscripts from England between 1375–1500:

1) frequent compilation from booklets
2) dependence upon visual material
3) common use of English

These features would seem to be relevant for the medieval manuscripts **CT** and, I would argue, **A** (dated to c. 1500). Voigts (1989a: 348) considers it "possible to identify the medieval 'scientific book', both by its physical characteristics […] and by the kinds of texts that it contains". Of the aforementioned three features, 1 and 3 are relevant: **AC** are formed of booklets, and **T** is a short volume that may have originally circulated in a mere vellum wrapper. Although these three manuscripts include small snippets of Latin, English is predominant. So, at least **ACT** would seem to be examples of the 'medieval scientific book', as these manuscripts also contain some visual material.

In this chapter, I have described the witnesses of *MoA* from many angles that have the potential to affect the text of *MoA*. In the next chapter, I will narrow down to a definite textual focus: I will discuss the textual relationships of the witnesses described in this chapter. It will become evident that the material context is very much relevant to the textual in the witnesses of *MoA*, especially the manuscripts.

5 Textual relationships between the witnesses of *The Mirror of Alchemy*

> "Textual histories of alchemical writings are extremely complicated and a great deal of work needs to be done in this field." (Taavitsainen 1995: 83)

Irma Taavitsainen's words from 1995 are as true now as they were twenty-five years ago. The aim of this chapter is to trace the textual history of one alchemical work, *MoA*; the textual history of even this single work with its limited number of extant copies forms a complex weave of relationships. I will discuss those relationships from a translational perspective in Chapter 6; these two chapters together paint a complementary, textual, and diachronic portrait of *MoA* as a work.

Alchemical writings present a challenge on many levels. On the physical, manuscript level, they are often present in little-researched manuscripts; these manuscripts are often formed of booklets collected either in the early modern period or in more recent times. The writings collected within a single codex, thus, can vary greatly; this is the case for some of the manuscripts of *MoA*, as discussed in the previous chapter. Tracing provenances could help with identifying textual relationships, as well, but this can be difficult: at least in the case of *MoA*, the manuscripts are not identified with well-known personages and little is known of them. However, the physical aspects of the manuscript page can be a factor in determining textual relationships.

On the textual level, alchemical writings form a challenge partially due to the fluid nature of early scientific writing. More often than not, there are complexities in the textual history, and tracing the sources behind a particular text can be difficult.[153]

[153] For instance, the 16th-century alchemical treatise edited by Grund (2011b; esp. 29–69) stems from a number of different sources.

As no scholarly edition of *Speculum alchemiae* exists, going beyond it to the ultimate sources of the Latin work was not possible for the present study. In this chapter, I focus on the textual relationships of *MoA* specifically, primarily examining the English manuscripts. However, I use Latin witnesses to check readings where there is significant variation in related English copies. My main source for Latin comparison for all the copies of *MoA*, including the 15th-century ones, is the earliest printed version or *editio princeps* of *Speculum alchemiae* in *De Alchemia* from 1541 (introduced in Section 3.2.2). I refer to this version as *De Alchemia* after the volume's name. Comparison of a witness from the 16th century with witnesses from the 15th century is of course somewhat problematic. However, as the Latin work's manuscript history remains unstudied, I consider it a better option to mainly use one source of comparison rather than several disparate sources which should ideally first be collated and studied in their own right.[154]

No two manuscript copies of *MoA* are quite the same. This is hardly surprising for anyone familiar with (early scientific) manuscripts. In addition, the printed edition brings its own variation into play; throughout this study, I use the text from the copy in *EEBO* (Huntington Library 35023). Despite the textual and structural variation that will become evident through the course of this chapter, I argue that the witnesses of *MoA* can nonetheless be fundamentally identified as the same work. I make my full argument for this claim in Section 5.5 below.

Table 5.1 shows all the witnesses examined in this study. It should be noted that throughout, when referring to the *whole manuscript,* I use e.g. "MS **A**"; when referring to the *copy* of *MoA* within that manuscript, I use simply "**A**". The word count already shows that there is significant variation: the word counts range from just 2,000 words to a little over 4,000.[155] The present chapter will show the reasons for this variation.

[154] Although I have viewed all the Latin witnesses of *MoA* in the UK, most of them *in situ* (see Section 3.2.2), and have photographs of the sections with *Speculum alchemiae*, these photographs were not taken with the intent of transcription, and as such mainly provide the opportunity for broader-scale structural comparisons instead of detailed lexical ones.

[155] The word counts given here are approximate. This is due to the spelling conventions in the various manuscripts: as I will discuss in this chapter, the scribal word division does not always correspond to Present-Day English conventions.

Table 5.1. The witnesses of *MoA*.

Siglum	Dating	Folios/pages	Approximate word count
A	c. 1500	III, ff. 42v–48v	c. 4,000
C	15th c.	ff. 50r–56v	c. 3,100
Ga	16th c.	ff. 36r–41r	c. 2,400
Gb	16th c.	ff. 117v–126r	c. 3,900
Oli	1597	pp. (unnumbered p. A2)–16	c. 3,800
S1	17th c.	ff. 39r–42v	c. 2,000
S2	17th c.	ff. 42r–46v	c. 3,500
T	15th c.	ff. 17v–21v	c. 4,100

In this chapter, I trace the textual relationships of the witnesses of *MoA* as far as possible. I also examine the relationship of the witnesses to their exemplars, where this is possible to find out. From a textual perspective, the manuscript copies of *MoA* can be divided into four groups:

1) Manuscript translation with prologue (**ACGbT**)
2) Manuscript translation without prologue (**Ga**)
3) The 1597 printed edition (**Oli**, **S1**)
4) Translated from *Theatrum Chemicum* (**S2**)

These Groups correspond to different *versions* of *MoA* (cf. the terminological definitions in Section 1.3). Groups 1 and 2 are named as they are because the presence or lack of a prologue is the clearest identifying marker between them. The names of Groups 3 and 4 stem from the sources of those versions. The main purpose of the names is to distinguish between the Groups in a meaningful and memorable way.

Figure 5.1 presents a visualisation of these groupings. As the Figure shows, there are no connecting relationships between the Groups themselves. However, Group 1 can be divided into two textual subgroupings, discussed below in Section 5.1. Group 1 is the only one of the groups to include more than one manuscript, but Group 3 also has a printed witness (**Oli**). These Groups become evident when comparing the witnesses on a textual level, as I will discuss in detail in the following sections. Figure 5.1 shows that the two copies in **G** belong to different groups: I will discuss this below in Section 5.2.

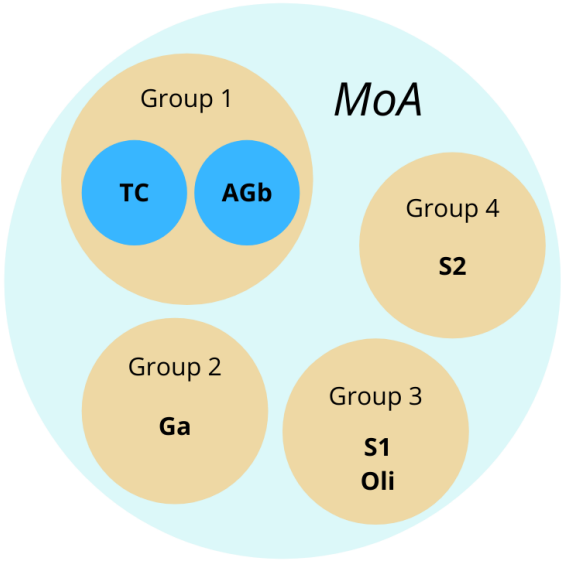


Figure 5.1. The textual groupings of the witnesses of *MoA*.

The titles of the witnesses of *MoA* are a good starting point for my argument that there are four textual groups. In this study, I call the work being edited *The Mirror of Alchemy* (*MoA*), which is the title this work is now known by. However, this title is far from common in the early witnesses, as Table 5.2 shows. Indeed, this mirror-title only appears (in English) in the post-15th-century witnesses. The title was probably influenced by the printed tradition, likely beginning with the Latin printed edition of *Speculum alchemiae* in *De Alchemia*. That a consistent title turns up later than the work itself is not surprising, especially considering medieval conventions of titling, or rather, the lack of any specific conventions; titles were not considered as important as they later became (Gibbons 2008: 198). As Sharpe (2003: 43–44) remarks on the variation in medieval titles: "It is a plain fact that very many medieval works, and many late antique works too, travel under a wide variety of titles and often under the names of several different authors."

Table 5.2 shows that the Group 1 copies **ACGbT** have a *rubric* in addition to or instead of a title. Rubric here refers to a short text, separate from e.g. the prologue, which gives the overall topic and introduction to *MoA.* I use rubric in this sense "whether it appears in red or not" (Beal 2008, s.v. *rubric*), and thus there is a distinction in meaning between *rubric* and *rubrication* (writing in red ink). **AT** rubricate the rubric, **CGb** do not. As Group 1's rubric starts 'here begins', it might also be called an *incipit* in the sense that it declares the beginning of a new text.

However, as *incipit* is commonly used in present-day scholarship to mean *any* "initial or opening few words of a text that may serve to identify that text" (Beal 2008, s.v. *incipit*), I have chosen to use *rubric* to indicate this specific introductory section of text in *MoA*.

The transcriptions throughout this chapter represent the original scribal text faithfully apart from one aspect: I have not retained original line breaks in the examples (although they are retained in the edition in Part II).

Table 5.2. The titles and rubrics of the witnesses of *MoA*.[156]

Siglum	Title	Rubric
A	Liber Multipharie	"Her begynnyth a compe*n*dyose ab*s*stract of alkany drau=yn oute of latyn vppon whate wyse ȝe schall werke w*ith* oute erroure vnto a trewe conclucyo*u*n of a p*er*fyȝte Elyx*er*e both for y^{e} whyete & for y^{e} Rede . & c" (f. 43r)
C	(no 'title')	"Her be gy*n*neth a compendyos Abstrace of Alkamy drawyn out of latyn by \a/ trew grou*n*nde on what whys ȝe schall whirch w*ith* out Error to trewe *con*clu*cio*u*n* of Ap*er*fit Elix*er* bothe for whyȝt & þe rede & c" (f. 50r)
Ga	Bacon his lookeinge glasse of Alchemye (this title is a later addition in a different hand)	(no rubric)
Gb	Liber Multipharie	"Here begynneth a compendious abstracte of Alkamy drawen oute of latten vpon what wise ye shall worke without erro*ur* vnto a true conclusyon of a perfect Elixer both of the white and of the Redd" (f. 118r)
Oli	THE Mirror of Alchimy, Composed by the thrice-famous and learned Fryer, *Roger Bachon,* sometimes fellow of *Martin* Colledge: and afterwards of *Brasen-nose* Colledge in *Oxenforde.*	(no rubric)
S1	The mirrour of alchimie composed by y^{e} famous fryer Roger Bachon . sometime fellow of martin colledge and brasen nose colledge in oxenforde	(no rubric)

[156] It should be noted that while I indicate the line numbers for **T**, **ACGb** are referred to by leaf. This is because **T** is the base text for the best-text edition; the other copies cannot have line numbers as their texts are not transcribed in full in the present edition.

S2	The Speculum Alchimiæ of Roger Bacon	(no rubric)
T	(no 'title')	"Her be gynneth A compendeose Abstrace of Alkamy draven ouȝte of latyn*n*e be Atrewe grownd vpon*e* wate wyese ȝe schall werche w*i*t*h* ouȝte error*e* vnto Atrewe conclu*c*io*u*n of A p*er*fete Elyx*er*e both for þ^{e} whyete & þ^{e} Rede & c" (ll. 1–3)

Overall, the titles indicate the Group divisions I have proposed above – even the subdivisions of Group 1. The Group 1 manuscripts **ACGbT** all have rubrics which implicitly call the work 'a compendious abstract of alchemy'.[157] The Group 1 subgroup division is evident: **AGb** have a title, "Liber Multipharie" (this translates to 'Manifold Book'), whereas **TC** do not title the work at all. Of the Latin manuscripts of *Speculum alchemiae* which I have consulted, one is titled "Multipharie" (BL MS Harley 3528, from the 15th century; see Table 3.4 and the discussion in Section 3.2.2).[158] Group 1 does not attribute the work to Bacon. As discussed in Section 3.2.2, 15th-century Latin manuscript copies of *Speculum alchemiae* do not originally attribute the work to Bacon either.

Group 2, formed only of **Ga**, has no contemporaneous title, but neither does it have a rubric; however, a later annotator has titled the work "Bacon his lookeinge glasse of Alchemye", connecting the work with Roger Bacon and using a 'mirror' type title. Groups 3 and 4 also have 'mirror' titles, although they are not identical: Group 3, formed of **Oli** and **S1**, has a longer title including Bacon's collegial affiliations; Group 4 has a Latin title with an attribution to Bacon. The titles of Groups 3 and 4 in particular derive from the source texts of those Groups, discussed

[157] This rubric suggests that *MoA* may have features of Grabes's (1982) second subcategory of mirrors, as it deals with alchemy in a compendious manner. However, Grabes views category (ii) as treating broader themes than a single branch of science.

[158] As mentioned in Section 3.2.2, "Multipharie" comes from the first Latin word of the prologue of *Speculum alchemiae.* The Latin *Speculum alchemiae* is referred to in Thomas Norton's *Ordinal of Alchemy*: "Arnalde shewith in his writynge [...] In his boke bigynnynge multipharie" (ll. 1217–1221, Reidy 1975: 40; here, the *Speculum* is seemingly attributed to Arnold of Villanova). Indeed, Reidy (1975: 124) notes that Multipharie is "[p]robably the *Speculum Alchimiae* attributed to Roger Bacon, which imitates the opening of Paul's *Epistle to the Hebrews*: 'Multipharie multisque modis loquebantur olim philosophi...'". Indeed, the Epistle begins: "Multifariam, multisque modis olim Deus loquens patribus in prophetis", (see *Douay-Rheims Bible* online, the Latin Vulgate Bible; this is "God, who at sundry times and in divers manners spake in time past unto the fathers by the prophets" according to the King James Version). It is thus possible that the beginning of *Speculum alchemiae* harks back to the Epistle.

in Section 6.2. The mirror-titles thus appear in the English work only after the medieval period, even though there is some evidence of a mirror-title for this work existing (in Latin) even in the 15th century: for instance, the Latin copy from 1474 in BL MS Add. 15549 is titled "Speculum Alkemie" (f. 101r) in the main scribe's hand. Table 3.4 in Section 3.2.2 shows the Latin titles in the manuscripts that I have consulted.

Grabes remarks (1982: 12) that in English literature, the mirror metaphor is especially frequent from 1550 to 1650. This would seem to correspond with the mirror-title of *MoA*, as the English printed edition (translated from the French *Miroir d'alquimie*) was published in 1597, and the mirror-titles in the extant witnesses are from after that – the title added by a later hand in **Ga** is in a probably 17th-century italic hand.

The titles of the *MoA* witnesses are a preliminary indication that the witnesses of *MoA* can be divided into four Groups (versions). However, I must stress that my division into Groups is not intended to be a stemma: there is simply not evidence for an interconnected 'family tree' of all of the extant *MoA* witnesses (but see Section 5.1 for the connections within a single Group). My examination of the translation histories of these Groups in Section 6.2 will show that the different versions emerged independently, which means that there is no single ultimate exemplar that the *English* work emerged from. A recension of the Latin witnesses would help to clarify the matter, but as mentioned previously, the Latin tradition is still unstudied.

The methodology I use in this chapter is grounded in the fundamental concepts of textual criticism, and my textual work with the witnesses of *MoA*, resulting in the present chapter, has been woven together with my editorial work (which, of course, has resulted in the best-text edition of *MoA* in Part II). For instance, my collation of the Groups has both enabled my analysis in this chapter and informed my textual apparatus in the best-text edition. I defined such key concepts as *work*, *text*, *version*, and *document* in Section 1.3; in this chapter, I will look in detail at the *texts* of the individual *documents* of *MoA*, in four *versions* which make up the extant evidence for the *work* as a whole. However, a brief terminological foray is required for the particular terms I use for examining the textual variation in *MoA*.

W. W. Greg's influential article 'The Rationale of Copy-Text' (1950/1951) proposes the categories of *substantive* and *accidental* for the types of variants encountered in textual comparison. Greg uses substantive for significant readings which affect the meaning of the text, and accidental for readings which mainly affect the "formal presentation" of the text, e.g. spelling, punctuation, etc. (Greg 1950/1951: 21). The framework I use in the present study is related to Greg's categories; however, I have chosen not to use the terms accidental and substantive in this study. The reason for this is that I consider there to be no clear line to be drawn

between the two: *substantive* and *accidental* are not in binary opposition to one another.

It should also be noted that Greg's categories were mainly aimed at the study of printed books, and thus may be problematic with relation to manuscripts. In addition, since I am not concerned with authorial intent (see Section 7.1), using terminology connected to that concept does not seem useful for my purposes.[159] Greg suggests that an editor should follow the accidentals of a text while choosing the most suitable reading in terms of substantives (1950/1951: 22). As I will explain in Chapter 7, this runs counter to my editorial principles, which centre on retaining an authentic historical text. However, even though I do not pick and choose between variants, examining variation between witnesses through collation is of course the only way to accurately determine textual relationships. As such, it is necessary to determine which variants are more significant.

My approach to variants is linguistically oriented. The terminology I use for discussing the variants in the witnesses of *MoA* involves the concepts *major* and *minor*. These in many ways overlap with *substantive* and *accidental*, but, in my view, are less tied to ideas of authorial intent and scribal error. I define major and minor here as regards the *semantic significance* of the variant: major variation affects syntactical differences or (especially) the meaning of the text, while minor variation does not. In my textual analysis, the order of the discussion runs from major variants to minor. I discuss the major variants in more detail than the minor variants: the minor variants are dealt with in a more summarising fashion to give a general picture of the scope of the variation. These terms have not been much used in textual studies. However, at least Spencer (1972) uses major and minor in the same sense that I do; he mentions *substantive* and *accidental*, but uses *major* and *minor* throughout his examination of variation in editions of Shakespeare's *Merchant of Venice.*

Major variants include obvious differences such as using a different lexeme, even just a different preposition; omission of entire words or phrases; and variation in syntax. These kinds of variants are marked in the textual apparatus of the best-text edition. These variants are major because they can and do (potentially) change the meaning of a passage. Minor variants consist of such things as orthographical

[159] As Greg puts it (1950/1951: 21–22): "As regards substantive readings their aim may be assumed to be to reproduce exactly those of their copy, though they will doubtless sometimes depart from them accidentally and may even, for one reason or another, do so intentionally: as regards accidentals they will normally follow their own habits or inclination, though they may, for various reasons and to varying degrees, be influenced by their copy." In other words, Greg assumes that a copy always intends to follow its exemplar, even though as seen in the following sections, the manuscript copies of *MoA* often present intriguing evidence of purposeful scribal editing (cf. Love 1992: 315).

variation and punctuation, and are too numerous, in early manuscript material, to mark separately: to do so would severely impede the readability of the best-text edition. In this chapter I also take a more holistic approach where relevant, and include visual aspects such as layout in the overall comparison of minor variation, especially in cases where there is a rather clear exemplar–copy relationship. I consider aspects such as these minor because while they contribute to the variation, they do not affect the content of the text. Orthographical variation is of course often an indication of dialectal variation (McIntosh et al. 1986), and as such is a far from 'minor' matter; however, discussing orthography on as detailed a level as the major variants is not feasible for the purposes of my study, as dialects are not my focus.

I do not distinguish between scribal variation and authorial revision (cf. Pearsall 2013: 202), as there is no evidence to back up any authorial (or translatorial) status for any of the witnesses of *MoA*. Since my viewpoint is primarily that of a linguist with regard to variation, as well as in the edition in Part II, all evidence of past language use is valuable, no matter the producer of that language: thus, all scribal variation is as equally valuable as any more 'authoritative' variation. Besides, scribes, on average, appear to have been concerned with accuracy (Beadle 2013: 239) and thus their revisions and corrections are valid editorial work (see Wakelin 2014).

Major variation is of crucial importance in defining textual relationships, whereas minor variation cannot be considered a defining factor. This is because, as Beadle (2013: 225) puts it: "Many Middle English scribes were effectively engaged in making simultaneous graphetic and graphemic translations of their copy, rendering respectively the script and the language of their exemplar in their own hand and idiolect."[160] In other words, even when scribes copied 'accurately', they would tend to use whatever hand(s) that they were used to, as well as usually adapting the text of exemplar to the dialect most familiar to themselves. Thus, e.g. orthography cannot usually be used as a definitive marker of textual relationships, as even a direct (or most likely direct) exemplar–copy relationship may include marked differences in spelling.

Having defined these central terms, I will move to the textual analysis that uses them. The central question I seek to answer in this chapter is the following: How do the witnesses of *MoA* differ from each other, and what are their textual relationships?

In the following sections, I will present the textual evidence for the group divisions in Figure 5.1. This chapter acts as a textual companion to my edition of

[160] *Graphetic* refers to transcription on the detailed level of letter-form, including distinctions such as long and short <s>; *graphemic* refers to transcription according to whether the letter is semantically distinct or not (cf. the linguistic term *phoneme*).

MoA. The individual textual (major) variants are noted in the best-text edition; in this chapter I will give an overview of the differences and similarities between the copies, with examples to support my textual arguments. I use the rationale described above when describing the textual variation in the four Groups: that is, I describe the major variants in more detail where there are multiple manuscript witnesses, and compare to other Groups where applicable. I discuss minor variants on a broader scale. As mentioned, I compare relevant sections of the text of *MoA* with the corresponding sections in Latin witnesses of *Speculum alchemiae*, mainly *De Alchemia*. Chronology plays no part in the division into Groups. However, in the following sections, the Groups are presented in order of chronology: Group 1 includes the oldest manuscripts, and Group 4 the latest. In Section 5.5, I will weave together the strands of discussion and summarise my argument for the group divisions.

The titles, discussed above, have already preliminarily suggested that my division into four Groups is justified. Titles, though, are changeable. As preliminary evidence for what follows in Sections 5.1, 5.2, 5.3, and 5.4, then, I will give an example from Chapter V of *MoA*, and explain why this extract immediately shows that four different versions are at play. Groups 1 and 3 have more than one witness; here, **T** represents Group 1 and **Oli** Group 3.

The extract concerns the kind of furnace that should be used for making the Philosopher's Stone: if the alchemist wishes to follow nature, they must make a furnace that will not let any heat escape. All versions of *MoA*, here, have essentially the same information content, as the extract was chosen for ease of comparison; the example has been divided up according to information content. Here, I wish to draw attention to the different words used for the same concepts, as well as the additions and the differences in syntax.

Table 5.3. Overall comparison between the Groups.

Group 1	Group 2	Group 3	Group 4
ther for syth whe p*ur*pose to folowe nature ./	Therefore yt followeth yf we will followe kynde & nature	If therefore wee intend to immitate nature,	therefore if whe intend to – follow nature,
lette vs make suche Afurnace	The furnysse shall be made	we must needes haue such a furnace like vnto the Mountaines, not in greatnesse, but in continual heate,	whe must have necessarely a furnace like into a mountaine, not big but of a Continual heat
þat þ^{e} fyere w*ith* In when yt schall Ascende	that the fyer when he Assendeth vp	so that the fire put in, when it ascendeth,	also that the fire when it ascends .
goo noȝte ouȝte In noon*ne* wyse	shall not ought neither yt maye go oute in no wise	may finde no vent	may finde no way to goe out
(**T**, ll. 213–214)	(**Ga**, ll. 164–167)	(**Oli**, p. 11)	(**S2**, ll. 213–216)

Here, no Group has the same choice of combined words: in the very first sentence, for instance, Groups 3 and 4 both use "intend", but Group 3 reads "immitate" and Group 4 "follow". This already suggests that the four Groups are distinct versions in which different lexical choices have been made. Groups 3 and 4 have a comparison of the furnace to a mountain which Groups 1 and 2 do not; this suggests similarities between Groups 3 and 4. However, Groups 3 and 4 express the same concept in different ways, as the distinction between "may finde no vent" (Group 3) and "may finde no way to goe out" (Group 4) shows. Groups 1 and 2 make similar lexical choices, but Group 2 sometimes expresses the same meanings with word pairs instead of a single word ("kynde & nature").

As I will discuss in Chapter 6, the four Groups are in fact different translations – so, the example above shows that they have made different translational choices. As I discuss to some extent in this chapter and more in Section 6.2, the four Groups mostly stem from different source texts, which also in part explains the differences. No version was influenced directly by another; they are all independent. The extract in Table 5.3 thus already shows that the four Groups of *MoA* are very distinct in their lexical choices and overall. In the sections that follow, I will further explore how the Groups differ from each other, and in the case of Groups 1 and 3 (with more than one witness), what the inter-Group relationships are.

5.1 Group 1: Manuscript translation with prologue

Group 1 consists of four manuscript copies of *MoA*.[161] In the following subsections, I will present the evidence for why I consider these four manuscript copies – **ACGbT** – to form a unified textual group. The manuscripts have especially strong textual connections even beyond *MoA*: a similar group of treatises appear in several of the manuscripts. Indeed, some previous research has already noted general relationships between the manuscripts **ACGT** (Part III, in MS **A**'s case). Linne Mooney (1995: 121), in her *IMEP* handlist for Trinity College manuscripts, briefly remarks that MS **T** has "many similarities of content with" MS **A**. Irma Taavitsainen has noted the shared texts in MSS **A** and **G** (1995: 82); she observes that these manuscripts include "the same sequence of treatises". Margaret Connolly (2011: 143) also notes the connections between MSS **ACGT**, using these manuscripts as an example of the textual connections between alchemical anthologies.[162]

In order to analyse the textual variation, I have collated the copies of Group 1. I chose **T** as the base text for my collation of all four Group 1 copies, as **T** is also the base text for the best-text edition of *MoA* in Part II; I explain the reasons for this choice in Section 7.3.2.

The extract in Table 5.4 below, from Chapter III, demonstrates the overall similarities between the copies of *MoA* in **TCAGb**, while also showing some of the major variance.[163] As in Table 5.3, the passage has been divided up into shorter sections to make comparison easier. The extract describes why it is not possible to transform a substance into something else if the desired outcome is too far away from the original substance. That is, the substance chosen as the basis for the Stone/Elixir must be related to the substance one desires to make (such as gold). The extract explains that the reason for this is that, as Aristotle says, two natural contraries

[161] UvA MS PH319, which I was unable to access as research material for this study (see Section 4.1), would belong in Group 1: according to eVK2, the rubric, beginning of the prologue, and beginning of the main text are the same as in the Group 1 manuscripts. The rubric (f. 10r) begins "A compendious abstract of alchemy drawn out of Latin by a true ground"; the prologue (ff. 10r–11r) begins "To all the virtuous and well disposed people of God willing to keep and fulfill", and the main text (ff. 11r–17v) begins "To know what is alchemy it behooveth you to consider the words of Hermes which saith". These excerpts are especially tantalising since they show variation that is not in the other Group 1 copies. This manuscript is from the 16th century and thus shows post-15th-century transmission of this version of *MoA,* like **Gb** does. As mentioned in Section 4.1, I will include MS PH319 in future research on *MoA*.

[162] I will explore the broader textual relationships between these manuscripts in detail in a future article (Norja, in prep).

[163] I refer to the manuscript copies in this order since **T** is the base text for the best-text edition, **C** is closely related to **T**, and **AGb** are their own subgroup.

cannot exist in the same substance, and thus every change (*MED* s.v. *inprescioun*, subsense 3b) must be made from a substance having similar properties as the desired outcome. As humans procreate humans and lions lions, so nature enjoys nature; the section that follows is a little complex, and will be discussed further in Section 5.1.2. What is especially notable about this passage is that this information content only occurs in Group 1, not in any of the other Groups.

Table 5.4. Extract from Chapter III, Group 1.

T	**C**	**A**[164]	**Gb**
A resou*n*e ys þys . Arystotell seyth þ*a*t . 2[u] . *contr*aryes naturall may no*ȝ*t be to gedere In oon*n*e bodye	A reson is þis . / Arystotell seyth þat . 2 . *contr*aris nat*ur*all may not be to ged*ur* In oo body ./	A resone is yis Arystotyll seythe y*a*t . 2 . *contr*aryes naturall may note be to geder in on bodye	A reason is this Aristotle sayth that 2 contraryes naturall maye not be togeather in one body
þen yt foloweth After be Argumente þ*a*t eu*er*y Inp*r*essyo*u*n schulde be made of þyng*es* hauynge oon*n*e natur*e*	þan it folowethe Aft*er* by Argumente þat eu*er*y Inp*r*essio*u*n schuld be made of þyng*es* hauyng oo . nat*ur*e .	yen it folowethe after y[e] argumen*t*e y*a*t eu*er*y inp*r*essio*u*n schulde be made of yyng*es* ha=uynge oon nature	then yt followeth after the Argument that every ymp*r*ession should be made of thinges having one nature
why seyth no*ȝ*t þ[e] phelosophe*r* þ*a*t Aman*n*e genderth Aman*n*e . Alyon*n*e genderth Alyon*n*e .	why seyth not þe felesofre // þat Aman genderthe Aman A lyon gendride A lyon ./	why seyethe not y[e] phylosophere a mane gen=derythe a mane . A lyon genderythe a lyon .	whie sayth not the Philosopher a man gendreth a man A Lyon gendreth a Lyon
thus nato*ur* loyeth natur*e* & skyth ys *contr*arye .	thus nat*ur* loyethe nature . And skyth h\i/s[165] contrary /	thus nat*ur*e loyeth . nat*ur*e	thus nature loyeth nature
(**T**, ff. 18v–19r, ll. 100–107)	(**C**, f. 51v)	(**A**, f. 44r)	(**Gb**, f. 120r–v)

Overall, the extract shows how textually similar the four Group 1 copies are. The same lexemes follow each other mainly in the same order. The differences in orthography and punctuation, i.e. minor variation, are an ordinary part of textual transmission in an age before standardised spelling. The major thing to note in the extract in Table 5.4 is the section where **TC** have "& skyth ys *contra*rye", and **AGb**

[164] As I will discuss in Section 5.1.3, the MS **A** scribe does not distinguish between <y> and <þ>, using the same grapheme for both. I have chosen to represent this as <y>.

[165] Above, a different (but 15th-century) hand has inserted an interlinear correction in a much lighter ink: <eschevythe hys>.

do not. I discuss the peculiarities of this wording more below, but what is notable is that it is missing in **AGb**. This is an example of more general tendencies in the Group 1 manuscripts, where **TC** have some readings that **AGb** do not. I consider **TC** and **AGb** to fall into two different subgroups within Group 1: missing passages such as this are one reason for this division.

Table 5.4 shows the relative unity of the Group 1 copies; this unity is indicative of my central argument, which is that **TCAGb** are copies of a common *version* of *MoA*. In what follows, I will demonstrate the similarities of Group 1 through three aspects, moving from the broader to the more specific.

5.1.1 General structure

Textual structure is a useful starting point when comparing texts that are believed to be closely related, as it is likely to reveal commonalities and divergences on a broader level. With *structure*, I refer to the internal organisation of elements within a text: the discrete parts of a text such as rubrics, prologues, and chapters. All the *MoA* copies in Group 1 are quite similar in terms of overall textual structure: they follow the general information content and structure of the work. However, the word count of the copies varies to a perhaps surprising extent, as seen in Table 5.5. **T** has the highest word count; this is due to that copy having more metatext than the others (see below). **C** is significantly shorter due to lacunae in the text caused by mutilation of the manuscript; I discuss this below. **Gb** is a little shorter than **A**, which can be explained by some omissions.

Table 5.5. Length of Group 1 texts.

Siglum	Dating	Folios	Word count
A	c. 1500	42v–48v	c. 4,000
C	15th century	50r–56v[166]	c. 3,100
Gb	16th century	117v–126r	c. 3,800
T	15th century	17v–21v	c. 4,100

All four copies in Group 1 have a rubric, a prologue, (**AGbT** have a list of chapters),[167] and the seven chapters of the work proper. The chapter divisions are textually and/or paratextually marked, for instance with chapter numbers written in the margins as in **C**, or as headings in red ink in **A**. The chapters appear in the same order and with the same content. The Group is the only one to have a rubric; this particular rubric is not found in any of the Latin manuscripts.

As mentioned, the Group 1 copies all include a prologue; they also have additional text following it, which I call the 'preamble' to the main text of *MoA*. The preamble was not described in Section 2.1.2 along with the rest of *MoA* since it only appears in Group 1. The preamble gives a long list of alchemical processes and substances that people have worked with (**T**, ll. 30–37), and notes that the craft of alchemy is fulfilled with one thing, one stone, and one way (i.e. decoction) and one vessel (**T**, ll. 37–39). Thus, above all other writings, the reader should base their work on the seven chapters of the treatise, which reveal the transformation of 'seven mineral bodies' (**T**, ll. 39–43).

I consider the prologue and preamble to be structurally separate entities in Group 1. This is due to two reasons: firstly, the prologue, in **T** (f. 18r), is followed by "&c" – a common way to indicate the ending of a section – and the rest of the line is filled with a linefiller stroke. The preamble begins with a larger initial on a new line. Secondly, in **AGb**, the prologue (ending in "&c") has been copied in an erroneous order, and instructions for its correct location in **A** place it between the rubric and

166 Catalogues (e.g. Singer 1928, under *DWS* 751, i.e. Group 1) list *MoA* in **C** as spanning more folios: ff. 50r–59v, that is, three folios more than indicated in this table. Singer lists an explicit for **C** ("they maybe an ende wher they shulde haue begone. Ramundus de lapide") which is not actually the explicit for *MoA*, but of a different, anonymous alchemical work (see item 9 in the description for **C** in Appendix 1). This is a case of the vagaries of alchemical cataloguing when not much is known about the works being catalogued. The mutilation of some leaves in **C** (see below) may have added to the confusion of knowing how to divide up texts into different works, and because no one has looked into MS **C** concerning this detail before, Singer (and Keiser 1998b: 3805) have retained the erroneous foliation.

167 This does not appear in **C** due to the lacunae discussed below.

preamble. In other words, the scribes themselves treat these two components of *MoA* as separate.

The anomalous placement of the prologue in **AGb** is one of the main differences between the copies in Group 1. The subgroups of **TC** and **AGb** are observable even based on structure, and I discuss the textual evidence for them below. In the present section, I will first describe the overall structure of the base text **T**, and then move on to the other copies, comparing them with **T**.

MoA in MS **T** has no title: this is usual for the texts in that manuscript. The text of *MoA* begins with a rubric in red ink, and proceeds into the prologue.[168] The 'preamble' to the main text comes next, followed by a list of the seven chapters in the treatise. The layout of this list clearly marks it as such: that is, unlike in some of the Latin copies of *Speculum alchemiae* (e.g. TCC MS R.14.44), where the chapters are listed as part of the running text, the list in **T** has the numbered chapter titles one under another, leaving empty space on the page. The seven chapters follow this list, in order, with chapter numbers added to the margins of the text by the original scribe. Chapter III includes 'six conclusions' concerning what matter the Philosophers' Stone should (not) be made from: for instance, that vegetable or animal materials should not be used to prepare the Stone. These six conclusions appear in all copies of Group 1, and are one of its defining features of textual organisation: the conclusions are numbered and mentioned in the text by number. The other Groups include the same content, but do not explicitly divide up the arguments into *conclusions*. Indeed, the division into six conclusions appears to be a unique feature of Group 1.

Moving on to **C**, then: overall, this copy appears to have the same textual structure as **T**. However, **C** has several lacunae due to the mutilation of some leaves.[169] *MoA* in **C** is on ff. 50r–56v. A leaf has been lost from between current ff. 50 and 51; in addition, parts of ff. 51 and 56 have been cut off at some point of the manuscript's history. Thus, sections of the text are quite literally missing. In general, the text in **C** corresponds closely to that in **T** (see Section 5.1.2.1), so it can be surmised that the structure of the missing text is close to **T** as well. Since the lacunae are due to mutilation rather than scribally motivated, I consider overall similarity a

168 The use of red ink in **T** is not confined to the rubric, however: it continues until about halfway through the prologue.

169 Peter J. Grund mentions this manuscript in his article on the alchemical work *The Mirror of Lights* (2006b: e.g. 108), as **C** contains a copy of *Mirror of Lights* on ff. 1r–10v in Part I of the manuscript. Grund remarks (2006b: 122, n. 7) on the absences in **C** of sections found in other copies of the work: as with *MoA*, the absences are explained by some leaves or parts of them having been cut out of the manuscript.

reasonable premise. The lacunae, in any case, present a complex structural situation, visually represented in Figure 5.2 below. The smaller rectangles represent the mutilated leaves.

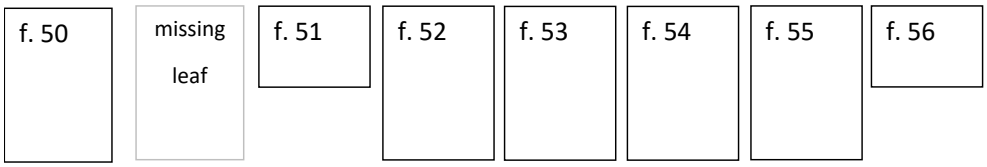


Figure 5.2. The lacunae in **C**.

C does not have a title; the work starts on f. 50 with *MoA*'s rubric, prologue, and 'preamble'. The first lacuna appears after f. 50v; in the text, this is immediately before where the list of chapters appears in **T**. The missing leaf probably included the list of chapters, as well as Chapter I and part of Chapter II. The text in **C** picks up again on f. 51r midway through Chapter II. There is another lacuna midway on f. 51r, cutting the text off at the end of Chapter II.

The text continues on the surviving half of f. 51v in Chapter III: there is thus text missing from the end of Chapter II and the start of Chapter III. Naturally, another lacuna occurs midway along f. 51v, as the bottom half of this leaf has been cut out. On f. 52r, Chapter III continues, in the section with the six conclusions. After this, the text continues without lacunae, the chapters following in order, until Chapter VII. Partway through Chapter VII, on f. 56r, there is a final lacuna, as the bottom half of this leaf has also been cut out. Chapter VII still continues on f. 56v. The final mutilation in **C** occurs just below the explicit of *MoA* on f. 56v, which is very fortunate: even though the bottom half of this leaf has been removed, the ending of the work is retained. Thus, there is clear evidence that **C** ends the same way as the other Group 1 copies do.

To sum up, the content missing in **C** due to these partially removed leaves includes the list of chapters, Chapter I, part of Chapter II, part of Chapter III, and part of Chapter VII. The complete sections in **C** are thus the rubric, prologue, preamble, and Chapters IV, V and VI. The precise textual context of the lacunae becomes evident from the best-text edition, where the lacunae in **C** are marked in the textual apparatus.

I will now turn to the structure of the third witness in Group 1: **A**. This copy contains a major structural difference compared to **T**: the placement of the prologue. In **T** (and **C**), the rubric comes first, and the prologue follows it. In **A**, however, the

prologue comes first of all (on f. 42v, using up the whole page). **A**'s prologue is followed, on f. 43r, by a title ("Liber Multipharie") and the rubric, which is immediately followed by the preamble. As mentioned, **A**'s separation of prologue and preamble is one reason why I consider these structural elements to be separate. This preamble ends in the list of seven chapters, visually organised in list form. The chapters follow in order, marked with rubricated chapter numbers such as "2^{u} c^{m}", f. 43v; Chapter III includes the six conclusions, which are clearly marked with rubrication and numbers in the margins. There are no lacunae in **A**; the text continues until the end of Chapter VII on f. 48v, ending with the same explicit as in **T**.

In other words, **A** varies structurally only when it comes to the prologue. However, the placement of this prologue is a conspicuous structural difference compared to **T**, and is thus worth further discussion. The placement is related to an anomaly in the quire structure of **A**: ff. 39–42 seem to have been added later as an extra quire. This is relevant for *MoA*, as f. 42v contains the prologue to the work. The extra quire has been added after the composition of the other quires, as it does not have quire numbering. However, like the other quires, it has four leaves, and is written in the same hand (apart from some later notes), and with the same scheme of decoration (although without the large blue initials that appear elsewhere in the booklet). My examination of the manuscript suggests this is not in fact a four-leaf quire with the leaves placed one within the other before binding, but two separate bifolia folded separately and added to the booklet.

This prologue is in the hand of the main scribe of Part III of the manuscript (the scribe of the main text of *MoA*). The prologue is connected to the text of *MoA* proper with tie marks or signes-de-renvoi, i.e. "symbol[s] that, when paired with a matching symbol, serves to direct a reader's attention from one part of a page to another" (Clemens & Graham 2007: 269). The scribe uses two tie marks: a circle with a cross, and a zigzagging stroke resembling a <V>. The circle appears in the top left margin of f. 42v, next to the rubricated first word of the prologue. The corresponding circle is on f. 43r, below the rubric of *MoA*; in the right margin, the scribe has written "Qvere ad tale signu*m*" ('Search near a sign of this kind') in red ink, repeating the circle tie mark. Thus, the reader is instructed to read the prologue after reading the rubric.[170] The second tie mark, the V-like sign, appears in the bottom margin of f. 42v, accompanied by the rubricated instruction "Qver*e* residuu*m* ad tale signu*m*" ('Search for the rest near a sign of this kind'). The corresponding rubricated tie mark

[170] A helpful archival hand has written "f. 43" in pencil under the rubricated instructions on f. 42v, indicating which leaf the corresponding tie mark is on. This archival annotator has added a corresponding note in pencil, "f. 42b", on f. 43r under the tie mark instructions there, further clarifying the prologue's placement.

is on f. 43r, in the left margin, next to the start of the 'preamble' which begins the main text of *MoA*. The reader is clearly guided from the end of the inserted prologue to the section on f. 43r where they should continue reading.

All of this points to the prologue in **A** having been copied separately, after the copying of the main text.[171] The ink in the prologue to *MoA* (f. 42v) is a little darker than that in the main text, although the hand is the same. It seems that adding this prologue was the main reason for adding the second bifolium, as the other material in the added leaves consists of recipes and notes by later hands. The prologue may have been copied from a different exemplar than the main text of *MoA*, although there is not enough orthographical evidence to claim this: the only word in the prologue that seems to be spelled notably differently from the main text is "M*er*curye" (**A**, f. 42v). This word is spelled "Mercurij" in the main text (e.g. f. 43v). However, many of the instances in the main text are abbreviated "Merc" with a 'hook' abbreviation, so even that is not unequivocal evidence.

The final manuscript in Group 1, **Gb**, is identical to **A** in terms of textual structure. This is notable; and indeed, as I discuss in Section 5.1.2.2 below, the evidence suggests that **A** was probably the exemplar for **Gb**. One of the key pieces of evidence for this is the placement of the prologue in **Gb**. Like in **A**, the prologue in **Gb** is placed before the title and rubric of *MoA* – indeed, as in **A**, the prologue in **Gb** is on the verso (f. 117v) and the title and rubric, etc., on the facing recto (f. 118r). If there is indeed a direct copying relationship between **A** and **Gb**, the scribe of **Gb** did not copy quite everything with exactitude: they did not copy the tie marks indicating the correct placement of the prologue in **A**. In **Gb**, there is no sign of the tie marks or the Latin instructions discussed above, but the prologue has nonetheless been copied in the erroneous location. As **Gb** otherwise replicates many visual features of **A** (such as titles and the list of chapters), it is strange that the helpful tie marks should not also be copied, even if the scribe had already (due to not reading further in the text before copying?) copied the prologue as it is placed in **A**, instead of the corrected order.

Taavitsainen (1995: 82) notes that "The erroneous order of copying 'Liber multipharie' with the incipit[172] first and the title and rubric on the following folio cannot be accidental." Taavitsainen states this in the context of listing a sequence of texts that occur in both MSS **A** and **G**; in other words, she draws attention to this shared structural error in the copies **AGb** as further evidence for the connection between these manuscripts. Taavitsainen does not go into more detail concerning the

[171] It was not uncommon for prologues to circulate somewhat disconnected from their main texts (see Peikola 2015: 47–50 for an example of this in a religious text).

[172] Taavitsainen terms the prologue of *MoA* an incipit.

relationship of **AGb**, however, nor does she suggest what kind of relationship it might be.

The overall structural similarity of the texts in Group 1 thus forms one argument for the unity of Group 1. The placement of the prologue is of course a major difference in **TC** and **AGb**, but the tie marks in **A** show that it is a clear error in **A**, and thus the 'intended' structure in all the copies is the same.[173] However, structure is far from the only relevant matter in interrogating textual relationships. In the next sections, I move on to a discussion of the textual variants in **TCAGb**, in order to further solidify my argument that these four manuscript copies form a unified textual group.

5.1.2 Major variants

In this section, I will address the major variants in the Group 1 manuscript copies. My intention is not to describe every major variant, as they are manifold, and are included in the textual apparatus to the best-text edition of **T**. The following analysis focuses on representative examples drawn from the *most significant major variants* in the four copies. By "most significant", I mean those variants that affect the meaning and content of *MoA*. That is, for the purposes of the analysis in this chapter, although major variants are linked to linguistic differences, significant major variants are those that change the information content. As in the previous section, I use **T** as the base text to compare the other copies against. As I mentioned in the structural comparisons in the previous section, the Group 1 manuscripts can be divided into two subgroups (**TC** and **AGb**). In the present section, I will deepen the analysis concerning the differences (and similarities) between these subgroups.

Throughout this section, I compare the most significant major textual variants to *De Alchemia* (1541), with the caveats noted at the start of this chapter. When a passage does not occur in *De Alchemia*, I have roughly compared the English manuscript witnesses with the copy of *Speculum alchemiae* found in the 15th-century TCC MS R.14.44. I have chosen R.14.44 as the main Latin manuscript witness to compare to because, of the Latin manuscripts I have examined and photographed, R.14.44 is one of the closest to Group 1. It is also a 15th-century copy, and thus more contemporaneous with **TC**. The structure of R.14.44 is similar to Group 1, with a prologue, list of chapters, and the seven chapters.[174] Significantly, content-wise, the Latin prologue in R.14.44 corresponds textually to Group 1's prologue and

[173] As the **G** scribe does not copy the tie marks, it cannot perhaps be said that the 'intended' structure for **Gb** was anything other than what it was.

[174] It should be noted that the copy ends midway through Chapter VII.

preamble. In addition, R.14.44 has similar metatextual elements as **TC** (see Section 5.1.2.1).

There is variation of several kinds in Group 1. The most significant of the major variants discussed in the following subsections relate to passages present in **TC** and absent in **AGb** which result in different information content, such as metatextual passages and a major metaphorical passage. In addition to these broader variants, I give relevant examples of the smaller, yet still *major* variants which act as further evidence of the textual relationships of Group 1 (especially with regard to **C**). The full variation can be accessed through the best-text edition's textual apparatus; however, this section gives a representative overview of the variation.

Overall, the information content of the Group 1 copies is similar. However, my close textual comparison of the copies shows that the subgroup divisions into **TC** and **AGb** are justified by far more than the structural aspects outlined in Section 5.1.1. Throughout the following subsections, I show why I consider the relationships to be plausible based on the textual evidence. I discuss the variants below in relation to the textual divisions already touched upon in the discussion of textual structure, namely discussing why **TC** form a subgroup even though **C** has some differences, why **AGb** form another subgroup, and where **TCAGb** all have different major variants.

5.1.2.1 Subgroup **TC**

TC are much the same with regard to their information content. However, collation and close examination of these two copies support my view that they are two divergent strands of a now-lost shared ancestor. There may of course have been intermediate exemplars: that is, I cannot claim that **TC** stem directly from the same exemplar. In this section, I compare **C** with **T** to prove that these two copies are two related strands from some mutual exemplar. As I have mentioned, I consider **TC** to belong to the same subgroup within Group 1. To that end, in this subsection I will also note the most significant major variants in which **TC** diverge from **AGb**, the other subgroup; notably, the copies in **TC** share some readings absent in **AGb**. I will first discuss the most representative shared readings of **TC** (absent in **AGb**). Next, I will discuss how **C** diverges from **T** in terms of some notable single-word variants, and finally, I will make observations related to **C**'s dialect.

I discussed the differences concerning titles in **TC** and **AGb** at the start of this chapter; their rubrics (Table 5.2) also differ with regard to a translation-related note, which I discuss further in Section 6.2.1. However, first, I will turn to the matter of metatext. Metatext is a feature running through the entire text of *MoA* in which **TC** band together and **AGb** diverge from them. Metatext may not be as notable

concerning information content as some of the other examples I analyse below, but its frequency in **TC** makes it significant as a subgroup marker. The metatext in **TC** mainly consists of framing and wrapping up chapters in *MoA*. **C** has its considerable lacunae, but since the metatext in **C** is the same as in **T** in all the surviving sections, it can be assumed that this is the case also in the sections that have been cut out of MS **C**.

The metatext included in **TC** – but not **AGb** – mainly consists of introductions to the chapters' content, declaring what topic the chapter will cover. There is no set formula for this, and the chapters of *MoA* are introduced by various kinds of phrases. The chapter number is always mentioned. For instance, Chapter V is introduced identically (orthographical variation notwithstanding) in **TC**:

(1) Nowe þ^{e} . 5.th C.^{m}. schall trete of þ^{e} fessell & þ^{e} ffurnesse . howe & were of þ^{ey} schall be made. (**T**, ll. 200–201)

(2) Nowe þ^{e} . 5^{u} . C^{m} schall tret of þ^{e} vessell & ffurnace . / hough & wher of þey schall be made (**C**, f. 53v)

The introduction to Chapter V in **TC** begins with "Nowe", gives the chapter number, and describes what the topic is. This chapter describes the kind of alchemical vessel that the Stone/Elixir should be made in, and what kind of furnace should be used for the process. Here, **TC** are identical.

Although the same essential information content is present in all Group 1 copies, **TC** phrase it more elaborately, whereas **AGb** include just the topic of the chapter in the main text in a terse fragmental form. **A** includes chapter numbers as rubricated headings, and **Gb** has chapter numbers in the margin, occasionally accompanied by a couple of words summarising the chapter topic. However, sometimes the information content does not match. The beginning of Chapter VII is a good example of information content being absent from **AGb**. Here, **TC** first have the lengthiest introduction to the topic of the chapter, ending with "&c". After that, the text of the chapter proper begins (the first word of which is bolded in the example). The following example in Table 5.6 has been divided up for ease of comparison:

Table 5.6. The beginning of Chapter VII, Group 1.

T	**C**	**A**	**Gb**
Nowe fynallye I schall declare þ^{e} . 7^{m}. C.^{m}. & þ^{e} laste	Nowe fynally schall I declare the . 7^{m} . C^{m} . & þ^{e} laste	7^{u} c*apitulu*m	[*in left margin*].7.[175]
þ^{e} which . C^{m}. ys þ^{e} p*er*fec=c*iou*n & þ^{e} fulfyllyng of All þ^{e} werke	the whyche . C^{m} . is þ^{e} p*er*fecc*i*on . ande þ^{e} fulfyllyng of All þ^{e} werke		
& þ^{e} cause of loye & gladenes .	& þ^{e} cause of loye & gladnes		
þ^{e} . C^{m}. ys þ^{is} of þ^{e} crafte of p*ro*jecc*iou*n & wher vpon*ne* yt may beste be wroughte &c	þ^{e} . C^{m} . is þis of þ^{e} crafte of p*ro*jeccion & were on it may best be wrought		
ffor þ^{e} . declac*iou*n. declarac*iou*n of þ^{is} . C^{m}.	ffor þ^{e} declarac*i*on of þis . C^{m} /		
vnderstonde þ*a*t þ^{e} whyett Elyx*er*e maketh whyette Infenytlye	vnderstonde þ*a*t þ^{e} whyet Elix*er* maketh whyete Infenytly	Nowe vnd*er*sto*n*de that ye whyete elyx*er*e maketh whyette infenytlye	Nowe vnderstond y^{t} the white elixer maketh white infenytely [*in the right margin:*] of p*ro*iection
(**T**, ll. 257–261)	(**C**, f. 55v)	(**A**, f. 48r)	(**Gb**, f. 125r)

As in (most) other chapter beginnings, **AGb** do not have metatext guiding the reader into the new chapter and reminding them what the chapter is about. Both **A** and **Gb** indicate chapter numbers, **Gb** in the margins. But for Chapter VII, **AGb** are extremely terse: they do not include the topic of the chapter in the main text (**Gb** has it, briefly phrased, in the right margin), but rather move directly to the white elixir, which is the start of the main information content at the start of Chapter VII.

Metatext in **TC** also occurs at the end of chapters, e.g. at the end of Chapter V:[176]

(3) here haue I schewede you þ^{e} wyrchyng of þ^{e} matter*e* of yo*ur* ston*ne*. þ^{e} which ȝe haue sowghte . // thorowe þ^{e} whiche werchyng of þ^{is} seyde ston*ne* ys chaunched ofte w*ith* heet Into dyu*er*se colours . **where*e*for lete vs p*ro*sede vnto þ^{e} 6^{m} C^{m}** (**T**, ll. 226–228)

[175] **Gb** tends to have the chapter numbers as well as short remarks (in the main scribe's hand) on the contents in the margins.

[176] **T** also stands for **C** here, as the passage is nigh identical in **C**.

In chapter endings, more metatext is present in **AGb** than in chapter beginnings. For instance, in the above passage, **AGb** have the same readings until the passage in boldface; **A** indicates the absent passage with "&c".

Metatext at the beginning and end of chapters as in **TC** does not occur in *De Alchemia*. However, TCC MS R.14.44 has some metatext in these places, and definitely has metatext similar to **TC** at e.g. the start of Chapters V and VII. Thus, **TC**'s exemplar(s) may have been translated from a Latin manuscript with such metatext. It is possible that the **A** scribe had a different exemplar, although, as I will discuss in Section 5.1.2.2, **A** appears very closely related to **T**. It is possible that the differences here are simply an example of scribal editing: perhaps **A**'s scribe chose to shorten some passages that they considered less relevant for the overall flow of the treatise.

I will now move on to significant variants which can be pinpointed to a single section in the work. The most notable of these, in terms of both length and information content, is a metaphor which is absent from **AGb**. This metaphor, in Chapter IV, is a common one in alchemical imagery: the making of the Stone/Elixir is compared to the creation of new human life (Abraham 1998: 148–150, s.v. *philosophical child*). This is often linked to the notion of mercury being female and sulphur male, the two combining to create a 'child'. In *MoA*, the metaphor relates to childrearing rather than conception. Helpfully, the passage itself explains the meaning of the metaphor: just as an infant is fed first with light food and drink, and then heavier such, so the substance worked upon requires a less hot fire at first, to be increased as the process continues:

(4) In Anoþ*er* place þis werke ys **lyckenede mych** vnto þ^{e} creac*iou*n of man*ne* . ffor As Achelde ys ffyrste norysshede w*ith* lyeȝte mett*es* & dryn*n*ckes & **After warde w*ith* grette met*es* & dryncke*s* be comfortede** . Ryȝght soo þ^{is} maystrye & þ^{is} werke nedeth ffyrste esye ~~fy^{e}re~~ fyer*e* & Afterwarde grettere & gretter fyer*e* (**T**, ll. 191–196)

(5) In Anoþ*er* place þis werke is **myche lykennyde** to þ^{e} creac*i*on of man / for as Achyld is fyrste norshyde w*ith* lyȝte met*es* & drynk*es* & **Aft*er* warde comfortede w*ith* gret met*es* & drynk*es*** / Ryȝte so þ^{is} mastry & þ^{is} werke nedeth fyrste esy fyer*e* and aft*er* warde gretter & gretter fyer*e* (**C**, f. 53v)

Variation between **T** and **C** can be seen here with regard to syntax; I will discuss such aspects at the end of this subsection. For now, the focus is on the metaphor itself and in the overall similarity between **TC**, as opposed to **AGb**. In **AGb**, the same information about the fire also occurs, but the metaphor itself does not appear:

(6) it muste be norysshed fyrste w*ith* esye fyer & after=warde w*ith* gretter fyer (**A**, f. 45v)

(7) yt must be norished first with easye fyer and afterward w*ith* greater fyer (**Gb**, f. 123r) (underlining original)

The absence of this metaphor is the biggest content-related difference in the two subgroups of Group 1. Either the omission is an innovation by **A** (or an exemplar for **A**), or there is a Latin manuscript tradition in which the 'child' metaphor is omitted. However, the metaphor is present in *De Alchemia*: "Hoc opus multu*m* creationi hominis assimilatur" etc. (1541: 265). This indicates that the metaphor was at least part of the Latin textual tradition that was eventually transmitted into printed form; R.14.44 also has this metaphor (f. 125r). This metaphor appears in all the other Groups of *MoA*; **AGb** are thus outliers.

AGb sometimes remove information content in order to get past repetitive or perhaps confusing passages. For instance, in Chapter III of *MoA*, **TC** include a phrase not included in **AGb**. This phrase is misspelled or confused in both **T** and **C**, which is interesting as this presents evidence for their putative common exemplar. The phrase is 'and asketh his [its] contrary', coming in the same passage quoted in Table 5.4, where nature 'enjoys' nature, that is, takes pleasure in its own kind (*MED,* s.v. *joien*, subsense 3a): this is part of an argument that a substance as close as possible to the desired end result should be used.

(8) thus nato*ur* Ioyeth nature **& skyth ys *contra*rye** (**T**, ll. 104–106)

In this passage in **T**, it appears that <skyth> is an error for <askyth>; the *MED* does not record any spelling variants without an initial vowel (s.v. *asken* v.). In **T**, there is an insertion above the line before <skyth> by a 16th-century annotator, inserting an <a> in the correct place. **C** also has this same phrase, with the same spelling lacking an <a>:

(9) thus nat*ur* Ioyethe nature . **And ~~skyth h\i/s~~ cont*ra*ry** (**C**, f. 51v)

In (13), <skyth his> has been struck out with so much ink that <skyth> is difficult to make out. Above the deleted words, there is an interlinear correction in a much lighter ink by an annotator in a medieval hand: <eschevythe hys>. In fact, this correction, which leads to the meaning 'nature eschews/shuns its contrary' makes a great deal more sense than nature 'asking for its contrary'. The confusion that this passage creates with the verb 'ask' may be why **AGb** do not have the phrase at all (it would go between the bolded words):

(10) thus nat*ur*e Ioyeth . **nat*ur*e wherfore** it is grete meruell y*a*t ony dyscrete p*er*son wyll grownde hys labo*ur* & hys intent vppon any best*es* (**A**, f. 44r)

(11) thus nature Ioyeth **nature wherefore** yt is greate marvell that any discrete p*er*son will grounde his Labo*ur* and his intent vpon any beast*es* (**Gb**, f. 120v)

The Latin version in *De Alchemia* does not have this kind of passage at all. However, at least in English, this passage is unique to Group 1. Groups 2, 3, and 4 do not have a corresponding passage on Aristotle or 'the philosopher' comparing the 'like with like' principle to a lion giving birth to a lion. This passage at the very beginning of Chapter III is thus part of the tradition that Group 1 exemplifies. This is more evidence that Group 1 is based on a Latin manuscript tradition distinct from that which formed the exemplar for *De Alchemia* (and thus at least Groups 3 and 4; see Sections 5.3 and 5.4 below).

A final major difference distinguishes **TC** from **AGb**. This is in Chapter V, in a reference to the Latin work *Light of Lights*. Although the differences are small, this is a significant detail to discuss since it is the only reference in *MoA* to another work by name. This does not appear to be an alchemical work; *De Lumine Luminum*, 'On the Light of Lights', seems to be the name given to Albertus Magnus's second book of commentary on Avicenna's philosophical work *Liber de Causis* (Goris 2009: 155). All the Group 1 copies introduce this book similarly: they do not mention an author, but highlight the fact that it is a book.

(12) wherfor yt ys seyde In þ^{e} booke þ*a*t ys cleped. lume*n* **luminij** (**T**, f. 20v, ll. 223–224)

(13) wher for it is seyd In þe booke þ*a*t is clepede lume*n* **luminij** (**C**, f. 54v)

(14) wherfor it is sayde inthe boke y*a*t | is clepyd lume*n* **lumin*um*** (**A**, f. 46r)

(15) where fore yt is sayd in y^{e} book y^{t} is cleped **Lumine** Lumin*um* (**Gb**, f. 12r)

The variation in this passage, as can be seen in the examples, is in the name of the book: **TC** name it "lume*n* luminij", whereas **A** names it "lume*n* luminum" and **Gb** differs even further with "Lumine Lumin*um*". Here, it is useful to compare to Latin. *De Alchemia* reads:

(16) unde Aristoteles dicit in **lumine luminum** (1541: 267)

In the *De Alchemia* version of *Speculum alchemiae*, the fact that "lumine luminum" is a book is not mentioned; however, the work is given an author, Aristotle (a catch-all pseudepigraphical author). The work is named "lumine", as in **Gb**. "Lumine luminum" as the form of the work also occurs in MS R.14.44, where this passage is

"in lumine luminu*m* dicitur" (f. 127r). This seems closer to the Group 1 copies in that an author is not mentioned, and "dicitur" can be translated 'it is said'.

If the work was originally *De Lumine Luminum*, **Gb**'s form makes grammatical sense: *lumine* is the ablative singular of *lumen* 'light', and the preposition *de* takes the ablative case. However, the other Group 1 copies are not wrong in using the nominative *lumen*, as without a preposition, that would be the correct form. However, *lumini* is the dative singular form of *lumen*, which does not appear to be correct. *Luminum* is the genitive plural of *lumen*, 'of lights', and thus that form is correct in this context. In other words, **AGb** have the grammatically correct variant in this case. The other Groups of *MoA* have interesting variants here:

(17) **Group 2:** "Wherefore in Lumine Luminu*m* yt is written" (**Ga**, l. 183)

(18) **Group 3:** "wherevpon *Aristotle* sayth, in the light of lights" (**Oli**, p. 12; italics original)

(19) **Group 4:** "hence it is that Aristotle says in yebooke Called Lumen luminum" (**S2**, l. 226)

This passage thus appears in all Groups, but is different in each witness. References to Aristotle only occur in Groups 3 and 4, which both derive from printed books. Group 3 translates the name, unlike the other Groups; this is probably due to its French source text (see Section 6.2.3).[177] It is interesting that Group 4 should have "Lumen" here, as its probable Latin exemplar has "Lumine luminum" (*Theatrum Chemicum* 1613: 415; see Section 6.2.4). I will henceforth call this work *De lumine luminum*.

In addition to the variants discussed above, there are some shorter yet still major variants which further reinforce the subgroup divisions of **TC** and **AGb**. The most relevant of these, with regard to information content, occurs at the very end of the treatise, immediately before the explicit. In this part of the treatise, there is a section that is rather recipe-like, and thus differences in content are more crucial. *MoA* discusses how long the projection of the Elixir will take – however, the time scale is vague, ranging from one day to half an hour, or 'a moment'. In **TC**, 'moment' is included: 'this is a work of one day or of one hour, of a moment or half [a moment?]':

(20) thys ys A werke of oon*ne* . daye or*e* of . oon*ne* . ho*ur* of **Amome*n*t** or*e* An*ne* halfe (**T**, ll. 293–294)

[177] The French printed edition from 1557 reads: "Dequoy parlant l'Aristote, en la lumiere des lumieres" (1557: 26).

(21) þis is awerke of I day or*e* of I hour*e* of **Amome*n*t** or An halfe (**C**, f. 56v)

In *MED*, s.v. *moment*, the word is defined as 'moment, unmeasured instance of time' (subsense 1a), which sense would make the time span in **TC** extremely vague and of little use to the alchemist. Subsense 1b further muddles the waters: 'as a specific division of time: one-fortieth of an hour', i.e. 90 seconds. It seems unlikely for a 15th-century alchemist to have considered it reasonable for the projection of the Elixir to take so little time. Further, subsense 1b only consists of a single quotation in *MED*, from a ME translation of *De proprietatibus rerum* (London, BL MS Additional 27944). It is thus uncertain whether this very specific meaning of 'moment' was widely used. This uncertainty may be one reason why the readings in **AGb** are different:

(22) y^is^ is a werke of .1. daye or of .1. ho*ur* or **halfe a ho*ur*** (**A**, f. 48v)

(23) this is a worke of one daye or of one hower or **half an howre** (**Gb**, f. 126r)

Even though this is also rather vague (perhaps intentionally), the time scale in **AGb** proceeds according to a more logical decrease: a day, or one hour, or half an hour. If one assumes that this difference is a result of scribal editing, 'moment' may simply have been considered too misleading and the **A** scribe (assuming they made this change) proceeded with a more logical option. However, what is notable is that all the Group 1 manuscripts include *half* in this measure of time. *De Alchemia* does not; nor do Groups 3 and 4:[178]

(24) Et istud est opus unius diei, seu unius horæ, uel mome*n*ti. (*De Alchemia* 1541: 271)

(25) and this is a worke of one day, or one houre, or a moment (Group 3, **Oli**, p. 16)

(26) and this is a worck of one day or of one hour , or moment (Group 4, **S2**, ll. 293–294)

This is another indication that Group 1's ultimate Latin exemplar was probably different from the exemplar used by the compilers of *De Alchemia*.[179]

[178] As I will discuss in Section 5.2, Group 2's ending is rather different from the others', and thus it does not have a similar passage.

[179] The Latin copy in MS R.14.44, otherwise a good comparison with Group 1, ends mid-chapter in Chapter VII and thus does not have this passage.

Having discussed variants in which **TC** are similar and **AGb** differ from them, I will now show how **C** is unique among all the Group 1 copies. Despite its overall similarities to **T**, **C** differs in terms of some major variants – from **T**, as well as from **A** and **Gb**. Thus, even though **C** is otherwise very close to **T** (as far as can be told, considering its lacunae), its smaller differences seem to indicate that it had a different exemplar from **T**, even though the two copies probably stem from the same ultimate source. The most significant unique variants are listed below in Table 5.7:

Table 5.7. Some unique variants in **C**.

MoA **section**	**T**	**C**	**A**	**Gb**
Ch V	In þ^{e} hyll of þ^{e} mene*r*all . dyue*r*se mettell*e*s Are genderde After þ^{e} deue*r*syte of þ^{e} **soule**	In þ^{e} hyll . dyue*r*se metall Are gendryde . / After þ^{e} deue*r*sete of þe **soyle**	in y^{e} hyll of y^{e} myne*r*alle dyue*r*se metall*e*s are genderde after y^{e} dyue*r*syte of y^{e} **soule**	in the hill of the myne*r*all dyue*r*se mettalls are gendred after y^{e} dyue*r*sytie of the **soule**
Ch VI	oure ston*ne* ys made \all/ blacke Abovenne In þ^{e} supereore place	our sto*n*ne is made All blake *(rest om.)*	our stone is made all blake abouen in y^{e} supereor place	our stone is made all black aboven in the superio*ur* place

There are also other unique variants in **C**, consisting mostly of single-word differences and some omissions not due to **C**'s lacunae; these variants can be observed in the textual apparatus in the best-text edition. The examples in Table 5.7 are the most noteworthy. In Chapter V, **C** has <soyle> where the other manuscripts have variant spellings of 'soul'. This variant appears in a passage describing how minerals and metals are formed within the earth. In the 'mineral hill', sulphuric vapours meet mercurial vapours in the 'veins of the earth', and there, diverse metals are formed 'after the diversity of the soul'. Since the generation of metals is under discussion here, diversity of the *soil*, as in **C**, might be a logical interpretation; however, the earth in this example must be a reference to the matter below arable soil, as metals were generated deep within the earth in the worldview evident in *MoA*. So, <soyle> might be due to a misinterpretation of the original, or a difference in **C**'s exemplar. It is possible that <soyle> is just an odd variant spelling of soul, or a mere

error, not intentional.[180] *De Alchemia* has "secundum loci diuersitatem" here (1541: 266), 'according to the diversity of the places', and TCC MS R.14.44 (ff. 126v–127r) has "s*ecun*d*u*m locor*um* diuersitate*m*"; these seem closer to **C**'s meaning. However, <soul> in the sense of spirit or 'volatile substance' (Grund 2011b: 331, s.v. *sole*) might make sense here if it refers to the concept of *pneuma*, the spirit that enabled all change in some alchemical theories; or perhaps there was a Latin version with *anima* here.[181]

As for the longer omission, where **C** omits 'above in the superior place', this may be explained by the opaque nature of the passage omitted by **C**. The *MED* definition of superior, 'characteristic of or emanating from a higher authority' (s.v. *superior*, adj., subsense 1a) does not seem appropriate here; I would suggest that this usage is more related to the Latin (and more literal) meaning of *superior*, 'higher, upper' (Simpson ed. 2000: 586, s.v. *superus*). The broader textual context for this particular example is that *MoA* is discussing putrefaction, or the first stage of the process, which turns the Stone black, but this does not help with identifying the 'place higher up'. *De Alchemia* simply has "& sit lapis noster niger" (1541: 268), 'and our stone will be black'.

Finally, I will note some smaller yet significant differences between **TC** which point to the distinction between these two copies. What is of especial note here is that these smaller differences appear to stem from a consistent difference in scribal systems. While these differences are not related to information content like the above examples, they indicate that **TC** may not have shared an immediate exemplar. Table 5.8 shows the mostly consistent differences between **TC**:

[180] There is a single example of the spelling <soyle> in *MED* s.v. *soul(e* n., in a quotation for sense 11: "whose soyle [?read: soule] God assoyle for hys hygh mercy" (from Anstey ed. 1898: 285). This spelling for 'soul' is thus viewed as a possible error in *MED*.

[181] *Pneuma* refers to the spirit that early philosophers considered to effect all change in nature (Taylor 1949: 16; see also Holmyard [1957] 1990: 24 for a connection to animistic ideas; cf. Reidy 1975: lxvi).

Table 5.8. Morphosyntactical differences in **T** and **C**.

T	**C**
be (ll. 140, 155, 161, 177, 178)	throwght, þorow, þrought, throught, þorowe
hath (l. 125)	has (only f. 52r)
hath (l. 30, 33)	haue (occasionally)
noþer (l. 188)	uþer
noþer (l. 83)	nor
oþer (l. 17)	odur / or (or, in oþer l. 137)
þe whiche (l. 108)	which
vnto (l. 2)	to
vpone (l. 2)	on

The examples in Table 5.8 represent the general tendencies of the **C** scribe (as noted in Section 4.2.3, MS **C** has been localised to Rutland, East Midlands, in *eLALME*). The **C** scribe's morphosyntactical tendencies may have simply been so strongly ingrained that even if they used an exemplar very similar to the one used by **T**'s scribe, they inserted the grammatical forms that were familiar to them (McIntosh et al. 1986). What should be noted is that with regard to the differences in Table 5.8, **AGb** follow **T**. Thus, the subgroup divisions of **TC** and **AGb** are not altogether clear-cut in every case. Indeed, and notably, with regard to **C**'s unique variants and the rather consistent morphosyntactical differences, in some cases it is more revealing to consider **C** as one strand of Group 1, and **TAGb** as another.

However, the subgroup divisions **TC** and **AGb** are still the most relevant when it comes to *information content.* Indeed, I consider the differences between **TC** in Table 5.8 to be less significant considering information content than the larger differences discussed above; and they are far less significant than the differences in information content between **TC** and **AGb**. I will discuss the main ways in which **AGb** differ from **TC** in the following section.

5.1.2.2 Subgroup **AGb**

The previous section already showed some ways in which **AGb** differ from **TC**. These differences mostly occur in the form of text that is absent in **AGb**. In this section, I will further demonstrate that **AGb** form a textual subgroup of their own separate from **TC**. However, I will also show that despite the differences, **AGb** are in fact rather close to **T** when it comes to some aspects of textual and visual evidence. Both textual and physical manuscript evidence point to **Gb** having been copied either directly from **A** or from a very closely related (lost) exemplar. I will first outline this

copying relationship and thus my reasoning for discussing **AGb** as almost a single unit. After discussing the copying relationship between **AGb**, I will present some further possibilities concerning the relationship between **A** and **T**.

The close relationship between MSS **A** and **G** has been pointed out, although not discussed in detail, by Taavitsainen (1995) and Connolly (2011). Some aspects of this broader relationship are relevant for the relationship of *MoA* in **AGb**. Namely, MS **G** shares a sequence of texts from MS **A** (i.e. Part III, the booklet which *MoA* appears). These texts are in precisely the same order that they appear in MS **A**. The MS **G** scribe only includes the English-language texts, not the Latin; however, it cannot be a coincidence for so many shared texts to appear in the exact same order in the two manuscripts. The copying connection appears clear: **G** must be copied from **A**. Even the illustrations have been reproduced to some extent (**A**, ff. 15v–21r; **G**, ff. 84r–86r). Furthermore, even some marginal notes have been copied by the **G** scribe (e.g. MS **A** f. 19v, MS **G** f. 84r).

Something that should be noted is that the other *MoA* copy in MS **G**, i.e. **Ga** – which belongs to Group 2 – does not belong to the sequence of common texts copied from **A**. Thus, the **Ga** copy of *MoA* is not relevant for the connection between **A** and **G**. It is probably not significant that **G** contains two separate copies of *MoA*, belonging to two separate textual groups: as Section 5.2 will further demonstrate, these two copies are different enough that the scribe probably did not recognise **Ga** as the same work as **Gb**. This in itself is additional evidence for **Ga** and **Gb** (and thus Groups 1 and 2) being two distinct versions of *MoA*.

While the broader connection between MSS **AG** (the shared texts) could reveal more about their overall relationship, I will henceforth concentrate on *MoA* when discussing **AGb**. As noted above, **AGb** have the title "Liber Multipharie" (Table 5.2): this is an addition in the subgroup **AGb**, as **TC** do not have a title, an indication of the subgroup division. The following example from Chapter IV provides more initial evidence for the close relationship between **AGb**.

(27) what causethe yowe **yane** to labo*ur* for to make inp*er*fyȝte ȡ bodyes p*er*fyȝte be other infynyte weys . Malencolye & fantastycall woo be vnto y*o*u all y*a*t wyll ou*er* come nature & make bodyes more ye^{n} p*er*fyȝte **w*ith*** lewde menys fownde of y*o*uer made hedd*es* full of Ma=lencolye & woodnes (**A**, f. 45v)

(28) what causeth yo^{u} to Labo*ur* for to make inp*er*fect bodyes p*er*fect by other infynyte wayes malencoly and fantastycall wo be vnto yo^{u} all y^{t} will overcu*m* nature and make bodyes more then p*er*fect **w*hi*ch** lewde men founde of there madd head*es* full of malencoly & woodnes (**Gb**, ff. 122v–123r)

Here, the only major difference is that **Gb** omits "yane" 'then'. **Gb** follows **A**'s word choices, even more unusual ones like "woodnes". The difference between 'with' and 'which' may not even be a difference, as the abbreviation used by the scribe is not entirely legible. In other words, the examples above show that these two copies, separated by at least 50 years, are closely connected textually; but further evidence is required to establish an exemplar–copy relationship between them.

Michael D. Reeve (1989) proposes some avenues for examining a possible exemplar–copy relationship. Reeve notes the caveat that "establishing the exclusive derivation of one manuscript from another is not merely difficult but impossible" (1989: 1); however, "probability adequately compensates for uncertainty" (1989: 2). I will not summarise all of the types of evidence that Reeve considers to add to the probability of one manuscript being another's exemplar. The salient ones for the **AGb** relationship, with regard to *MoA*, are the following: (1) transposition, e.g. misplaced leaves in an exemplar leading to later copies having the text in the 'wrong' order (Reeve 1989: 11); and (2) peculiarities of layout (Reeve 1989: 13). (1) and (2) belong to the overall category of physical evidence. Further relevant types of evidence are (3) textual proof "that a manuscript derives from the same source throughout" (Reeve 1989: 23); and (4) corrections made by the exemplar's scribe when copying (Reeve 1989: 26–27).

As for (1), transposition, the obvious and major example is **AGb**'s placement of the *MoA* prologue before the rubric. Other peculiarities of layout (2) are perhaps tangential to the text, but significant in terms of visual similarities, and they add to my argument for **Gb** being copied from **A**. As Figure 5.3 shows, **Gb** reproduces some of **A**'s script-switching in *MoA*, using a different pair of scripts but achieving a similar effect: [182]

[182] Script-switching, analogically with code-switching, means the use of different scripts within the same span of text (see Kaislaniemi 2017). In this passage, the **T** scribe does not distinguish the Latin planets' names from the other text; the **C** scribe underlines the names.

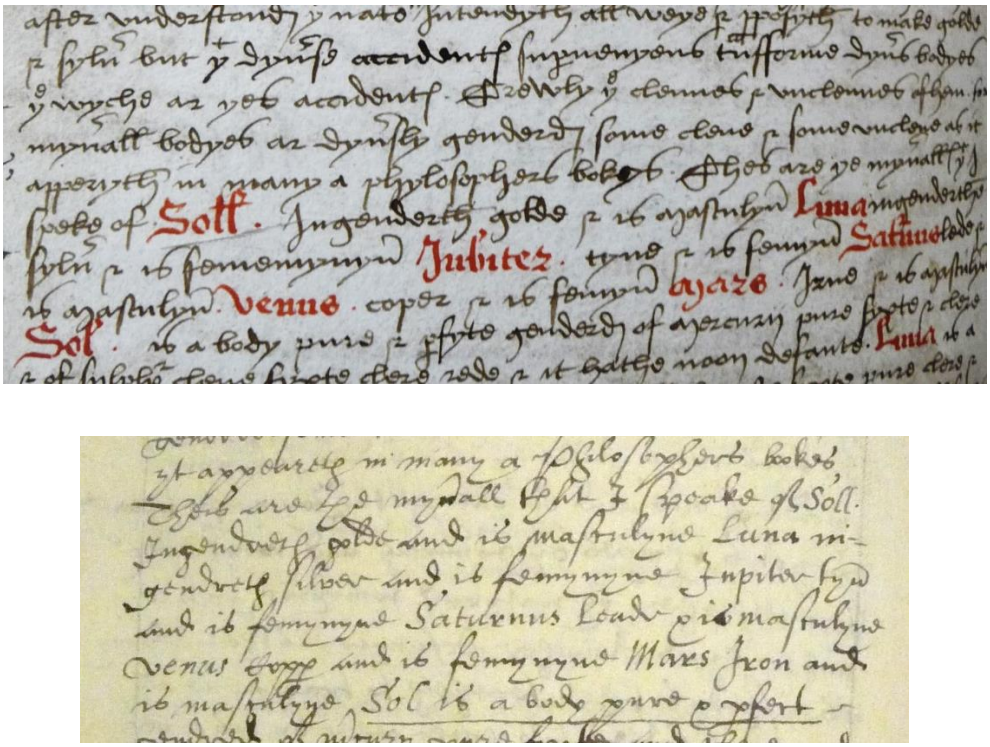


Figure 5.3. Script-switching in **A** and **Gb**. Oxford, Bodleian Library MS Ashmole 1486, f. 43v, Digital Bodleian, Creative Commons licence CC-BY-NC 4.0; Copenhagen, Kongelige Bibliotek MS GKS 1727, f. 119v, © The Royal Danish Library, Copenhagen. Images: Sara Norja, published with permission.

Where **A** uses rubrication and a formal hybrid secretary for emphasis (here, the planetary *Decknamen* for the metals), **Gb** uses a noncursive italic script as opposed to the usual cursive secretary in the manuscript. <Saturnus>, on l. 5 in **Gb** in Figure 5.3, is an especially clear example of the script-switch, and thus of the visual influence from **A**.

Proof of the same source (3) seems evident in MS **G** when examining the broader context of the shared texts between MSS **A** and **G**: that is, the **G** scribe appears to have copied all the English texts from MS **A** (Part III). This booklet probably circulated on its own for a while before being bound together with the other disparate booklets of MS **A**. Collation of **AGb** reveals a few examples of (4), corrections when copying (cf. Beadle 2013: 231 on copies fixing mistakes in an exemplar): for instance, where **A** repeats "vnto to" (f. 44v), **Gb** copies only "vnto" (f. 121r).

Even though no more conclusive evidence can be presented, it seems plausible based on the available evidence that **A** was the exemplar for **Gb**. Earlier research has also noticed some of the similarities, as Taavitsainen's (1995: 82) comment on the

prologue's erroneous placement not being accidental shows. Particularly my closer look at *MoA*, with the significant evidence of the transposition of the prologue and the textual similarities of (27) and (28), presents a compelling argument for the copying relationship.

The chain of copying may be traced even further, although this veers into conjecture. I nevertheless suggest that a possible exemplar for **A** can be found within the extant manuscripts of *MoA*: in MS **T**. As noted in the previous section, there are cases where **T** aligns more with **A** than with **C**. A brief look at MSS **TA** as a whole shows that there are some striking similarities that go beyond having a common pool of texts: for instance, some of the illustrations in **T** also appear, almost identical, in **A**.[183] On the textual level, collation of *MoA* in **TA** shows that even though the **A** scribe/compiler has made editorial decisions on what to copy (as evidenced by the variation discussed above), the similarities especially with regard to orthography seem too distinct for it to be a coincidence (see Section 5.1.3).

The possibility of **T** being **A**'s exemplar should be explored further; the copying relationship cannot be determined only on the basis of *MoA*, a single treatise.[184] In addition, the case of **A** copying *MoA*'s prologue in an erroneous order is troublesome for the potential exemplar–copy relationship. However, **A** seems to derive from a manuscript very similar to **T**, even if **A**'s actual exemplar was some intermediate manuscript that has been lost. My conclusion with regard to the copying relationships is thus that **Gb** was with some certainty copied from **A**. Further, **A** may have been copied from **T**, but deeper research would be required to make this more than a conjecture. In any case, **TAGb** share readings in which the **C** scribe deviates (as discussed above): these readings, although they are what I classify as *major*, are mostly a matter of prepositions, definite articles, and other variants in which the **C** scribe seems to have a strong preference for maintaining their own forms.

I will now move on to passages in which **AGb** further stand out as their own subgroup in opposition to **TC**. This subgroup division already became evident above considering the passages that are missing in **AGb**. However, there are a few passages where **AGb** expand on the text instead of streamlining it; these, too, may stem from the **A** scribe/compiler's editorial work. The first, and most significant, of these

183 For instance, illustrations of alchemical equipment connected to the treatise "Arcium alkanie", e.g. the identical diagram of a furnace on f. 13v of **T**, and f. 19r in **A**. Another intriguing example is the dragon on f. 21v of **T** (in the margins of a treatise immediately following *MoA*), whose curved tail, stubby legs, and protruding tongue are replicated on f. 31r of **A**. Whoever illustrated **A** had more technical skill than whoever illustrated **T**, but the visual similarities are too great to be coincidences.

184 I explore this topic further in my article on shared texts in the Group 1 manuscripts, also examining the illustrations in more detail (Norja, in prep).

passages occurs in Chapter II, in the discussion of the 'mineral bodies' (metals) that are formed from mercury and sulphur: [185]

(29) Thes Ar*e* þ^{e} bodyes myn*er*all þ*a*t I speke of . Sol . luna . Iubit*er* . sat*ur*n*us* . ven*us* . mars . // Golde . sylu*er*e . Ty*n*ne . lede . Co*per*e . Iry*n*ne . (**T**, ll. 72–73, f. 18v)

(30) Thes are þe myn*er*all*es* y*a*t I speke of . Soll . Ingenderth golde & is Masculyn*e* Luna ingenderthe sylu*er* & is fememynyn*e* Iubiter . tyne & is femyn*e* Sat*ur*nus lede & is Masculyn*e* . Venus . coper & is femyn*e* Mars . Irne & is Masculyn*e* (**A**, f. 43v)

(31) Theis are the myn*er*all that I speake of Soll. Ingendreth golde and is masculyne Luna in=gendreth silver and is femynyne Iupiter tyn*ne* and is femynyne Saturnus Leade & is masculyne Venus Copp*er* and is femynyne Mars Iron and is masculyne (**Gb**, f. 119v)

Here, **T** lists the heavenly bodies from the Sun to Mars – i.e. the *Decknamen* for the metals – and after that gives the corresponding metals as a list. The reader is expected to infer that the metals correspond to the 'planet' names in that order. **T** does not refer to the metals with their planetary *Decknamen* later in *MoA*, referring instead to plain *gold* and *silver*. **AGb** go further here, combining the lists of names into sentences, e.g. 'Luna engenders silver and is feminine'. In addition to combining the two lists into one, the information content in **AGb** here seems to be slightly different from **T**. 'Sol engenders gold' may mean that Sol = gold (Sol means the same as gold), or that Sol → gold (Sol propagates gold). This somewhat elusive addition in **AGb** is accompanied by more information, i.e. the 'genders' that the metals are classified into: Sol/gold as masculine, Luna/silver as feminine, etc. These gendered properties are common in alchemical language (see Section 2.2.2). In the case of gold and silver, they are referred back to even in **T** in *MoA* Chapter III, in the fifth conclusion proving that the Stone should not be made out of gold or silver (see Best-Text Edition, **T**, ll. 147–151), "as yt ys schewede In þ^{e} secunde chapyt*er*" (**T**, ll. 150–151). **T** does not mention the metals' genders at all in Chapter II, however. This addition of information content in **AGb** is the most notable in terms of how much it changes the text.

[185] This passage is not extant in **C** due to a missing page. *De Alchemia* (1541: 258) lists the metals merely with their 'plain' names: "Aurum, argentu*m*, stannum, plumbum, cupru*m*, ferrum". However, BL MS Add. 15549 (f. 102v) lists the planetary *Decknamen*: "Sol . Luna . Iupit*er* . Saturnus . Mars . Venus . & Mercuri*us*" (notably, mercury is in this list, unlike in the English versions); but another Latin manuscript, BL MS Sloane 1118 (f. 51v), has the 'plain' names and does not list mercury. There is thus variation here.

There are also some other passages in which **A** (and hence **Gb**) adds some additional information that **TC** do not have. The final notable addition in **AGb** is in Chapter IV of *MoA*, in a section describing how metals are engendered in mines beneath the earth. The passage argues that since metals occurring in nature are formed from mercury and sulphur with the application of heat, and God has given alchemists a manner of decoction consisting of continuous heat, this method should be used for the preparation of the Stone.

(32) gode of nato*ur*e **hath menysterde** vnto vs Alenyall wey of decocc*iou*n (**T**, f. 20r, l. 179)

(33) goode of nat*ur*e **hath mynystred** to vs A lynyall wey of decocc*i*on (**C**, f. 53r)

(34) god of Nature **wer=kythe \and/ hathe mynysterd** vnto vs alenyall wey of decocc*iou*n (**A**, f. 45v)

(35) god of nature **worketh hath mynistred** vnto vs alenyall waye of decocc*i*on (**Gb**, f. 122v)

The relevant part of this passage is "hath menysterde" (**T**), i.e. 'has supplied/provided'. This passage in *De Alchemia* (1541: 265) reads "Deus naturę dedit uia*m* linear*em*", which could be translated as 'God has given to nature a linear way'; there is no 'working' involved in the Latin.[186] In other words, **AGb** would seem to have an addition here. This addition in fact seems fairly mysterious, and it is possible it is an error: on f. 45v in **A**, one line above the addition, there is the passage "y*a*t nat*ur*e wyrkythe vppon myn*er*all bodyes": so, this may be a case of eyeskip, where the scribe has added 'worketh' after 'nature' also in the second instance. The scribe of **Gb** then copies this without considering the oddness of the syntax, and apparently a later annotator has added the conjunction 'and' to **A** to make this passage more reasonable. This insertion in **A** may be by a later scribe; the fact that **Gb** does not have this addition would also seem to point to that possibility.

These, then, are the major additions that further distinguish **AGb** as their own subgroup. Throughout, I suggest that **A**'s scribe/compiler had a tendency to edit the text of *MoA* where they could see space for improvement. The scribe/compiler appears to have had a pragmatic approach to the texts in their exemplar – whether that exemplar was **T** or some other manuscript.

[186] The Latin has a similar ambiguity regarding meaning that "god of nature" does, as "naturę" can be either the genitive or dative form of *natura*; however, given the fact that there is no personal pronoun in the Latin sentence, I consider the above translation (with nature as the indirect object, in the dative) to be the most likely. I would like to thank Veli-Matti Rissanen for his help with this Latin translation.

As discussed in this section, the evidence shows that there is a probable copying relationship between **A** and **Gb**. However, **Gb** differs from **A** (and thus from **TC**) in some smaller ways which nonetheless are major variants, as they differ in more than just orthography. Some of the changes are deliberate 'modernisations'. **Gb** has "caled" ('called') (f. 121v) where **A** has "clepyd" (f. 45r); however, in a later passage (**A** f. 46r, **Gb** f. 124r) the **G** scribe retains the word "cleped". Another fairly consistent modernisation is the third person plural pronoun. Where **A** has the older *h*-forms, **Gb** usually modernises these into *they* (and its oblique forms, e.g. "makes **them** p*er*fett", f. 119r, where **A** has "makes **hem** p*er*fyȝte", f. 43v).

However, many of these instances seem to stem from misreadings or misunderstandings of the exemplar. In many cases, the **G** scribe appears to have been confused by **A**'s orthography (see Section 5.1.3), and/or the content of *MoA* was too opaque for the scribe to fully grasp. Perhaps they copied the treatise hurriedly, without having the opportunity to read it in detail.[187] The passages where **Gb** differs from **A** are listed in Table 5.9; unless otherwise mentioned, the readings in **A** are identical (apart from orthography) to those in **T**.

Table 5.9. Major variants in **Gb** compared to **A**. (*) indicates rubrication.

***MoA* section**	**A**	**Gb**
Preamble (**T**, l. 31)	Inserac*i*ons (f. 43r)	Inspirac*i*ons (f. 118r)
Preamble etc. (**T**, l. 39 etc.)	. s . (f. 43r etc.)	6 (f. 118v etc.)
List of chapters (**T**, l. 44)[188]	**Sequnt*ur*** capitula (*) (f. 43r)	**Sequit*ur*** Capitula (f. 118v)
Chapter III (**T**, l. 138)	water y^{e} wyche is **clepyd** mercurij (f. 45r)	water the which is **caled** Mercury (f. 121v)
Chapter III (**T**, l. 154; **TC** lack 'white' here)	suche sulpho*ur* w*i*t*h* \whyte/[189] other rede (f. 45r)	suche sulpher w*i*t*h* white other redd (f. 122r)
Chapter IV (**T**, l. 183)	**w*i*t*h*** lewde **menys** (f. 45v)	**w*hi*ch** lewde **men** (f. 123r)
Chapter IV (**T**, ll. 184–185)	**Seythe note** y^{e} phylosophers (f. 45v)	**syth note** the Philosophers (f. 123r)
Chapter V (**T**, ll. 223–224)[190]	inthe boke y*a*t is clepyd **lume*n*** lumin*um* (*) (f. 46r)	in y^{e} book y^{t} is cleped **Lumine** Lumin*um* (f. 124r)
Chapter VI (**T**, l. 239)	he **que=kythe** hyme selfe (f. 47v)	he **quyckneth** him self (f. 124v)

187 This possibility also seems plausible in the light of the erroneous prologue/rubric order, reproduced in **G**. It is possible that some acquaintance of the **G** scribe lent them MS **A**, and the scribe had to copy quickly because they had to return the book to its owner.

188 Here, **T** has the heading in English, not Latin: "her*e* ffoloweth þ^{e} Capeto*ur*s In ord*er*".

189 Notably, this insertion is by a later annotator, not the original **A** scribe.

190 Here, **T** reads "lume*n* lumin**ij**" (emphasis mine).

Chapter VI (**T**, l. 241)	wherfore it is sayde sethe hyme tyll a grene coloure apere (f. 47v)	wherefore yt is **sayd y^{t} the sowle hath the domynac*i*on** seeth him till a grene coler appeare[191] (f. 124v)
Chapter VII (**T**, ll. 260–261)	ye whyete elyx*er*e maketh whyette infenytlye & reduceth all man*er* of bodyes in to a p*er*fy*ȝ*te **whyettenes** (f. 48r)	the white elixer maketh white infenytely and reduceth all mann*er* of bodyes into a p*er*fect **Rednes It is to vnderstond whitenes** (f. 125r)
Chapter VII (**T**, ll. 282–283)	Then syth y^{is} elyxer **is so fere wroughte** be yond hys Nature (f. 48v)	Then sythe this Elexer **so sore is wrought** beyond his nature (f. 125v)
Chapter VII (**T**, ll. 294–295)	finis auctor*is* de quo semp*er* est **mirab*ilis*** (f. 48v)	finis auctor*um* de quo semper est **nurabl*is*** (f. 126r)

As mentioned, the **G** scribe seems to have been at times confused by **A**'s orthography; and for instance, the scribe makes the typical <f>/tall <s> error in "fere" (**A**, f. 48v) becoming "sore" (**Gb**, f. 125v).[192] The **G** scribe's errors may in part also be due to the potentially hurried nature of the copying process. Although the **G** scribe seems to have been an alchemist, some alchemical terms have been interpreted oddly. For instance, "Inserac*i*ons" ('the process of turning into the consistency of wax', Grund 2011b: 322) (**A**, f. 43r) becomes "Inspirac*i*ons" (probably in its (now obsolete) physical sense of 'the action of blowing on or into', *OED* s.v. *inspiration* n.) (**Gb**, f. 118r); and "quekythe" ('to make (sth.) change rapidly', *MED* s.v. *quaken*, subsense 7a) (**A**, f. 47v) becomes "quyckneth" (possibly in the sense of *OED* s.v. *quicken*, v.2, 'to treat, coat, or mix with mercury', or the more common *quicken*, v.1, subsense 1b, 'to make alive, to animate') (**Gb**, f. 124v).

The **G** scribe sometimes also misinterprets things unrelated to alchemical terminology. For instance, where **A** has "Seythe note y^{e} phylosophers" (f. 45v), **Gb** has "syth note the Philosophers" (f. 123r). Here, the **G** scribe appears to have interpreted "Seythe" not as *sayeth*, but as the adverb *sith* ('then, subsequently'; *OED* s.v. *sith,* adv., conj., and prep.). Perhaps because of this, the scribe has also interpreted "note" in **A** as the verb *note*, not the adverb *not*. In the context of this passage, this leads from the meaning 'sayeth not the philosophers that mercury and

191 This is a case of eyeskip.

192 This leads to a very different meaning in **G**. In **A** (and the other Group 1 manuscripts), this passage refers to the elixir being so far worked upon that it surpasses its natural origins. "Fere" is an adverb in **A**; in **G**, it is interpreted as an adjective modifying the noun "Elexer". Nonetheless, "sore" does not make much sense here.

fire are sufficient to thee' to the meaning 'subsequently, the philosophers note that mercury and fire are sufficient to thee'.

There are also simple cases of eyeskip. In one of these instances, 'a perfect redness' occurs soon after this passage, which explains the eyeskip; here, the scribe has corrected their work:

> (36) the white elixer maketh white infenytely and reduceth all mann*er* of bodyes into a p*er*fect **Rednes It is to vnderstond whitenes** (**Gb**, f. 125r)

It is strange that they chose to work around the error this way instead of just crossing out the incorrectly copied word.

The most interesting thing about these variants where **Gb** deviates from **A** is that some can be explained by the hypothesis that the **G** scribe was not very proficient in Latin. Evidence for this hypothesis comes in several forms, which come together cohesively enough that I consider this a plausible possibility. Firstly: MS **G** has no texts entirely in Latin. Although the **G** scribe copies all the other prose texts appearing in Part III of MS **A**, in the order which they appear in, there is one treatise the scribe does not copy. This treatise is solely in Latin (**A**, ff. 9r–14r). The other texts in MS **G**, similarly to *MoA*, contain some short Latin passages, e.g. rubrics and titles. Secondly: I already noted in Section 5.1.1 that the Latin instructions related to the tie marks around the misplaced prologue in **A** are not copied into **Gb**, even though they contain relevant paratextual information for the reader. I suspect the **G** scribe did not properly understand the meaning of the instructions connected with the tie marks, and thus, neither inserted the prologue in the correct place nor copied the Latin instructions. Thirdly, the **G** scribe does not reproduce **A**'s Latin chapter titles (e.g. "4 c*apitulu*m Multiphar*ie*", f. 45v): instead, the scribe adds simple numerals in the margins, and sometimes gives the chapter name in English, e.g. "The 4 Chapter".

Fourthly, there are some specific words that the **G** scribe has copied oddly. One repeating example is the Latin abbreviation <s> in **A**, meaning *scilicet* ('that is to say, namely'; *OED*, s.v. *scilicet*, sense 1). The **G** scribe consistently misinterprets this as the numeral <6>; the secretary script <s> used by the **A** scribe resembles that numeral (cf. Petti 1977: 17, fig. 19). A more robust example of the **G** scribe misinterpreting a Latin abbreviation is in the list of chapters of *MoA*. Here, **A** (f. 43r) has "Sequnt*ur* capitula" ('the chapters will follow') as the heading for the list. "Sequnt*ur*" seems to be a slightly odd spelling of *sequentur*, from *sequor*, 'to

follow'.[193] However, **Gb** (f. 118v) has "Sequit*ur* Capitula" here, <n> having been misinterpreted as <i>. *Sequitur* is from the same verb *sequor*, but is in third-person singular and present tense, i.e. not agreeing with the plural *capitula*.

There is not much Latin in *MoA*, and so there is not much room for mistakes or misreadings in that language. However, the explicit of the treatise provides an excellent final example of the **G** scribe being less than proficient in Latin:

(37) finis **auctor*is*** de quo semp*er* est **mirab*ilis*** & c (**A**, f. 48v)

(38) finis **auctor*um*** de quo semper est **nurabl*is*** &c (**Gb**, f. 126r)

The words I have highlighted in boldface are copied in different ways by the **G** scribe. In writing "auctor*um*", the scribe has mistaken one abbreviation for another. The abbreviation marker in **A** here is the same one as in the word "mirab*ilis*": that is, the 'es-graph' commonly expanded as *-is* in Latin words and *-es* in English. However, the abbreviation which the **G** scribe uses to follow <auctor> is actually the 'rum-abbreviation', for the common Latin word-ending *-rum*.[194] The descender of the es-graph in <auctor*is*> in **A** curves slightly to the right, as in the 'rum'-abbreviation: this may have led the **G** scribe onto the wrong track (see Figure 5.4). However, *auctorum* does not mean the same as *auctoris*. *Auctoris* is the genitive singular, appropriate in an explicit which means 'now ends [the work] of the author who is always glorious' – assuming that the work is indeed attributed to a single author. *Auctorum* is the genitive plural, but the adjective *mirabilis* no longer agrees with it.

[193] Specifically, the third-person plural future active indicative form, agreeing with the plural *capitula*.

[194] I would like to thank Dr Jaakko Tahkokallio for pointing this out to me.

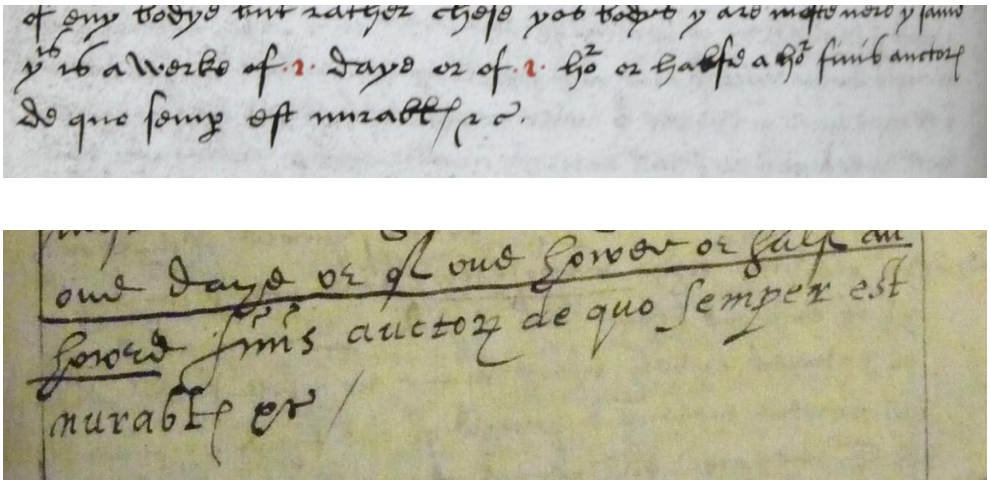


Figure 5.4. The abbreviations in the explicit in **A** and **Gb**. Oxford, Bodleian Library MS Ashmole 1486, f. 48v, Digital Bodleian, Creative Commons licence CC-BY-NC 4.0; Copenhagen, Kongelige Bibliotek MS GKS 1727, f. 126r, © The Royal Danish Library, Copenhagen. Images: Sara Norja, published with permission.

Even the penultimate word of the explicit is not correct. The first two graphemes in **Gb** are clearly <nu>, as Figure 5.4 shows; the explicit is written in a clear italic noncursive script. This is a classic case of misinterpreting the minims, and is an understandable mistake: although the **A** scribe usually adds a short stroke as the 'dot' on their <i>s, <mi> does not have such a stroke and is thus more ambiguous. *Nurablis*, however, is not a Latin word, whereas *mirabilis* is not an especially obscure one.

All of the evidence presented in this section points convincingly, in my view, to an exemplar-copy relationship between **A** and **Gb** – albeit one in which the copyist of **G** did not fully understand all the details of the text they copied.

5.1.2.3 Complex variation in a single passage

Finally, I will discuss a passage in which *all* the Group 1 manuscripts differ from each other. Major variations such as this are part of ordinary manuscript transmission and, although they are textually intriguing, they do not contradict the overall subgroup divisions I have outlined in the previous sections. However, they are significant variations and represent the various ways in which scribes (and later annotators) interpreted the meaning of this passage in *MoA*.

The passage in question is in Chapter IV, in a section claiming that according to the philosophers (i.e. alchemists), mercury and fire are sufficient for making the Stone/Elixir, and that heat is the most important thing. *MoA* first cites authorities –

although in a vague manner – with 'in another place it is also said', not giving direct references. The treatise then seems to instruct the reader (using the imperative) to 'seethe'[195] the material being worked with several times, or continuously for a long period of time. In translation, this could read 'in another place, it is also said: boil, boil, and boil again, but do not dislike this operation (i.e. keep doing it)'. However, the different copyists of **TCAGb** seem to have interpreted this in different ways. **T** has the following:

(39) In A noþ*er* place Also **seyth . seth seth & seyth** Ageyn*n*e but loth noȝt þ^{e} (**T**, l. 185)

Here, 'seethe' is repeated twice or three times, depending on how one interprets the final "seyth": either as a spelling variation of the imperative for the verb *sethen* 'to boil', or as the third person singular of the verb *seien* 'to say'. As the *MED* does not list "seyth" as a form of the verb *sethen*, it seems plausible that the original scribe of **T** meant this roughly in the sense of 'it is also said: boil, boil, and it is said again: but do not dislike it'. A later annotator has struck out "seth seth", so the manuscript now reads "Also seyth . ~~seth seth~~ & seyth". Here, the annotator must have interpreted the second "seyth" as 'says', and not understood that boiling is referred to at all. Thus the repetitive "seth seth", not considered relevant by the annotator, was struck out.

The other Group 1 copies interpret the passage in (39) in various ways. **C** has the following:

(40) In An od*er* place \also/ **seythe / Seth Seth & sethe** Ageyn / but loth not þ^{e} (**C**, f. 53v)

Here, the middle two instances of 'seethe' have word-final <e>s, written in a lighter ink than the original scribe's, in a different hand, resulting in the spelling "Sethe Sethe". This appears to be a later correction, probably intended as clarification. However, both the original scribe of **C** and the later annotator have interpreted "Seth Seth & sethe" as the same lexeme. So, in **C**, the verb 'seethe' is clearly repeated three times.

In **A**, the verb 'seethe' is also repeated three times, but not as unambiguously as in **C**:

(41) In a nother place also **saythe seyth*e* seyth*e* & seyth*e*** agayne but lothe noȝte y^{e} (**A**, f. 45v)

[195] Of a liquid, a substance: to be heated to the boiling point, boil, seethe (*MED*, s.v. *sethen*, subsense 1a).

What makes this ambiguous is that the verb 'say' is often also spelt <seythe> in **A** (e.g. just two lines above the quoted example), so it may not be possible to claim that 'seethe' is being used here instead of 'say'. In **Gb**, however, it is clear that the scribe has interpreted the verb throughout as a repetitive 'say':

(42) In another place also **sayth sayth and sayth** agayne but lothe not thee (**Gb**, f. 123r)

In addition, the **G** scribe has removed one of the repetitions – this is a passage where **Gb** diverges from **A**, and shows the scribe perhaps pausing to think about what they were copying.

Comparing to Latin is helpful for interpreting this passage. In *De Alchemia*, the Latin repeats the verb for boiling three times:

(43) Et alibi. Coque, coque, coque, & no*n* te tædeat (*De Alchemia* 1541: 265)
'and elsewhere: boil, boil, boil, and do not be weary'

However, as an example of another Latin reading, R.14.44 (f. 125r) has only two repetitions of *coque* in this passage: "Et alibi coque coque & te ne tedeat". The thrice-repeated *seethe* thus may or may not be the original intended meaning in this passage in *MoA*. In any case, the way the English translation is formed creates ambiguities which have led to the confusion between the verbs *seethe* and *say*. In Latin (*De Alchemia* as well as R.14.44), "et alibi" 'and elsewhere/ in another place' is used without a verb. *MoA* sometimes uses variations of 'it is said' after 'in another place', and sometimes not (e.g. "In Anoþ*er* place breke hym*e* An*n* . 100 . tymes" (**T**, l. 191)). Another point is that although *boillen* was also used in ME (*MED*, s.v. *boillen*), along with *sethen*, *sethen* was chosen for this passage. So, it is simply the coincidence of verb forms for *sethen* and *seien* (*MED* v.1) being similar, combined with the spelling variation in ME, that made this passage difficult to grasp especially for later annotators.

In addition to comparing to Latin, the other Groups of *MoA* can shed some light on this passage. Indeed, **Ga** (Group 2), **Oli** (Group 3) and **S2** (Group 4) suggest that the thrice-repeated verb is a part of the rhetoric of this passage in the work in general:

(44) in another place **make <u>decoction</u> make <u>decoction</u> and yet make <u>decoction</u>** (**Ga**, ll. 126–127)

(45) And elsewhere, **seeth, seeth, seeth**, and be not wearie (**Oli**, p. 9)[196]

[196] As a curiosity, the Dailey edition (1975; see Section 4.1) has one translation error ('translating' from EModE to PDE) here. 1975 reads "And elsewhere, see, see, see, and

(46) in an other place **boyle boyle boyle** with out tediousnes (**S2**, ll. 176–177)

The other Groups show that although there is a variety of verbs to translate the Latin *coque* (**Oli** even using the same verb as Group 1), repeating the command three times is common to them all. For Group 1, the 'seethe' example shows that there is individual variation in the different copies; however, the variation does not contradict the subgroup divisions into **TC** and **AGb**. In the next section, I will briefly discuss the *minor* variants in Group 1, especially as they further support these subgroup divisions.

5.1.3 Minor variants

Minor variation, as mentioned at the start of this chapter, mainly consists of matters such as orthographical variation and punctuation. **TCAGb** all have distinct spelling profiles. In this section, I will focus on the minor variation from the point of view of the textual relationships, especially when it comes to **TA**. Additional evidence for **TA**'s potential exemplar-copy relationship comes from some orthographical features of **TA**, as these two copies are remarkably similar when it comes to minor variation. This is particularly the case in some spellings with yogh, where **A** tends to have identical spellings as **T**. The following passage from Chapter VII shows this tendency, with the significant similarities in boldface:

(47) **ȝyte** þos bodyes whyche Are mor*e* ner*e* of þ^{e} kende of þ^{e} Elyx*er*e . be soun*er*e reducede & made **p*er*fyȝtte** þe^{n} oþ*er* bodyes þ^{e} whiche Ar*e* forther*e* þ*er*fro . // Then syth whe fynde Abodye **Inp*er*fyȝte** full nygh his p*er*fecc*iou*n whe Ar*e* excusede be hym [...] **ȝyffe** þ*o*u be wyttye & wyse þ*o*u schalte fynde hyt opynly determed In þes . chapeters and w*ith* **ouȝte douȝte** (**T**, ll. 264–270)

(48) **ȝete** yos bodyes þ^{e} wyche are more nere of y^{e} kende of y^{e} elyxer be souner reduced & made **p*er*fyȝte** ye^{n} oy*er* bodyes y^{e} wyche ar further y*er* fro . Then syth wee fynde a bodye **Inp*er*fyȝte** full nygh hys p*er*fecc*iou*n wee are excusyd be hyme [...] **ȝyffe** y*o*u be wyttye & wyse y*o*u schalte fynd it opynly determynyd in y^{es} chapyters . And w*ith* **ouȝte douȝte** (**A**, f. 48r)

Especially <ouȝte douȝte> is of interest here. The spellings with yogh seem to be 'old-fashioned' even in **T**; as Horobin (2013: 86) notes, in the 15th century yogh

be not weary" (p. 9). Dailey has misinterpreted "seeth" as deriving from the verb *see* instead of *seethe*.

tended to be replaced by "<y> in words like *yet, you*, and by <gh> in words like *night*". In contrast, **C** does not use yogh: e.g. <oute doute> (f. 55v) and <p*er*fyte> (f. 55v). The unusual nature of these spellings suggests this as potential additional evidence for the copying relationship. If **T** was indeed the exemplar for **A**, the scribe of **A** seems to have followed **T** surprisingly closely when it comes to minor variation, even though the **A** scribe clearly engaged in editing the work they were copying even in major variants. Further orthographical evidence could be gleaned by comparing the spelling in the other texts that appear in both **T** and **A**. In general, the orthography of at least *MoA* in **A** paints a picture of rather archaic orthography for c. 1500 (the dating of the manuscript).

Unlike **T**, the **A** scribe uses the same grapheme for <y> and <þ> (see Figure 4.7). I have transcribed these as <y>, since the scribe's thorn is not distinguished in any way as its own grapheme (cf. Benskin 1982). What is notable is that **A** mostly seems to use <y> where **T** has thorn, instead of replacing the thorn with <th>. In any case, even if no exemplar-copy relationship exists, **A**'s orthographical similarities with **T** are striking. However, **Gb** (probably copied from **A**) modernises the spelling to suit the developing standards of the 16th century (cf. Taavitsainen 2000). Even though the evidence suggests that **Gb** was copied from **A**, the orthography in **Gb** does not show this influence; for instance, in the above passage, **Gb** has <without doubt> (f. 125v).

5.1.4 Summary

In Section 5.1, I have given an overview of the significant variants in the four manuscripts that make up Group 1. There is quite a lot of individual variation, as these subsections have shown. There is also plenty of evidence for the subgroup divisions into **TC** and **AGb**. However, I argue that despite the differences, overall these manuscript copies of *MoA* make up one version of the work. In addition, despite the subgroup divisions, the possible 'genetic' divisions may run along different lines.

It is not possible to determine a full stemma for the Group 1 manuscript copies of *MoA*, as only four of them were available for this study; of course, many more may have once existed and subsequently been lost.[197] However, I propose the

[197] The case of UvA MS PH319 (formerly BPH MS M199) is very relevant here; as discussed in Section 4.1, the copy of *MoA* in this manuscript appears to belong to Group 1 based on the passages available in eVK2, but access to the manuscript became possible again only in late 2020. Future examination of UvA MS PH319 may add to the complexities of Group 1, or it may fit into the tentative stemma in Figure 5.5.

following tentative stemma showing the textual relationships in Group 1 (Figure 5.5):

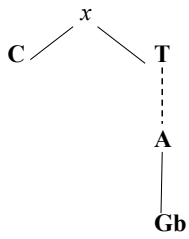


Figure 5.5. Tentative stemma for Group 1.

My suggestion is that the copies of *MoA* in **C** and **T** stem from a common, lost ancestor, *x*. As I have discussed, there seem to be distinct enough differences, and yet also similarities, between the two copies to justify this suggestion. Textual analysis suggests that **C** had a different immediate exemplar from **T**, but I argue that the copies are textually similar enough that both ultimately stem from the same source. Further, above, I have presented robust evidence for **Gb** having been (possibly directly) copied from **A**; but the evidence suggests that **A** may in turn have used **T** as its exemplar, or a manuscript very similar to **T**. Even though **A** may have been copied from **T**, the **A** scribe has made plenty of changes to the text. This scribal editing is what makes the **AGb** subgroup distinct from **TC**. In the subsections above, I have presented evidence for the tentative diagram of relationships shown in Figure 5.5.

The structural likeness of Group 1, with a longer prologue, a preamble, and the six conclusions enumerated, is solid evidence for this Group being a separate version of *MoA*. This structural evidence is supported by the overall textual evidence. In other words, the similarities of the Group 1 copies are far greater than their differences. It seems likely that the Group 1 version stems from a distinct Latin manuscript tradition different from the one that made it into print (as seen in Groups 3 and 4). The distinctness of Group 1 will be further demonstrated by comparison to the other Groups.

5.2 Group 2: Manuscript translation without prologue

Group 2 has only one manuscript copy: **Ga**, the first copy of *MoA* in MS **G**, ff. 36r–40r. My analysis in this section will show that **Ga** is distinct among the copies of *MoA*, and as such, forms a textual group of its own. **Ga** was probably copied from a lost manuscript which is not textually linked with Group 1. Group 1, with its 15th-century copies, has a clear manuscript tradition. However, based on the evidence I will present in this section, it seems likely that Group 2 is based on another English-language tradition transmitted through manuscript. Since the scribe of MS **G** does not appear to have been proficient in Latin (as already suggested above concerning **Gb**), I consider it extremely unlikely for **Ga** to be the MS **G** scribe's own translation of a Latin original.

Ga has no contemporaneous title, as mentioned at the start of this chapter, but a later hand has given it a title in an italic script, identifying it as *MoA*: "Bacon his lookeinge glasse of Alchemye" (f. 36r). The title thus reflects not the MS **G** scribe making a connection between the two copies of *MoA*, but a later annotator's comment. **Ga** differs from **Gb** in several ways, which might explain why the scribe chose to copy both into the same manuscript: perhaps the scribe did not realise that the two texts were related. The MS **G** scribe also seems to have compiled the manuscript over a long period of time, copying each new text after the other; and as discussed above, **Gb** was copied into MS **G** (most likely from **A**) as part of a longer series of connected texts. As the copying process most likely focused on these texts as a group, the scribe may not have paid attention to **Gb** resembling **Ga**. In addition, **Ga** is much earlier in the manuscript than **Gb** is; the scribe may simply have forgotten precisely what texts the manuscript already included.

As Group 2 consists of only one manuscript, in the following subsections I will mainly compare **Ga** with Group 1 (represented by **T**), since the characteristics of Group 1 became familiar in Section 5.1. Further, Group 2 – like Group 1 – is not textually connected to the printed tradition of *MoA* (unlike Groups 3 and 4). The following extract in Table 5.10, from Chapter IV, exemplifies how Group 2's information content is similar enough for me to consider it the same *work* as Group 1. However, two different *versions* are at work here, appearing to stem from different textual traditions. I discussed this passage in detail for Group 1; in it, the alchemical process is compared to the growth of a human infant. I have divided up the lines in **T** and **Ga** so that the information content is parallel:

Table 5.10. Comparison between **T** and **Ga**.

Group 1: T	**Group 2: Ga**
In Anoþ*er* place þis <w>erke ys lyckenede mych vnto þ^{e} creac*iou*n of man*ne* .	And so*mm*e thincke that is muche like a mans creation
ffor As Achelde ys ffyrste norysshede w*ith* lye*ȝ*te mett*es* & dryn*n*ckes	for as a childe first is fead w*ith* light meate
& After warde w*ith* grette met*es* & drynck*es* be comfortede .	and as yt waxeth w*i*th stronger meate / and so he is norished vp /
Ry*ȝ*ght soo þ^{is} maystrye & þ^{is} werke nedeth ffyrste esye ~~fy^{e}r*e*~~ fyer*e* & Afterwarde grettere & gretter fyer*e*. / vnderstonde thowgh þey speke of fyer*e* . & howe eu*er*e þey speke þ*er* of . / I sey trewlye þ*a*t your fyer*e* schall be Incresede bute letell & eselye vnto þ^{e} ende of þ^{e} decocc*iou*n	and likewise ye muste Attemperate yo*ur* worke as y^{e} childe is fead after his waxing /
(**T**, ll. 192–199)	(**Ga**, ll. 136–140)

This passage exemplifies two major things that differentiate Group 2 from Group 1. Firstly, the information content is partially similar, but **Ga** does not contain all the information content that **T** does. Secondly, on the lexical level, there are constant differences: similar information content is worded very differently, as the first section of the example shows. **Ga** has "And so*mm*e thincke", whereas **T** has the oft-repeated "In Anoþ*er* place". Both of these refer to an alchemical authority giving the information that follows, but in different ways.

In this example, the information content is approximately the same until the end of the passage, where Group 1 (**T**) gives considerably more detail, especially when it comes to the process of feeding the fire. Where the reader of **Ga** must infer that the same procedures as with feeding a child must be metaphorically transferred to feeding the alchemical fire, the reader of **T** has this information spelled out. **Ga** tells the reader to simply "Attemperate yo*ur* worke", but **T** instructs them to start with a smaller fire, and gradually and gently increase it until the process of decoction is finished: "I sey trewlye þ*a*t your fyer*e* schall be Incresede bute letell & eselye vnto þ^{e} ende of þ^{e} decocc*iou*n". So, **Ga** in general is shorter than the Group 1 copies, and the information is conveyed more concisely, with details left out. This conciseness can lead to vagueness.

This example is central to my argument that **Ga** is a different *version* of *MoA*, and thus belongs in its own textual group, Group 2. The difference in information content is one reason, but the linguistic level is even more significant: what lexical items are used, and what the syntax is like. In Section 5.2.2, I will briefly demonstrate why a word-for-word collation for **Ga** and **T** is not feasible, as they are not the same

version of *MoA*. However, even Table 5.10 shows that **Ga** has none of the textual unity that characterises the four manuscripts of Group 1.

In the following subsections, I will further demonstrate that **Ga** forms a distinct version of *MoA*, and thus a Group of its own. First, I discuss the overall structure of **Ga**, which is somewhat different from the structure of Group 1. Next, I compare longer sections of **Ga** with Group 1 to show the overall differences, and discuss some major variation especially in terms of information content. In addition, I briefly discuss the orthography and other minor variation in **Ga**, and summarise my overall argument for Group 2 being a distinct version of *MoA*.

5.2.1 General structure

Ga's structure is already enough to characterise this witness as forming a Group of its own. The most significant structural difference in **Ga** compared to Group 1 is that it does not include a rubric, prologue, or the preamble and list of chapters following the prologue in Group 1; nor does it have an explicit. Instead, **Ga** begins with a very short version of Chapter I. However, the overall information content and order of presentation in **Ga** shows that this copy is still a version of *MoA*, despite lacking the paratextual apparatus that Group 1 has.

The structure of **Ga** seems to point to it deriving from a divergent textual tradition of the Latin *Speculum alchemiae*. As I noted in Section 3.2.2, there is evidence of roughly two groups of *Speculum alchemiae* in the Latin manuscript copies I have examined. These groups correspond to Groups 1 and 2 of *MoA*. I will discuss the Latin connections in more depth in Section 6.2.2; for now it will suffice to say that the lack of prologue and the shortness of Chapter I in **Ga** have Latin precedents, as does the general structure of **Ga** as well.

However, despite structural differences, Group 2 overall follows the seven-chapter structure of *MoA*, and the information content of the chapters is fundamentally the same as in e.g. Group 1. **Ga** does not usually include chapter numbers[198] or chapter titles. However, the chapter divisions – if one can call them such in this copy, as they are not as explicitly divided, and the word 'chapter' is only used twice[199] – are easy to spot if one has prior knowledge of *MoA*.[200] Apart from

198 There are plenty of marginal notes throughout **Ga**, including numerals. However, these numerals do not signify chapter numbers, and their purpose is not always clear. They sometimes serve purposes of textual organisation, though.

199 In the title of Chapter VI (see below), and at the start of Chapter VII.

200 However, I do not think that this version was especially intended for professional readers familiar with the work. As mentioned, there are Latin copies of *Speculum*

Chapter I, which starts directly with "Hermes", and Chapter VI (discussed below), Table 5.11 shows that the chapters begin with similar constructions, all starting with 'now'.[201]

Table 5.11. Chapter beginnings in **Ga**.

Chapter	Chapter beginning	Line no.
I	Hermes the father of Philosophers saith	1
II	Nowe I shall declare the natural principles of generac*i*on of \mettalls/[202] myn*e*res	16
III	Nowe tutche againe to seeke the matt*er* that is *per*fect and meete to make o*u*r Philosophers Stone of	45
IV	Nowe sythe yt is so that we make o*u*r stone of two *per*fect matters yt behoveth vs to make o*u*r matter more then *per*fect	107
V	Nowe shall I tell yo^{u} of the making of vessel of Circulac*i*on and the fournes howe yt should be made	141
VI	Nowe shall I tell yo^{u} the colers of y^{e} Philosophers stone	190
VII	Nowe will I treat of the mann*er* of *pro*iection the w*hi*ch is y^{e} ayed[203] of the worke	226

These extracts show that the 'now' constructions give the topic of each chapter even though they are not framed as titles, and that the chapters follow the same order as in the Group 1 manuscripts. However, Chapter VI is an exception here regarding the lack of title: for some reason, this chapter in **Ga** includes the chapter number and title explicitly, explaining that this chapter is about all the "accedentall thinges and Cencyall" that appear in the work. In the other Groups, Chapter VI describes the different *colours* in the alchemical process: that is, the different stages of the alchemical work. 'Things' is thus actually misleadingly vague here. 'Accidental' refers to something not inherent in a thing , that is, induced from without (cf. *MED* s.v. *accidental,* subsense 1b). "Cencyall" is 'essential':

(49) The 6 . Chapter is of all accedentall thinges and Cencyall whers appearinge in the worke (**Ga**, ll. 188–189)

alchemiae which have a similar structure and lack e.g. chapter numbers, so it seems that there simply existed versions of the work without such reading aids.

201 Cf. Mooney (1998: 126), with "Nowe turne we to" as a break "cued by the medieval author or compiler".

202 <mettalls> seems to have been added by a later annotator.

203 <ayed> appears to be an unusual spelling for 'height'.

This chapter title is at the very bottom of f. 38v. The sixth chapter proper begins on the next page, f. 39r, with a 'now' construction, and here the chapter topic is clarified, as "colers" ('colours') is mentioned (see Table 5.11). In effect, the title of Chapter VI is extraneous, as the main text after 'now' gives the chapter topic. It is not clear why this chapter should have a separate title when the other chapters do not. One possibility is that the MS **G** scribe's exemplar, or the exemplar of the copy **Ga** is copied from, lacked Chapter VI. At least one Latin copy of *Speculum alchemiae* lacks the sixth chapter (MS Sloane 692, Appendix 2), so this is not entirely speculation. So, the MS **G** scribe, or the scribe of their exemplar, may have copied Chapter VI of *MoA* from some other source compared to the rest of the text.[204] There is no difference in the MS **G** scribe's orthography in Chapter VI, however; but as was seen with **Gb**, the scribe clearly could impose their own orthographical standards while copying from an exemplar. In any case, in terms of chapter titles, Chapter VI is the outlier.

Ga also shows textual fluidity towards the end of the treatise, as Chapter VII merges with a non-*MoA* ending on f. 40r, and thus Group 2 also lacks the explicit found in Group 1. I will discuss this in detail below. Finally, I will discuss a matter of cataloguing and structure that bridges into the topic of the next section. As mentioned in Section 4.1.1, eVK2 divides up **Ga** into a prologue and main text, which have different eVK2 numbers (2412 and 3735). This is an example of the challenges of cataloguing and textual fluidity, and how closer study of a text can reveal cataloguing infelicities. As I have discussed, **Ga** does not have a prologue at all; what eVK2 lists as the prologue is in fact Chapter I in **Ga**. Chapter I begins "Hermes the father of philosophers saith in his science", but this is marked "Prol." in eVK2 (.vk 2412.00). Comparison to Group 1 shows that this information content is from Chapter I of *MoA*. In Group 1, the reader is exhorted to consider Hermes the philosopher's words in which he says that alchemy is a bodily substance, made of one substance; with that one substance, alchemy joins together precious things:

(50) yt be hovede you to *con*sedere þ^e word*es* of . hermes . þ^e phelosophe*r*e seynge oon*ne* þ^is wyese . Alkemye ys Abodelye s*ub*sta*un*ce made of oon*ne* & be oon*ne* p*er*fytlye Ioynyng to geder p*re*cyous þyng*es* (Group 1: **T**, ll. 53–55)

In **Ga**, this passage runs as follows:

[204] I am grateful to Dr Mari-Liisa Varila for suggesting this possibility.

(51) Hermes the father of Philosophers saith in his science, Alkamy is a body, the substance of one, and by one symple compounde, Ioyned togeth*er* p*re*cious thinges (**Ga**, f. 36r, ll. 1–4)

Comparing with Group 1, this is clearly Chapter I, not a prologue. The same information content appears, although Group 2, **Ga**, differs considerably in terms of actual lexis and morphosyntax. For instance, alchemy joins precious things together "by one symple compounde" rather than "be oon*ne* p*er*fytlye" (which, in Group 1, is more ambiguous). Similarly, the incipit for what eVK2 terms the start of the main text of *MoA* in **Ga** is "Now I shall declare the natural principle of generation of metals" (.vk 3735.00). However, this is the start of Chapter II in **Ga**. In Group 1, Chapter II also starts with mentioning the 'natural principles': "Then*ne* for þ^{e} declac*iou*n of þ^{e} . 2^{u} . chapit*ur*e . s . þ^{e} whych Ar*e* þ^{e} naturall p*ri*ncyples &c" (**T**, l. 64).

To sum up, the structure of Group 2 is the same as in Group 1 as regards the order of chapters, but some structural elements found in Group 1 – the rubric and the prologue – are not present in Group 2, in the version extant in **Ga**.

5.2.2 Major variants

In this section, I will compare **Ga** with Group 1 (in the form of **T**). Comparison on a broader level will show that **Ga** definitely forms a textual 'group' of its own; even the beginning of Chapter I, beginning directly with "Hermes" in **Ga**, already shows a marked difference. As Group 2 is so different from Group 1 when it comes to actual wording, it not useful for the present study to compare the two Groups word for word. I will demonstrate this with a passage from Chapter VI, on the ashen colour that appears before the Stone turns red. A couple of lines (**T**, ll. 250–252; **Ga**, ll. 219–222) will already suffice to show that collation of Groups 1 and 2 is not a fruitful approach.

T: fforþ*er*mor*e* be twen*n*e þ^{e} verye whyettenes & þ^{e} trewe Redenes
Ga: Then betwene y^{e} whitenes & y^{e} Rednes

T: þ*er* ys Aman*er*e of greye Asshes / wherfor yt ys seyd
Ga: shall appeare pale coler like to ashes &

T: After þ^{e} whyettenes w*ith* Incre=ssyng of heete of þ^{e} fyer*e*
Ga: after y^{t} whitnes

T: þ*o*u schalt come vnto Asshes
Ga: shall come a greiye coler of Ashes
but the heate of the fyer muste be increased a little

What this collation reveals is that while there are passages that make some form of collation possible, that very collation shows that the lexical and syntactical differences far outweigh the similarities. The passage starts quite similarly, although **T** adds the adjectives "verye" and "trewe". However, the next line of collation already shows great differences, even regarding information content: **Ga** says that a pale colour similar to ashes will appear, whereas **T** suggests that this substance is 'a kind of grey ashes'. Where **T** has the longer "wherfor yt ys seyd", **Ga** only has "&". Compared to the relatively small differences between the Group 1 copies, Group 2 presents itself as considerably different. It should also be noted that the above example was chosen on the basis that it enables some sort of collation: that is, it is more similar than other passages. In short, Group 2 must be compared with Group 1 on a broader level of information content, not on the lexical level.

Further, while Group 2 frequently has the same basic information content as Group 1, it may organise it in a different order. This can be seen in the collated passage above with the information on increasing the heat of the fire: **T** (Group 1) has this information before "schalt come vnto Asshes", but **Ga** has it following "a greiye coler of Ashes". All of this points to my basic argument: Groups 1 and 2 are distinct. This seems to be in part because they represent different Latin traditions: Chapter 6 delves deeper into the translational aspects.

Table 5.10 at the start of Section 5.2 already showed a major feature distinguishing Group 2: its brevity. Despite the first chapter in **Ga** being very short, even shorter than in Group 1, the chapter includes the "Alkemus" etymology for alchemy that can also be found in Group 1. However, **Ga** gives the same information content in a shorter form than Group 1:

(52) the sciens is called Alkamy after a Philosopher the w*hi*ch was called Alkam*us* (Group 2: **Ga**, ll. 9–10)

(53) Then*ne* for A playne vnderstondyng her of knowe þ*a*t Alkemye ys Ascyense & hath hys name of A phelosophe*r*e þ*a*t hyȝte Alkem*us*. (Group 1: **T**, ll. 58–60)

As example (53) shows, Group 1 – especially **T** – enrobes the information content in more detail ("Then*ne* for A playne vnderstondyng her of knowe"), and Group 2/**Ga** gives the same information content in a simpler manner (52), leaving out 'filler'. The overall word count of **Ga** is only about 2,400 as opposed to Group 1's c. 4,000 (on average). Even the word count shows that **Ga** is written more concisely.

Sometimes, however, the difference between Groups 1 and 2 is evident in more than just conciseness: the version of *MoA* in **Ga** orders things differently, as shown above, or more significantly, does not include some rather major details that appear in Group 1. The most conspicuous difference in textual organisation and information content is in Chapter III, where Group 1 has the 'six conclusions' instructing the reader in what substance to use as the starting point for the Stone. To reiterate, the conclusions, in Group 1, have the following content: 1) the substance should not be selected from vegetable sources; 2) nor from living beings; 3) nor from 'middle minerals' such as magnesia; 4) it should not be common mercury or sulphur; 5) nor gold or silver; 6) what the substance *should* be is a mineral containing both (philosophical) sulphur and mercury.

In Group 1, the conclusions are *named* conclusions: "The firste *con*clusyou*n* ys" (**T**, l. 120), and so on. Group 2 differs here: the clear division into six conclusions does not appear in **Ga**. As mentioned, the *explicit division* is a distinguishing feature for Group 1, and does not appear in Groups 3 or 4 either. However, what makes Group 2 distinct is that in **Ga**, the actual information content for the conclusions differs. Conclusions 1 and 2 are combined and very short, declaring that mercury and sulphur should not be mixed with human blood, or trees, or human hair, or other vegetable matter:

> (54) that is for to saye not myxed w*i*th mans blood or els other treys or mans heire or any other vigityve thinges w*i*thout yt maye be brought into m*ercury* / or sulpher and therefore of all vigitatyve thing*es* we be excused (**Ga**, ll. 64–68)

The other conclusions are also very different from Group 1. Conclusion 3 is omitted entirely; conclusion 4 is only briefly mentioned (the entirety of this conclusion is "And to take M*ercury* and Sulpher in y^{er} owne kynde <u>w*i*thout we knewe the true p*ro*porc*i*ons of them yt would not serve</u> for no man can p*ro*porcion y^{em}", **Ga**, ll. 68–70); the information content of conclusion 5 appears in a different order than in Group 1;[205] finally, conclusion 6 appears to have the same basic information content. All in all, Chapter III in **Ga** is rather obscurely worded and organised, lacking the clarity of the version in Group 1.

[205] In **Ga**, this conclusion jumps immediately to describing the properties of gold (the sun) and silver (the moon), without explaining that the substance to be chosen should *not* be either of these two, or that the reason for including the definitions is to prove that gold and silver should not be used. After the definitions, approximately the same information appears in **Ga** as in Group 1. In Group 1, the definitions come last. The information content in **Ga** is thus in a different order. A concept also appears in **Ga** that does not appear in Group 1: "<u>for the **volatyve** Son*ne* ou*er*cometh the fix son*ne*</u>" (**Ga**, ll. 87–88).

A more ambiguous instance of difference in information content, and an example of the complexities of alchemical manuscripts, appears in Chapter IV. The following passage is on how the work is to be achieved. **Ga** – with two alchemical sigils, described within curly brackets – indicates a rather different interpretation for this passage than Group 1. My interpretation of **Ga** here is that it describes that the work is achieved with the Red Stone (making gold), with an ambiguous way, boiling/decoction – see below – and with one vessel:

(55) And in another place he saith That {Sun} thinge that is the stone And w*i*th {Salt/Saltpetre?} way yt is to seethe And w*i*th one vessell all the mastrye is ended (**Ga**, ll. 130–133)

(56) In Anoþ*er* place knowe you þ*a*t All þ^{e} maystrye ys doon*ne* w*i*t*h* **oon*ne*** thynge & w*i*t*h* **oon*ne*** vessell (**T**, ll. 189–190)

Based on the information content of the other Groups, this passage does not require special sigils, as the intention here is to reiterate that to achieve the alchemical goals, *one* thing is needed – the Stone – and *one* vessel. In **Ga**, here, two sigils appear to be used. The first corresponds to the alchemical sigil for sun (gold, ☉). The second, a circle vertically bisected with a line, is more ambiguous. It resembles the sigil for salt, but that sigil usually has a horizontal line (Gettings 1981: 223, *salt*). An alchemical sigil for *saltpetre* exists in the form of a circle bisected with a vertical line (Gettings 1981: 224, *saltpetre*), so this is also a possibility. In any case, due to these sigils, the meaning of this passage comes across as different from the other Groups. As Figure 5.6 shows, the MS **G** scribe writes the sigil for sun very clearly:

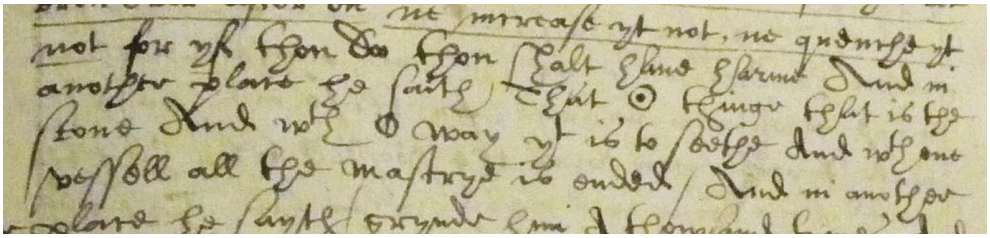


Figure 5.6. Ga, f. 38r: {Sun}. Copenhagen, Kongelige Bibliotek MS GKS 1727, f. 38r. Image: Sara Norja, published with permission. © The Royal Danish Library, Copenhagen.

Indeed, {Sun} makes sense if one interprets this passage as referring to the culmination of the alchemical work being reached with the Red Stone, which makes gold. As described above, the second sigil, {Salt/Saltpetre?} is more debatable. It may in fact simply be a circle bisected by the descender of the <s> in <saith> on the line above. The use of these sigils where 'one' would make more sense semantically

may derive from the **G** scribe's exemplar, or the scribe mistook other markings in their exemplar (such as <0> or <O>) for sigils with deeper alchemical significance.[206]

Despite differences such as this, the information content of **Ga** mostly corresponds (in a terser form) to that in Group 1, and is part of the general content of *MoA*; but notably, Group 2 diverges entirely from Group 1 at the very end of **Ga**, merging with another alchemical text. A little over half of Chapter VII in **Ga** corresponds in information content to Group 1. The divergence is after a rather ambiguous passage on how alchemy makes bodily things spiritual, and vice versa. In Table 5.12, the corresponding information content is once again presented in parallel. The passage below the horizontal lines indicates diverging information content.

Table 5.12. Information content in Groups 1 and 2.

Group 1: T	**Group 2: Ga**
ffyrste **bodelye þynge*s*** Ar*e* made **sp*irit*uall** .	In this governance **bodylie thinges** be made **vnbodylie**
Ande **sp*irit*uall þyn*nge*s** Ar*e* made **bodelye** þynge*s* .	an **vnbodylie thinges** be made **bodylie**
Then **In þ^{e} fulfyllyng of þ^{e} werke** All þ^{e} bodye ys made **sp*irit*u=All & fyxe** . /	& **in the full end** all the bodyes be made **spirytu=ally fixed**,
þat ys to seye p*erfy*ȝte. Elyx*er*e . whyete or*e* Rede // Then syth þ^{is} Elyx*er*e ys so ferre wroughte be you*n*d his nature . [...]	ye shall vnderstand thoughe y^{t} all the worke be vpon Sulpher & m*ercury* yet it is not vpon comon Sulpher nor vpon comon m*ercury* [...]
(**T**, ll. 280–284)	(**Ga**, ll. 239–244)

After discussing the matter of transformation in rather mysterious terms – spiritual (or 'unbodily', as **Ga** terms it) things will become bodily, and vice versa[207] – Group 1 continues with the recipe-like advice on how to proceed with the Elixir and what proportions to use for projecting it. However, Group 2 goes in an entirely different

206 The Latin text in BL MS Sloane 3744 (a witness of *Speculum alchemiae* which seems similar to **Ga**, see Section 6.2.2) reads "vna re v*idelicet* lapide vna via .s. coq*uere* & vno vase" (f. 63v): that is, 'one' certainly seems to be the intended meaning in this passage.

207 This is a difficult passage; further, there may be a slight difference in meaning between **T**'s "sp*irit*u=All & fyxe" and **Ga**'s "spirytu=ally fixed". It is unclear what being 'spiritually fixed' might mean. Fixed is the opposite of volatile, i.e. 'not losing weight under the influence of fire' (*OED* s.v. *fixed* adj., subsense 4b), but it is usually used in a very physical sense.

direction. Where Group 1 begins to discuss the Elixir directly, Group 2 moves on to sulphur and mercury, and does not return to *MoA*'s information content. The recipe-like section at the end of *MoA*, describing how exactly to project the Stone onto metals, what proportions to use, and how long the work will take, is not included at all in **Ga**.

Instead, there is a discussion on philosophical sulphur and philosophical mercury, and how the two kinds of sulphur and mercury (common and philosophical) differ. Mercury in particular is described: there are two kinds, the first of which, "m*ercury* of kynde" (called "Sperma & aqua viscosa"; **Ga**, l. 247–248), is what quicksilver and other metals are engendered from. The other mercury is called "water p*er*menens" (**Ga**, ll. 254–255) and "m*ercury* of crafte y^{t} the P*hilosop*hers vsed" (**Ga**, ll. 256–257); it seems to be the 'philosophical' mercury which enables transmutation. Terms such as this do not occur in the other Groups of *MoA*. This leads me to suspect that whoever originally compiled the text that the MS **G** scribe was using as an exemplar merged *MoA* with an extract from a different text. Despite this being a very different ending for *MoA*, the scribe either saw no textual division or their exemplar already had this insertion, as the manuscript text flows from *MoA* to the insertion without disruption. This is why I have chosen to incorporate this insertion into the present study. I have not been able to find the source for this insertion.

The ending of this insertion is "& thus kynd hath brought forthe both m*ercury* & sulpher &c" (**Ga**, ll. 259–261). The text thus ends with "&c", which might indicate that the scribe knew that there was still something more to copy, but chose not to include it.[208] After *MoA* ends with this fluidly incorporated insertion, the scribe leaves a substantial blank space, and another text begins with a Latin incipit:

> (57) Hic maiestatem die minu*er*it nec Secreta manebit cu*m* Sic causas t^{a}ba
> Of m*ercury* and quicksilver both be of one kynde yet are they dyu*er*s and other in spicis (**Ga**, f. 40r)[209]

In the left margin, at the start of this incipit, there is a marginal note: "Secreta P*hilosop*her Bacon" in an italic hand, either the main scribe's or a later annotator's. This note, as well as the nature of the incipit (beginning "Hic", 'this'), are indications that a new text is beginning. It begins by discussing the two kinds of mercury, quicksilver and "sperma or aqua viscosa" (f. 40r), and continues into discussing "an

[208] As it was not possible for me to examine MS **G** *in situ* more than once, I could not verify whether the scribe habitually adds "&c" to the end of treatises or not.

[209] The Latin can be translated approximately as 'This reduces the majesty of God and it will not remain secret'; I would like to thank Veli-Matti Rissanen for his help with the translation. However, <t^{a}ba> may be a misspelling, as it cannot be expanded to a form that would fit this context. I could not locate this incipit in eTK.

herbe y^{t} men call Lunere" (i.e. moonwort; *MED* s.v. *lunari(e* n.1), together with etymologies, and its alchemical uses. I have not been able to identify this text. Since it also uses the terms *sperma* and *aqua viscosa*, it is possible that it was copied from the same source as the insertion into *MoA*. eVK2 lists *MoA* in **Ga** as running until f. 41r, which is where the "Hic maiestatem" text ends. Again, the textual fluidity of **Ga** has made it difficult to determine what 'belongs' to a work and what does not. Considering the white space and the "&c" on f. 40r, which seem to me to mark the end of one work and the beginning of another, I have not included the "Hic maiestatem" text in the present study, although I have included the previous insertion.

5.2.3 Minor variants

Minor variants such as orthography might be used as additional evidence for the Group divisions; however, there is not a significant difference between the orthography of **Ga** and **Gb**, which of course share a scribe. There is a lot of spelling variation (unsurprising for manuscripts from the mid-1500s; cf. Nevalainen 2012: 146), but a comparison of the spellings in the different copies of *MoA* in **Ga** and **Gb** does not show any consistent differences that might derive from the exemplars. The MS **G** scribe appears to have had fairly consistent scribal and orthographical habits, and to have imposed their own orthography onto the texts they copied. For instance, the scribe always seems to write <shalbe> for 'shall be', and <togeather>. In terms of orthography, then, the minor variation does not give additional evidence for the Group division.

However, there are some differences regarding other minor variation. As mentioned, **Ga** includes some alchemical sigils in its marginalia and in the main text (in the possibly erroneously copied example). **Gb**, although copied by the same scribe, does not contain such sigils. As discussed earlier, **Gb** was copied from **A**, and **A** does not have any sigils. It is possible that the exemplar used for **Ga** contained similar marginal annotations using sigils. A complete overview of the **G** manuscript would be needed in order to gain a full picture of whether or not the scribe tended to use sigils in other texts in the manuscript. However, here the significance of the exemplar also shows a difference between Groups 1 and 2 when it comes to the two copies of *MoA* in the same manuscript.

5.2.4 Summary

Overall, the discussion and evidence in the previous subsections argue strongly for **Ga** being a separate *version* of *MoA*, and thus forming a Group of its own. Its

structure differs from that of all the four copies in Group 1, **Ga** having no rubric, prologue, preamble, or explicit. Although Group 2/**Ga** mostly contains the same basic information content as Group 1 (making it clearly the same *work*), it clearly differs in terms of its lexis and grammar, and in how the information is conveyed – and also in how much detail is conveyed, as **Ga** is considerably more concise than Group 1. I have also pointed out passages in which **Ga** differs with regard to information content. **Ga** shifts seamlessly into text from another source at the end of *MoA*, which is of course the major difference in terms of information content; however, even if this addition is not taken into account, there are almost no passages in which **Ga** could be collated directly with Group 1, as it is so distinct.

However, Groups 1 and 2 are similar in that they are both extant in manuscript form only. The first printed version of *MoA* only appeared in 1597, decades after **Ga** was copied into its manuscript. In the next section, I will move on to Group 3, in which this printed tradition comes into play.

5.3 Group 3: The 1597 printed edition

Group 3, like Group 2, consists of only one manuscript copy: **S1**. However, **S1** is not the only *witness* of this Group, since the printed witness of *MoA*, **Oli**, also belongs to Group 3. This Group is unique in two ways. Firstly, **S1** is directly copied from **Oli**, as I will demonstrate below; secondly, it is copied only in part, with insertions from other sources, and as such is as an example of the textual fluidity of early scientific writing which Group 2's ending also exemplifies. **S1** is the most complex of the *MoA* copies in terms of textual structure: it does not include the preface, diverges into a non-*MoA* text in Chapter II, returns to *MoA* in Chapter III, and after that chapter ends, dives into yet another non-*MoA* text. I will discuss this in detail below.

I am not the first to note that the *MoA* part of **S1** has been copied from the English printed edition of 1597, **Oli** (STC 1182). This was noted by Linden in his edition of **Oli** (1992: xv): "a substantial part of its [**S1**'s] *Mirror* is a nearly verbatim copy (fols. 39–47) of the printed edition of 1597". This "substantial part" is about two thirds of the text as a whole – but see Section 5.3.1 for the issue of defining the boundaries of the 'text' in this case. As I will discuss in detail in the next chapter, **Oli** was translated from the French edition, *Le miroir d'alquimie* (1557), which was in turn translated from the *Speculum alchemiae* in *De Alchemia* (1541). In the present section, I use these French and Latin predecessors for textual comparison of relevant passages.

Manuscript texts being copied from printed editions is not an unusual phenomenon, and there are some earlier notes and studies on this practice (e.g. Bühler [1960] 2016: 34–39; Reeve 1983). The phenomenon has received more

scholarly attention in the past 20 or so years (e.g. McKitterick 2003; Grund 2007; Varila 2016; most recently, Drimmer 2020).[210] Frans Janssen (2011) provides plenty of examples of manuscripts copied from print (although mostly on the larger scale of an entire printed edition being copied into manuscript).[211] Janssen suggests (2011: 298) that "particularly in esoteric circles, reverence for texts was demonstrated by copying them by hand"; however, I would not consider the copying of *MoA* into **S1** due to any reverence for the text, considering the amount of scribal editing involved in this copy of *MoA*. More directly relevantly for the present study, Janssen notes (2011: 310) that the motives for copying from a printed book usually concerned the book's contents, i.e. how important the copyist considered a text – but that practical concerns such as availability were also relevant (cf. McKitterick 2003: 47). For instance, if one only had access to a printed book by borrowing it for a short time, copying from a printed book would enable one to peruse the copied works at leisure.

In the following subsections, I will demonstrate how Group 3 differs from the other Groups. Where textual comparison is necessary, I will compare Group 3 with Group 1 (**T**). Comparing Group 3 with Group 2 is not as useful as comparing it with Group 1, as Groups 1 and 3 are far more similar than Groups 2 and 3. To that end, Table 5.13 shows a short comparison of Groups 1, 2, and 3 from Chapter IV, where the 'child metaphor' occurs. Here, Group 3 is represented by **Oli**.

[210] The articles in the Fall 2020 special issue of *Digital Philology*, edited by Sonja Drimmer, are devoted to manuscripts copying from printed editions. Drimmer (2020: 97–101) summarises some previous studies on this topic.

[211] An earlier study on a similar topic is Lutz (1975).

Table 5.13. Comparison between Groups 1, 2, and 3.

Group 1: T	**Group 2: Ga**	**Group 3: Oli**
In Anoþ*er* place þis werke ys lyckenede mych vnto þ^{e} creac*ioun* of man*ne* .	And som*m*e thincke that is muche like a mans creation	And in an other place, this worke is verie like to the creation of man:
ffor As Achelde ys ffyrste norysshede w*ith* lyeȝte mett*es* & dryn*n*ckes	for as a childe first is fead w*ith* light meate	for as the Infant in the beginning is nourished with light meates,
& After warde w*ith* grette met*es* & drynck*es* be comfortede .	and as yt waxeth w*i*th stronger meate / and so he is norished vp/	but the bones beeing strengthened with stronger:
Ryȝght soo þ^{is} maystrye & þ^{is} werke nedeth ffyrste esye ~~fy^{e}re~~ fyer*e* & Afterwarde grettere & gretter fyer*e*. /	and likewise ye muste Attemperate yo*ur* worke as y^{e} childe is fead after his waxing / –	so this masterie also, first it must haue an easie fire, whereby wee must alwaies worke in euery essence of decoction.
vnderstonde thowgh þey speke of fyer*e* . & howe eue*r*e þey speke þe*r* of . /		And though we alwayes speake of a gentle fire,
I sey trewlye þ*a*t your fyer*e* schall be Incresede bute letell & eselye vnto þ^{e} ende of þ^{e} decocc*ioun*		yet in truth, we think that in gouerning the worke, the fire must alwayes by little and little bee increased and augmented vnto the end.
(**T**, ll. 192–199)	(**Ga**, ll. 134–140)	(**Oli**, p. 10)

As discussed in Section 5.2.2, Group 2 does not have all the detail that Group 1 does in this passage. Group 3, however, has all the information content that Group 1 does. This is not the only example of such a passage; so, this example shows that it is more fruitful to compare Groups 1 and 3 with each other. However, this passage also shows how different the lexis and grammar conveying the same information content are in Group 3 compared to Group 1 (**T**). The information content is usually the same, but word choices are different: for instance, what Group 1 calls "Achelde", Group 3 calls "the Infant" (**Oli**, p. 10). The same information content is conveyed differently: Group 1's "I sey trewlye" is conveyed as "yet in truth" in Group 3. **Oli** is from 1597, approximately 100 years later than when MS **T** was copied, and as discussed in Section 4.2.2, e.g. morphological changes had taken place in that time. For instance, **Oli** occasionally uses *do*-support (e.g. "Doo wee not see", p. 9), which arose after the 15th century (Lass [2000] 2008: 11–12; see also Nurmi 1999).

Even taking into account linguistic differences, though, the Group 3 witnesses have significantly different readings compared to Group 1. Thus, Table 5.13 already demonstrates that Group 3 is a different version of *MoA*. In what follows, I will proceed from general structure to major variation, which includes a brief comparison

with Group 1 as well as the major variation between **Oli** and **S1**. Finally, I will discuss minor variation between **Oli** and **S1**, and give an overview of the version witnessed in Group 3.

5.3.1 General structure

I will now discuss the structure of Group 3 in more detail. My discussion of **S1** is based on my consultation of the manuscript. I have a broad focus in this section; a more detailed analysis of the copying relationship between **S1** and **Oli** follows below. The most noticeable structural difference, of course, is that **Oli** includes all seven chapters, and **S1** only copies the first three.

After **Oli**'s title-page (see Appendix 1), this version of *MoA* has a short preface, which is partially similar in content to the prologue of Group 1; however, **Oli**'s preface is very short and does not contain all of the information content that Group 1's prologue does. **Oli** also does not have a rubric. This immediately points to a different version of the work being in play. After the preface, the title of the work appears, followed by the seven chapters in order. A separate list of chapters does not appear in **Oli**, but the chapters are given titles within the text:

(58) *CHAP. I.* Of the Definitions of Alchimy.
CHAP. II. Of the naturall principles, and procreation of Minerals.
CHAP. III. Out of what things the matter of *Elixir* must be more nearly extracted.
CHAP. IIII. of the maner of working, and of moderating, and continuing the fire.
CHAP. V. Of the qualitie of the Vessell and Furnace.
CHAP. VI. Of the accident all and essentiall colours appearing in the worke.
CHAP. VII. How to make proiection af the medicine vpon any imperfect bodie.

As is evident on the basis of these chapter titles, the contents of **Oli** correspond to the usual information content of *MoA*, the same as in Group 1. Chapter II is divided into subsections corresponding to the different metals described. After Chapter VII, a short 'explicit' ends the work: "*Here endeth the Mirror of Alchimy, composed by the most learned Philosopher,* Roger Bacon" (italics original; **Oli**, p. 16). So, all in all, **Oli** has a very standard structure for *MoA*, and as I will show in the next section, it largely corresponds in information content to Group 1. However, the second witness in Group 3, **S1**, has significant structural differences.

As mentioned above, Linden (1992: xv) points out that **S1** uses **Oli** as its exemplar; I discuss this in detail below. Linden (1992: xv) summarises the textual complexity of **S1** as follows:

> Except for very minor changes in phrasing, chapter one and the first part of chapter two are identical to the printed version. However, beginning with fol. 39^{v}, the manuscript introduces a substantial body of new material on metallurgical theory and the generation of metals beneath the earth's surface. After this expansion, the manuscript follows the printed text very closely to the end of chapter three, or the bottom of fol. 42^{v} of the manuscript. There an intertwined double line is drawn across the page and materials not included in the printed *Mirror* are entered into the text; these are primarily quotations from alchemists, such as Geber, Nicholas Flamel, Basil Valentine, George Ripley, Raymond Lull, and Paracelsus.

This is an accurate encapsulation of the structure of the **S1** copy of *MoA*. However, something that Linden does not mention outright is that **S1** does not include the short preface in **Oli**. Perhaps the scribe of **S1** simply did not consider the information content in the preface significant enough to be included.

I consider the 'text' of *MoA* in **S1** as stretching from the title until the end of Chapter III. Based on the quotation above, Linden seems to view the text appearing after Chapter III as part of *MoA* in **S1**, since he phrases the post-*MoA* material as being "entered into the text". What to include 'as' *MoA* and what to exclude is a complex question in the case of **S1**, even more so than it was for the ending of **Ga** (Group 2). For the purposes of the present study, which focuses on *all* the witnesses of *MoA*, I have chosen to include the inserted sections from other sources *within* the span of Chapters I–III (see below) as part of *MoA*. These insertions before the end of Chapter III have been inserted seamlessly into *MoA*, so the scribe probably meant these insertions to be part of the same whole. Thus, excluding them from my study and edition would seem like an arbitrary choice.

However, in order to facilitate comparison with the other manuscripts of *MoA*, I have excluded the longer insertion(s) from other sources after Chapter III. My reasoning for not including these is greatly due to the nature of **S1** as a manuscript. As described in Section 4.3 and the manuscript description (Appendix 1), MS **S1** is an alchemical commonplace book that predominantly consists of very short extracts, mainly in Latin, whose beginnings and endings may be difficult to puzzle out. The three chapters of *MoA* – in English – are thus somewhat of an anomaly in MS **S1**, as a longer extract, and as the work is clearly titled. The folios following *MoA*, 43r–47v, are also in English and concern alchemy (as do all of the extracts in MS **S1**),

but those are the only connecting factors. For instance, if I were to include one extract from them, they should all be included, as there are no boundaries indicated by titles. With the same logic, the Latin extracts following should also be included. Thus, I consider it justified to choose not to edit anything past the end of Chapter III of *MoA* – especially since someone, whether it be the original scribe or a later annotator, has marked the end of Chapter III with an "intertwined double line" (Linden 1992: xv) at the very end of f. 42v, thus demarcating a separation.

With this caveat, I will briefly describe how **S1** corresponds and diverges from the structure of **Oli**; the textual details are discussed in the following section. **S1** begins with the title on f. 39r, as discussed above; it includes the chapter title for Chapter I ("cap .1. the definitiones of alchimy"), which is formatted identically to the main title. Skipping the preface, **S1** goes straight into Chapter I of *MoA*. Having copied this with great accuracy, the scribe moves on to Chapter II, which is copied faithfully until the part where in **Oli** (and the other Groups; cf. Group 1, **T** ll. 71–88), the work discusses the properties of gold, silver, steel, lead, copper, and iron. **S1** also discusses the generation of metals, but in terms of what precise information content is presented, and how it is done, the rest of Chapter II is different from the other copies of *MoA*, including **Oli**. This divergence ranges from f. 39v to f. 40v. Chapter III, then, is given a title and is copied faithfully. After Chapter III, as described above, the text moves on to other sources.[212]

Structurally, then, *MoA* in **S1** is part of a textually complex concoction formed of many parts and derived from many sources. In the next section, I discuss the textual variation in *MoA*, Chapters I–III, comparing **S1** to **Oli** and showing that an exemplar–copy relationship exists between these two witnesses.

5.3.2 Major variants

I will first briefly discuss the differences in information content between Groups 1 and 3, before proceeding to the main focus of this subsection, which is the relationship between **Oli** and **S1**. The comparison with Group 1 gives further evidence of Group 3 being a separate version of *MoA*, and thus its own Group. The

[212] A possibility suggested to me by Professor Wendy Scase (personal communication, 21 February 2018) is that a potential reason why **S1** only the first three chapters were (partially) copied from **Oli** is that the scribe may have run out of time with the book, whether because they borrowed the printed edition from someone who wanted the loan returned, or whether they were copying in a certain location (while visiting another alchemist, for instance) and then had to stop copying because they ran out of time. This is of course speculation, but these would seem to be realistic scenarios.

intra-Group comparison following that is an analysis of this one case of a scribe copying from a printed edition.

5.3.2.1 Comparison with Group 1

The discussion in the previous section already showed in part that Group 3 forms its own version of *MoA*. However, there are some other differences in information content compared to Group 1 that add to this argument. As mentioned at the start of Section 5.1 (Table 5.4), Group 1 of *MoA* includes material in Chapter III that none of the other Groups do: the beginning of Chapter III mentions Aristotle's two natural contraries and the importance of similarity in alchemical processes. This is a major divergence in information content between Groups 1 and 3, and yet another indication that these are two separate versions of the same work. There is more differentiation in Chapter III. The six conclusions about what substance should be chosen as the basis for the Stone are not explicitly called conclusions in Group 3 – as mentioned, Group 1 is the only Group to do so. More significantly, the conclusions in Group 3 differ somewhat in *content*. Table 5.14 shows the conclusions in Groups 1, 2, and 3:

Table 5.14. The six conclusions in Groups 1, 2, and 3.

Conclusion	Group 1	Group 2	Group 3
1	The substance should not be selected from vegetable sources	The substance should not be selected from animal or vegetable sources	Same as Group 1
2	The substance should not be selected from living beings	(Conclusions 1+2 combined)	Same as Group 1
3	The substance should not be selected from 'middle minerals' such as magnesia	Omitted	Same as Group 1
4	The substance should not be common mercury or sulphur	Same as Group 1, but brief	In addition to mercury and sulphur alone, there is a long list of 'seven spirits' that one should not use
5	The substance should not be gold or silver	Same as Group 1, although different order	The substance should not be mercury or sulphur alone
6	What the substance *should* be is a mineral containing both (philosophical) sulphur and mercury within it	Same as Group 1	Same as Group 1

The table shows that conclusions 1, 2, 3, and 6 from Group 1 map out to the information content in Group 3. However, conclusions 4 and 5 are different in Group 3. Group 3's conclusion 4 includes a long list of 'seven spirits' that one should not use, but which include mercury and sulphur alone. Conclusion 5 in Group 1 says that one should not use gold or silver; in Group 3, one should not use mercury or sulphur by themselves. Thus, conclusion 5 in Group 3 repeats part of conclusion 4, and is fairly different in actual content from conclusion 5 in Group 1.

The fourth conclusion is the most striking concerning alchemical content. Group 1 mentions only common mercury and sulphur here, and none of the 'seven spirits' from Group 3 are included in Group 1. Thus, this passage is relevant when comparing between Groups, as Group 3 includes content that Group 1 and Group 2 do not:

(59) And if we should take one of the seuen spirits by it selfe, as **Argent-uiue**, or **Sulphur alone**, or **Argent uiue and one of the two Sulphurs**, or **Sulphur-uiue**, or **Auripigment**, or **Citrine Arsenicum**, or **red alone**, or the like: we should neuer effect it, because sith nature doth neuer perfect anything without equall commixtion of both, neither can wee: from these therefore, as from the foresaide Argent-uiue and Sulphur in their nature we are excused (**Oli**, pp. 5–6)

(60) The . 4th. *con*closyon ys our*e* ston*e* schall noȝte be made of **comyn*n*e . M*er*curij & sulpho*ur*** for ȝyff yt schulde be soo whe muste need*es* medell hem both to geder Affter Adewe p*ro*porsyo*u*n . which p*ro*porsyo*u*n passeth man*n*ys wyȝte . þ*er*fore lette vs noȝt dele w*ith* hem*e* (Group 1, **T**, ll. 131–134)

These seven 'spirits' in Group 3, in boldface in (59), are 1) mercury alone; 2) sulphur alone; 3) mercury and one of the two sulphurs; 4) sulphur vive (possibly meaning philosophical sulphur); 5) orpiment; 6) yellow arsenic; and 7) red arsenic (a sulphide of arsenic, AsS). The purpose of the list in Group 3 is to prove that none of these seven substances can be used as the basis for the Philosophers' Stone. However, although Group 3 adds significant information content to this conclusion, the overall message is the same: ordinary mercury and sulphur should not be chosen for the Stone/Elixir.

Another matter to point out concerning Groups 3 and 1 is the preface in Group 3 (in **Oli**, as **S1** does not copy it). This also applies to Group 4. The preface bears an intriguing relation to the information content in Group 1. The second half of the preface in **Oli** contains information content that is similar to some of the content in Group 1's *preamble* – that is, the section of text that in Group 1 comes after the prologue but before the first chapter:

(61) **Group 3**:
VVherefore I would aduise thee, that **aboue all other bookes**, thou shouldest firmly fixe thy mind vpon these seuen Chapters, conteining in them the transmutation of mettalls, and **often call to minde the beginning, middle, and end** of the same, wherein thou shalt **finde such subtilitie**, that thy minde shalbe fully contented therewith. (**Oli**, unnumbered p. A2)

(62) **Group 1**:
Therfore **befor All oþ*er* wryttyng*es*** grou*n*de þ^e^ sadlye vppon*ne* þ^es^ . 7^a^ . Cappeters folowyng her*e* In order þ^e^ whych *con*teyneth the transformac*iou*n of . 7^a^ . myn*er*all bodyes . gi . Ande **gyffe þ*o*u serch þ^e^ begyn=nyng þ^e^ medell & þ^e^ e*n*nde** of hem*e* offten*e* In þyn herte þ*o*u schall **fynde such sottelte** þ*a*t w*ith* þ^e^ grace of gode þyn dessese schall be t*ur*nede vnto grete *con*forte (**T**, ll. 39–43)

The boldface in the examples above indicates particularly close resemblances. Advising the reader to pay attention to *MoA* above all other writings, the 'beginning, middle, and end', and the 'subtlety' said to be found in the chapters, suggests that this is indeed the same passage in terms of information content. The 'preamble' in Group 1 is difficult to classify, as it does not appear to be part of the prologue, but is a distinct section of its own (as discussed in Section 5.1). Group 3 does not have this sort of preamble (nor does Group 4). The textual history here is unclear. There are some Latin manuscript copies where the prologue is conflated with the preamble (see Section 6.2.3).

All of the differences examined in this section, taken together, point to Group 3 being a distinct version of *MoA*. The textual evidence is clear: Group 3 is textually distinct from Groups 1 and 2, although it has mainly the same information content as Group 1. In the following section I examine how the copies of Group 3, **Oli** and **S1**, interact with each other.

5.3.2.2 **Oli** and **S1**: an exemplar–copy relationship

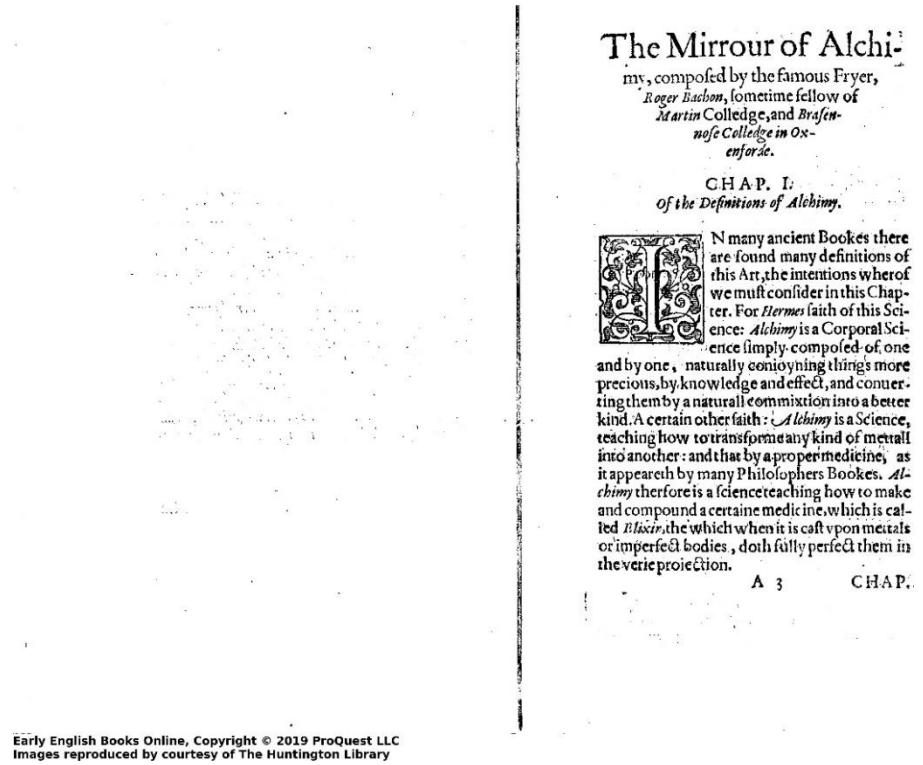
Curt F. Bühler ([1960] 2016: 37) notes: "When the immediate prototype is a printed edition, then an absolute control is available for judging the work of a scribe". As has been shown in the previous sections, this appears to be the case for **S1**; and thus, the scribe's processes can be examined in detail. In what follows, I will give textual evidence for **S1** being copied in great part from **Oli**. The textual relationship of these two witnesses can be encapsulated simply: **Oli** is most likely the exemplar for **S1**. After showing how **S1** is *similar* to **Oli**, I will focus on the major *variants* between the two.

Linden notes that the heading of **S1** is "virtually identical to the printed edition" (1992: xv), and indeed, that is the case:

> (63) The Mirrour of Alchimy, composed by the famous Fryer, *Roger Bachon,* sometime fellow of *Martin* Colledge, and *Brasennose Colledge in Oxenforde.* (**Oli**, p. 1; italics original)
>
> (64) The mirrour of alchimie composed by y^{e} famous fryer Roger Bachon . sometime fellow of martin colledge and brasen nose colledge in oxenforde (**S1**, ll. 1–5)

This title is copied from the title which appears after the preface in the printed book, not from the title-page of **Oli** (see Appendix 1). Both **Oli** and **S1** clearly attribute *MoA* to Roger Bacon and claim that he was a fellow of Martin (i.e. Merton) College and Brasenose College. This is an interesting claim, as biographies of Bacon do not mention him being involved with these colleges, although he did study at Oxford

(Molland 2004). I will discuss this detail further in Section 6.2.3, as it seems to be an addition to **Oli** in particular. What is notable for the textual relationship is that this shared detail and the overall copying of this title are clear evidence that **S1** was copied from the printed edition. Probably for reasons of saving space, **S1** does not follow the triangular layout of the printed title: see Figures 5.7a and 5.7b. However, **S1** does centre the title to differentiate it from the main text (cf. Varila 2016: 47 on the ways in which printed and scribal texts can interact).



The Mirrour of Alchi-
my, composed by the famous Fryer,
Roger Bachon, sometime fellow of
Martin Colledge, and *Brasen-*
nose Colledge in Ox-
enforde.

CHAP. I.
Of the Definitions of Alchimy.

IN many ancient Bookes there are found many definitions of this Art, the intentions wherof we muſt conſider in this Chapter. For *Hermes* ſaith of this Science: *Alchimy* is a Corporal Science ſimply compoſed of one and by one, naturally conioyning things more precious, by knowledge and effect, and conuerting them by a naturall commixtion into a better kind. A certain other ſaith: *Alchimy* is a Science, teaching how to transforme any kind of metall into another: and that by a proper medicine, as it appeareth by many Philoſophers Bookes. *Alchimy* therfore is a ſcience teaching how to make and compound a certaine medicine, which is called *Elixir*, the which when it is caſt vpon metals or imperfect bodies, doth fully perfect them in the verie proiection.

A 3 CHAP.

Figure 5.7a. The title in **Oli**. from *EEBO* (Huntington Library 35023). Image published with permission of ProQuest. Further reproduction is prohibited without permission. Images produced by ProQuest as part of *Early English Books Online*. www.proquest.com.

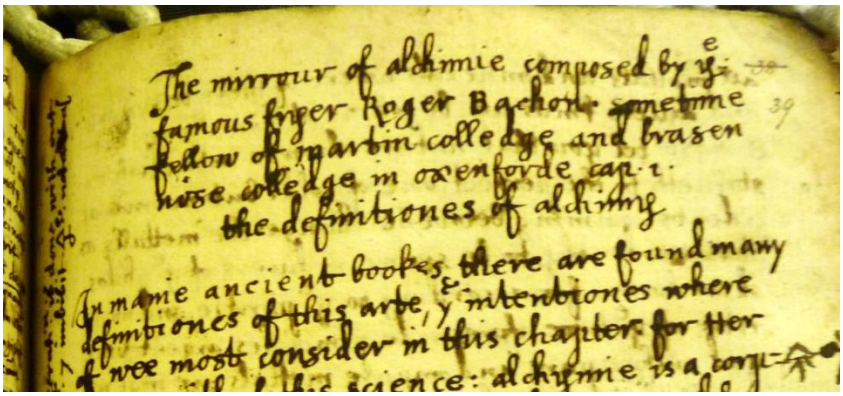


Figure 5.7b. The title in **S1**. London, British Library MS Sloane 2405, f. 39r. Image: Sara Norja, published with permission. © British Library Board.

Another way in which **S1** shows its indebtedness to print is in using catchwords. The scribe uses catchwords on every verso – although they are not visually marked as catchwords in the margin as is common, since the MS **S1** scribe achieves the catchword 'effect' by simply repeating the last word of every verso on the next recto. This tendency for frequent catchwords regardless of whether the page boundaries are the same as in the printed exemplar is an indication of the influence of print (cf. Nafde 2020: 123–124).

I have collated **S1** with **Oli**, and the textual connection is clear as a result of this collation. Where **S1** copies straight from **Oli**, the copying is overall faithful, as the following longer extract from the start of Chapter III shows (major variants are in boldface) in Table 5.15:

Table 5.15. Chapter III in Group 3.

Oli	**S1**
THe generation of mettals, as well perfect, as imperfect, is sufficiently declared by that which hath bene already spoken. Now let vs returne to the imperfect **matter** that must be chosen and **made perfect**.	The generatione of mettalls as well perfect as imperfect is sufficiently declared by that w*hi*ch hath been alreadie spoken: now let vs returne to y:^{e} imperfect **metter or mettall** that most be chosen and **perfectd**
Seeing that by the former **Chapters** we **haue bene taught**, that all mettalls are engendred of Argent-uiue and Sulphur, and how that their impuritie and vncleannesse doth corrupt, and that nothing may be mingled with mettalls which hath not beene made or sprung from them,	Seeing y^{t} by y.^{e} former **chapter** wee **haue taught**: y^{t} all mettaills are ingendred of arg. viue an\d/ sulfur and how y^{t} theire impuritie and vncleannesse doth corrupt: and that nothing may be mingled with mettalls w*hi*ch hath not beene made or sprung from them
it remaineth cleane[213] inough, that no strange thing which hath not his originall from these two, is able to perfect them, or to make a chaunge and new transmutation of them:	it remaineth cleare inough that no strang[214] strainge thing w*hi*ch hath not his originall from these twoe is able to perfect them or to make a change & and new transmutatione of them :
(**Oli**, p. 4)	(**S1**, ll. 103–115)

Overall, **S1** mainly copies word for word. There are a couple of major variants in this extract, but no significant difference in information content. Where **Oli** has "made perfect", **S1** has "perfectd" (i.e. 'perfected'), which is identical in meaning. **S1** has "chapter" instead of the plural, but that may be an error. Where **Oli** has "haue bene taught", **S1** omits "bene": this results in a difference in meaning, but not very significant. The more significant major variation in this extract is **S1**'s addition of "or mettall" (l. 106), which adds clarification. Overall, however, this example acts as evidence that **S1** was copied from **Oli**. This extract shows that *when* the **S1** scribe leans on their exemplar, they copy with rather little variation overall (minor variation and some scribal errors aside).

However, as mentioned above, **S1** diverges conspicuously from **Oli** in the form of the inserted sections from other sources. I will now discuss those insertions in more detail. In Chapter II, **S1**'s divergence ranges from ff. 39v to 40v, starting with a reference to Albertus Magnus. This reference is a useful signal that something else is being inserted into *MoA*:

213 Probably a typesetting error, with "clear" intended.

214 The repetition of *strange* is due to a page break here, from f. 40v to f. 41r; as mentioned, the MS **S1** scribe employs this sort of catchword practice.

(65) Albertus magnus saieth that y^e^ mettals doth differe in them selues in forme only, and that accidentelly, and not essentially (**S1**, f. 39v)

A later marginal commentator has added a heading above the line referencing Albertus: "cap. 3 . I will perfectly declaire y^e^ naturall princip*les* and pricreatio*ns* of mettalls nowe". This commentator has perhaps noticed that this text is not the same as Chapter II of **Oli**. However, the commentator is mistaken: this is not Chapter III of *MoA* (that chapter begins, clearly titled, on f. 40v of **S1**). But this comment, even if mistaken, seems to be a sign that the commentator was familiar with the overall structure of *MoA*.

The source of this insertion is in fact Pseudo Albertus Magnus's work *Semita recta*, also known as the *Libellus de alchemia*; the insertion includes most of *Semita recta*'s second chapter.[215] The **S1** scribe may have copied from an already existing translation, but considering their proficiency in Latin, the **S1** scribe could also be the insertion's translator.

Instead of listing the metals with simple descriptions of their properties, the insertion within Chapter II in **S1** discusses metallurgy in a more theoretical fashion (as mentioned in Linden 1992: xv, quoted above). Rather than focusing on the properties of the individual metals, this insertion from *Semita recta* discusses the generation of metals on a more general level. The framework of the sulphur-mercury theory is clearly evident:

(66) because all y^e^ mettals are ingenerated in y^e^ earth of sulfur and argent viue mixt to geither in y^e^ earth (**S1**, ll. 48–50)

This theory is the general framework behind the alchemy of *MoA*, so **S1**'s scribe stays within the same theoretical framework even when inserting text from another source. Overall, this inserted section deals with similar information content as Chapter II in **Oli**. The inserted section ends Chapter II with a synthesis of what has been said:

(67) now it is sufficiently declared of what matter y^e^ mettals perfect and imperfect hath there originell and how they differ in them selues only in form and accidentally and not assentially […] (**S1**, ll. 86–89)

The distinction between accidental and essential differences is important. The fact that metals differ "only in form", and not "assentially", refers to the fundamental alchemical notion that all matter is made from the same things in different

[215] A translation of this section can be found in Linden (ed. 2003: 101). I would like to thank Professor Peter Grund, who pointed me to *Semita recta* as the source during the pre-examination of the present study.

proportions. **S1** ends Chapter II with metatext leading to the next chapter: "and nowe it restes y^{t} wee come to y^{e} imperfect metter or mettall w*hi*ch most be chosine perfectide and purified by arte" (**S1**, ll. 96–99). This sort of conclusion and metatext do not appear in **Oli**, which merely ends Chapter II after describing the properties of iron, with the following maxim: "That which hath bene spoken, euerie Alchimist must diligently obserue" (**Oli**, p. 4).

The second insertion from another source in **S1** is after Chapter III. However, Chapter III is copied directly from **Oli**, starting with the chapter title (here, line breaks are indicated with a vertical line as they are relevant to the layout of the text as specifically a title):

(68) Roger Bachon cap. 3. | out of what things the matter of Elixir most | be more nearly extracted: (**S1**, ll. 100–102)

Contrary to the scribe's overall tendency to conserve space, this chapter title is given three lines. Roger Bacon's name is mentioned again, probably to indicate that the scribe is returning to copying *MoA* from **Oli**, coming back from the (unidentified) extract on the generation of metals. The chapter begins as a rather exact copy once more; the word-level textual variation is discussed below. Chapter III ends precisely as it does in **Oli**, with "thou shallt taste of that delightfull thing wher in y^{e}. wholl intentione of y^{e} philosophers is placed" (**S1**, ll. 226–228); this is "thou shalt taste of that delightfull thing, wherin the whole intention of the Philosophers is placed" in **Oli** (p. 8). After these words, which end the chapter in **Oli**, the text in **S1** continues not with Chapter IV, but with an insertion from another source, the start of which is indicated with boldface in the following example:

(69) thou shallt taste of that delightfull thing wher in y^{e}. wholl intentione of y.^{e} philosophers is placed . **Now when this** [f. 43r] this pure and fixed <u>mercuriall</u> substance is only to be found in the mettals and y^{t} it is a mettall as Geber says. (**S1**, ff. 42v–43r)

"Now" signals the start of another section here (cf. Section 5.2.1 above concerning lexical marking of topic changes in **Ga**). The section break is further enforced by a later commentator (presumably; the ink is the same darker colour and the nib width the same as that of a later annotator), who has added decorative lines separating the final sentence of *MoA* from the next section beginning "Now when this". It is interesting that the new section (no longer *MoA*) begins so close to the end of the page: the scribe seems to have intended it to be part of the same whole here. The text flows from *MoA* to the new material with no original indication of the source changing. However, the mention of Geber (who is not mentioned at all in *MoA*) is already a sign that this is from a different source than **Oli** – as with the mention of Albertus Magnus at the start of the previous insertion. Unfortunately, unlike for the

insertion in Chapter II, I could not locate a possible source for this insertion with the search tools available. Searching for phrases in EEBO-TCP and through Google produced no results. It is entirely possible that the insertion's exemplar was a manuscript, and as such, searching for an exemplar would be a game of chance. eVK2 did not produce results, nor did searching for incipits (eVK2 has standardised spellings). Singer's catalogue (1928) is organised by work, and so this kind of search is not possible with it.

As already discussed above, I have not included the **S1** texts following *MoA* in this study and edition. A brief description will thus suffice. The texts that follow *MoA* in **S1** after f. 42v are markedly different from *MoA*, especially in that they contain plenty of references to alchemists by name – as Linden remarked in his summary of **S1**'s *MoA* (see above; see the manuscript description in Appendix 1 for more details). Geber is referred to several times, as are Arnold de Villanova, Basil Valentine, Paracelsus, Nicholas Flamel, and several philosophers from antiquity.[216] There are also biblical references, for instance to Ezekiel (f. 45r) and Ecclesiasticus (f. 47v). It is possible that the section starting with *MoA* was intended to end on f. 45v, as that is the first time after the start of Chapter III of *MoA* that any textual division is introduced. The text on f. 45v mentions Paracelsus and discusses Venus, i.e. copper, as the source of the Stone, which – it should be noted – is not at all the alchemical theory that *MoA* upholds (which is the mercury-sulphur theory). After this, the scribe finally begins a new paragraph. The first letter of what follows, "Nicholl flammell sayes", is in the left margin, thus visually indicating the start of something new.

F. 47v is the last page predominantly in English before the following Latin text begins. This page includes a short text attributed to Geber, as well as a quotation from the Book of Ecclesiasticus (or Sirach) 11:18. This page has a markedly different alchemical-theoretical approach compared to *MoA* and even the earlier text on copper: the final prose passage in English on f. 47v includes the words "especially if Jehouah fauours he may then well make gold out of claye & dirte". On f. 48r, a Latin text entitled "Ex libro appellatus thesaurus thesaurorum" begins. The textual conglomeration that *MoA* forms a part of seems to end on f. 47v, although even that is unclear.

As mentioned, apart from these insertions from different sources, **S1** copies *MoA* rather exactly from **Oli**. However, there is some major variation even within the faithfully copied sections, as Table 5.15 already showed. I will discuss these in order

[216] Relevantly for the historiography of alchemy, f. 45r mentions "y^{e} arte of chymistrie" – an indication that *chymistry* as a term was being used by 17th-century alchemists (cf. Newman & Principe 1998).

of type: 1) omissions, 2) additions, and 3) replacements. My intention is not to list all the instances of major variation, but to give the most illuminating examples.

Concerning 1), omissions, **S1** does not tend to omit much when copying directly from **Oli**; the omissions are mainly single words that do not affect the information content, such as **S1** omitting "certain" from **Oli**'s "A certain other saith: *Alchimy* is a Science" (p. 1), making it "and an other saith" (**S1**, l. 14). The most significant omission is a whole phrase in Chapter I:

(70) A certain other saith: *Alchimy* is a Science, teaching how to transforme any kind of mettall into another: and that by a proper medicine, **as it appeareth by many Philosophers Bookes**. *Alchimy* therefore is a science teaching how to make (**Oli**, p. 1)

(71) and an other saith alchimy is a science teaching how to transforme anie kind of mettall into another and y^{t}. by a proper medicine **and** alchimy is a science teaching how to make (**S1**, ll. 14–17).

Where **Oli** mentions "Philosophers Bookes", **S1** moves straight from "a proper medicine" to declaring that alchemy is a science, adding a connective "and". It is possible that **S1**'s scribe simply did not consider this relevant enough to copy, as no particular 'philosophers' books' are listed in the exemplar.

An example of the scribe choosing to avoid repetition occurs in Chapter III, where **Oli** has "yet she [Nature] cannot throughly mundifie, or perfect and purifie it" (p. 7). **S1** omits "mundifie, or"; minims have been crossed out at the start of l. 199 (f. 42v), so it is possible that the scribe started copying the words but then decided not to include them. Mundification refers to cleansing or purification (*OED*3, s. v. *mundify*, v., sense 1), so this appears to be a case of **S1**'s scribe omitting repetition. *Le miroir d'alquimie* (1557: 17) reads "elle ne la sçait pas mondifier profondement, ou la re*n*dre du tout parfaicte, & la purifier"[217] – that is, the repetition is in the French (and in the Latin: *De Alchemia* 1541: 263). Like **S1**'s incorporation of other material into *MoA*, these examples further paint a picture of the scribe as an editor, making changes as they saw fit.

Concerning 2) additions, they suggest that the scribe of **S1** was not always averse to repetition. The scribe sometimes creates doublets with similar nouns connected with a conjunction. For instance, in Chapter III, **S1** adds 'metal', "imperfect metter or mettall", as noted above (**S1**, l. 106), where **Oli** merely has "imperfect matter" (p. 4). This happens again where **S1** has "when there be mettalls and minerals to bee

[217] 'She does not know how to mundify it profoundly, or to make it fully perfect and purify it'.

found" (l. 118) and **Oli** has "when there be minerals to bee found". The additions of 'metal' by the **S1** scribe may be an attempt to clarify the meaning of these passages.

Some other additions are probably also motivated by a desire for clarification. As discussed above, **S1** adds Roger Bacon's name before the chapter number in Chapter III when picking up the text of **Oli** again. The other clarifications are related to the alchemical content. In Chapter III, in the fifth conclusion (the Stone should not be made from gold or silver), **Oli** has the following: "we are therefore excused for taking the first too red, or the second too white" (1597: pg). In **S1**, the scribe adds clarifications: "for takeing y:^{e} first **to wit gold** too red, or y.^{e} secund **to wit silver** too y:^{e} whit" (**S1**, ll. 206–207). Here, the scribe adds a reminder about the metals corresponding to the colours red and white, making the text more accessible.

The most alchemically interesting addition is also in Chapter III, in the fourth conclusion, where **S1** (l. 156) reads "citrin \whit/ arsenicum, or red alone or the like".[218] The insertion "whit" is below the baseline, before "arsenicum", with a caret indicating its position. This appears to be an insertion by the original scribe. **Oli** reads merely "Citrine Arsenicum, or red alone, or the like", making no mention of whiteness, like its predecessors: *Le miroir d'alquimie* has merely "arcenic citrin, ou rouge, tout seul ou acco*m*pagné" (1557: 15), and *De Alchemia* has "Arsenicu*m* citrinum, aut rubeum solum uel compar" (1541: 261). The addition of "whit" therefore is a clarification added by **S1**'s scribe. Citrine arsenic, referred to here, is the same substance as yellow arsenic, i.e. orpiment/auripigment: "[a]rsenic trisulphide, As_2S_3, a bright yellow mineral [...] Also called *yellow arsenic*" (*OED*3, s.v. *orpiment*, sense 1; see also *OED*3, s.v. *arsenic*, subsense 1a). As "auripigment" has just been mentioned (also in **Oli**), it seems odd that essentially the same substance should be repeated; however, this repetition occurs in both *De Alchemia* and *Le miroir d'alquimie*. The addition of "whit" by the **S1** scribe may reflect their belief that white arsenic (the extremely toxic arsenic trioxide As_2O_3; *OED*3 s.v. *arsenic* n., subsense 1c) is what is actually intended here.

The final type of major variation in **S1** is 3) replacements. Sometimes the scribe of **S1** replaces a word in the exemplar with another (usually equivalent) word rather than adding the new word as a doublet or similar. An example of this is in Chapter II, in the list of metals. In this, **Oli** in fact diverges from *all* the other copies of *MoA* by having *steel* as one of the metals, instead of *tin*:[219] "to wit, Gold, Siluer, **Steele**,

[218] There is a stain on the page obscuring part of the line, but it seems to obscure only a punctus.

[219] Group 1 has <Iubitere> (**T**, f. 18v, l. 72), i.e. *tin*; Group 2 has <Iupiter> (**Ga**, f. 36v); Group 4 has <putter> (**S2**, f. 42v) with <Tynn> as an interlinear insertion, discussed below in Section 5.4.2.

Leade, Copper, and Iron" (**Oli**, p. 2). **S1**, however, replaces *steel* with *tin*: "to wit gold, silver, **tinne**, lead, copper & iron" (**S1**, l. 38). In this, **S1**'s replacement is a valid correction. *Le miroir d'alquimie* reads "estain" here (1557: 9; Modern French *étain*), which means 'tin'; and *De Alchemia* reads "stannum" (1541: 258), also 'tin'. In other words, the translation to "Steele" in **Oli** is not correct, and the scribe of **S1** has corrected this. It is unknown whether the scribe had access to either *Le miroir d'alquimie* or *De Alchemia*. However, steel is not associated with the basic alchemical metals, as it is refined from iron, so this is a major error for the translator of **Oli** to make.

Another, and very intriguing, case of replacement is in Chapter III, where **Oli** admonishes the reader, before giving the properties of gold and silver and leading up to the substance which the Stone should be made of, to "Keepe this secret more secretly" (**Oli**, p. 6). This is "Tie*n*s ce secret fort caché" 'keep this secret well hidden' in *Le miroir d'alquimie* (1557: 16) and "Hoc secretum tene secretius" 'keep this secret most secret' in *De Alchemia* (1541: 262).[220] **S1** phrases this as "Nota keepe this secret" (ll. 170–171). Here, however, we have not just a textual replacement but also a visual addition: after this sentence, the scribe has added, within the lines, a compound sigil which appears to be a mixture of various alchemical sigils (see Figure 5.8).

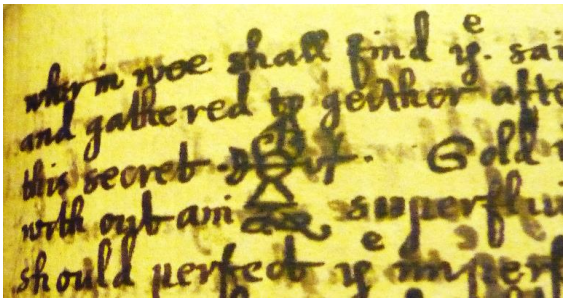


Figure 5.8. The sigil in **S1**, f. 42r. London, British Library MS Sloane 2405, f. 42r. Image: Sara Norja, published with permission. © British Library Board.

This is a complex sigil. The central component (the circle bisected by a line) certainly appears to be {Salt} (Gettings 1981: 223, *salt*). To the left, {Moon/Silver} appears clear as a left-facing crescent (Gettings 1981: 239, *silver*). To the right, there is a sigil reminiscent of some forms of {Jupiter/Tin} (Gettings 1981: 150, *Jupiter*).

220 I would like to thank Veli-Matti Rissanen for his help with this Latin translation.

Above {Salt}, there seems to be {Sulphur} (Gettings 1981: 255, *sulphur*), although the curving lines connected to the circle are difficult to interpret. Below {Salt} is the most ambiguous sigil, which may in fact also incorporate a version of {Sulphur} with a loop below it (ibid.). However, the curved lines to the right are again very difficult to interpret. I have thus not been able to uncover the full meaning of this compound sigil, as the individual components cannot all be found in e.g. Gettings (1981). This sigil in **S1** is a good example of how opaque alchemical sigils and symbolism can be. After the sigil, the text continues to be an almost word-for-word copy of **Oli**.

This subsection has shown how **S1**, with its additions from other sources, diverges from **Oli**, but more notably, also how it is similar. It is clear, from the sections that **S1** *does* copy from **Oli**, that it is not problematic to presume that this is a case of a manuscript using a printed edition as its exemplar. Of course, it is always possible that **S1** copied the entire text, insertions from other sources and all, from an intermediate manuscript. However, there is nothing to suggest that **S1** did *not* use **Oli** as the exemplar. The differences in **S1** are a clear example of scribal editing (cf. Love 1993: 119–123 for 17th-century scribal practices).

5.3.3 Minor variants

In this section, in order to examine further the exemplar-copy relationship of **Oli** and **S1**, I will discuss minor variants in terms of layout, orthography, and punctuation. In terms of layout, the scribe does not usually format the chapter titles of *MoA* as titles in **S1**, most likely to save space: as discussed in Section 4.2.1, **S1** is a very practically-oriented manuscript and probably intended for the scribe's own use. The *MoA* copy is more carefully written than the rather messy Latin excerpts that form most of the manuscript – however, the manuscript throughout is written in the same hand. Considering how much scribal editing the scribe engages in, it is not surprising that minor variation, especially layout, would not be of great importance to them.

The most relevant thing with regard to minor variation between **Oli** and **S1** is how these two witnesses neatly represent the differences between public and private orthography in Early Modern English. Osselton (1984: 125) has noted that in the period between 1500 and 1800,

> epistolary spelling is a graphic system which leads its own linguistic life; it has its own rules and tendencies: it is independent of, though it stands in a clear relationship to, the system of spelling used by the printers.

Osselton studied material such as private correspondence and diaries, not manuscript miscellanies, but I argue that **S1** is also a manuscript intended for the private use of a single alchemist (Section 4.3). In other words, I consider Osselton's conclusions relevant for the relationship between **S1** and **Oli**. As **Oli** is from 1597, **Oli** does not have all the standardised printer's orthography that an edition from the mid-1600s might have; however, **Oli** still has more 'regular' spelling than **S1**.

Features of epistolary spelling, as outlined by Osselton (1984: 130–135), include frequent use of contractions (such as *y*^{e}), phonetic spellings (such as "be gottine" 'begotten', **S1**, l. 30), and retention of older spellings ("natur**al** heate" in **Oli**, p. 7, versus "natur**all** heat" in **S1**, l. 196). As the examples show, **S1** has many features of epistolary/private spelling.

Overall, as seen above, **S1** copies **Oli** quite closely in terms of word choice – in the sections that have been copied from **Oli** at all, of course. However, **S1** is more independent when it comes to matters of orthography. As is typical for printed books (as argued in Osselton 1984), **Oli** has more standardised spelling than the manuscript copy, even though **S1** may be close to a century later in date than the printed edition of 1597. Indeed, **S1**'s scribe mostly follows their own spelling conventions, and their variants are mostly divergent from the emerging orthographical norms. For instance, word-final <y> in **Oli** is often spelt <ie> by the **S1** scribe (cf. Osselton 1984: 126):

(72) IN **many** ancient Bookes there are found **many** definitions of this Art, the intentions wherof we must consider in this Chapter. For *Hermes* saith of this Science: ***Alchimy*** is a Corporal Science **simply** composed of one and by one (**Oli**, p. 1)

(73) In **manie** ancient bookes there are found **many** definitiones of this arte, y^{e} intentiones where of wee most consider in this chapter for Hermes . sayth of this science: **alchymie** is a corp=orall science **simplie** composed of one and by one (**S1**, ll. 6–11).

The **S1** scribe certainly seems to prefer the <ie> spelling; but there is also variation, as can be seen in the first line of the example above with <manie> and <many>.[221] Also, there is at least one reversion of this orthographic tendency: in Chapter II, **S1** has "I most tel you that nature **always** intendeth & striueth to the perfectione of gold" (ll. 31–32); here, **Oli** has <alwaies> (p. 11). **Oli** uses plenty of word-final <ie> spellings in free variation with <y> also elsewhere.

[221] As Osselton (1984: 136; underlining original) says, "The rules of epistolary spelling for that period, if we can establish them, will for the most part not be of the yes/no order, but variable rules of the type familiar to the sociolinguist"; that is, scribes used different variants instead of sticking consistently to a single spelling.

In terms of other orthographical variation, the **S1** scribe has a consistent spelling of <sulfur>, where **Oli** always has <sulphur>. Both **S1** and **Oli** use both <the> and <y^{e}>, although the **S1** scribe seems to prefer <y^{e}:> and **Oli** vastly prefers <the> over <y^{e}>. In general (and unsurprisingly, see Osselton 1984: 130), the scribe uses more abbreviations than the edition; although compared to the copiously abbreviated Latin texts in **S1**, there is barely any abbreviation at all in the **S1** copy of *MoA*.

Some of these abbreviations, such as nasal abbreviations, are marked with a curving macron. However, an interesting feature of the **S1** scribe's orthography is the occasional use of this mark above certain vowels in a non-abbreviating function: at least in the English texts, this mark seems to indicate that the vowel in question is preceded by a palatal approximant (/j/): e.g. <pũritie> f. 39v, <continũall> f. 40r. This is not a consistent practice, however. In the Latin texts, the mark is also occasionally used, and seems sometimes to be used merely to mark the <u> as a vowel and not a consonant (e.g. f. 104v, <crũsti>).

The most distinctive difference in minor variants when it comes to the exemplar and its copy, however, is punctuation. **Oli** uses a range of punctuation marks: full stops, commas, colons, and parentheses. There is a particular profusion of commas. Despite this, **S1**'s scribe uses punctuation sparingly, often omitting it altogether; sentences sometimes do not have full stops at the end, and the start of the next sentence is indicated with a mere majuscule letter. Sometimes the lack of punctuation even happens in cases where the choice results in a text more difficult to understand:

(74) And for as much as nature doth all ways worke simply y.^{e} perfectione w*hi*ch is in them is simple inseparable and incommiscible (**S1**, ll. 185–187)

(75) And forasmuch as nature doth alwaies work simply, the perfection which is in them is simple, inseparable, & incommiscible (**Oli**, p. 7).

When **S1**'s scribe does employ punctuation, they use periods, commas, and colons; they do not use parentheses at all even when **Oli** does. It is quite interesting, in general, that the punctuation of the exemplar should be so ignored by **S1**. However, this is quite common for manuscripts (cf. Osselton 1984), so **S1** is no outlier here.[222]

[222] This is also in line with observations made by Dr Mari-Liisa Varila concerning some other manuscript copies of printed books: they often merely employ full stops and commas, and use punctuation more sparsely (personal communication, May 2018).

5.3.4 Summary

Overall, compared to the previous Groups discussed (1 and 2), the previous subsections have demonstrated that Group 3 is indeed a distinct version of *MoA*. The information content is the same as in the other Groups, especially Group 1, but the actual form the work takes is distinct from the other Groups in the two witnesses that form Group 3, **S1** and **Oli**. The addition of 'seven spirits' in Chapter III, conclusion 4, is noteworthy, as is the shortness of the preface. As this discussion on Group 3 has shown, **S1** is a good example of scribal editing and the textual fluidity of early scientific writing. The scribe used their *MoA* exemplar as a basis, but inserted text from other sources when considering it necessary.

I suggest that the reason for the scribe of **S1** having copied this material from a printed edition, **Oli**, is simply that they copied the parts that interested them, which happened to be the first three chapters of *MoA*. The other texts in the 1597 edition apparently were not as relevant to the scribe's interests, so they did not copy them; or perhaps they already had copies of those texts in manuscript form (cf. Reeve 1983: 13, "the novelty could simply be copied out on its own"). The fact that *MoA* is copied only in part also suggests that the scribe did not own the printed edition personally. As Reeve puts it (1983: 13), "The historical generalization that these examples suggest to me is the far from earth-shaking one that people transcribed from printed editions when they wanted a text and had nothing else to transcribe from".

In the next section, I will delve into the final Group of *MoA*: another Group with a connection to a printed edition of the work, but this time to a Latin edition.

5.4 Group 4: Translated from *Theatrum Chemicum*

The final textual group of the *MoA* manuscript copies, Group 4, consists of only one manuscript copy: **S2**. Linden (1992: xv) says of **S2** that it is a different translation from **Oli** and **S1**, but "it follows the organization, i.e., preface and seven chapters, and sense of the printed edition exactly". Linden does not explore **S2** further. However, he is correct in observing that **S2** is a different translation from the printed edition and **S1**. **S2** has a different translation history from **S1**; **S2** was translated from the Latin the version of *Speculum alchemiae* appearing in Volume II of the printed edition *Theatrum Chemicum* from 1602. I explore **S2**'s translation history and the evidence for it in detail in Section 6.2.4, and thus the present section does not focus on **S2** as a translation but rather in textual contrast to the other Groups of *MoA*. I have only had access to the 1613 edition of *Theatrum Chemicum* Vol. II, so the page numbers in the present section correspond to that later edition.

In the present section, therefore, I will focus on demonstrating how **S2** forms a textual group of its own, i.e. a separate version of *MoA*. I compare **S2**, i.e. Group 4, especially to Groups 1 and 3,[223] because the overall textual organisation of these two Groups is most similar to Group 4. As in the previous sections, I will first go over the general structure of **S2**, then compare major variants with Groups 1 and 3, discuss **S2**'s orthography, and present my overall conclusions about this Group.

5.4.1 General structure

Group 4 does not have much variation compared to Groups 1 and 3 when it comes to the overall structure and content of the work. Linden notes that **S2** follows the structure and sense of the 1597 printed edition of *MoA* (i.e. **Oli**). This is true, although **S2** is not *directly* textually related to **Oli** – however, as I will discuss further in Section 6.2, the two versions share an ultimate source text. The structure of **S2** is indeed very similar to that of **Oli** and the Group 1 manuscripts (although without the medieval rubric), and like its source text in *Theatrum Chemicum,* **S2** conforms to the underlying basic structure of *MoA* as a work: a preface and seven chapters. The contents of the preface and chapters correspond overall to the basic information content of the work, in the order that they appear in the other Groups.

The scribe gives the chapter titles and numbers clearly, white space separating them from the running text: e.g. "ofThe diffinitions ofAlchimy the 1 Chapter" (**S2**, l. 12). Each chapter has both a title and a number, although the chapter numbers are given in a variety of ways: e.g. "of The Quality of y^{e} Vessel & . furnace Chapter . y^{e} 5 ." (ll. 191–192), versus "of The accidental & Essential Coulours apearing in yeworck . Chap 6 /" (ll. 230–231). The differences that make Group 4 distinct are more evident in the major variants (especially compared with Group 3), which I discuss in the following section.

5.4.2 Major variants

Even though **S2** follows the same general structure and sense as **Oli**, comparing **S2** to **Oli** shows that the two versions are distinct. I have collated **S2** (Group 4) against **Oli** (Group 3). The collation shows that although the information content of these two versions is basically the same, they are textually distinct. The following extract from the end of Chapter VI, describing the final stages of the alchemical process in

[223] For Group 3, I use **Oli** as the basis for comparison, since of the two Group 3 witnesses, it is the only one that is complete.

which the silver-making white stone/elixir transforms into the gold-making red stone/elixir, serves as a good example. The passage explains how red can be extracted from the white by concoction, i.e. boiling; an ashy colour will appear before the process of liquefaction produces the red stone/elixir. It should be noted here that the scribe of **S2** has some unusual practices concerning word boundaries (e.g. "ofwhich", 'of which'). The bolded passages show particularly distinctive differences between Groups 4 and 3:

(76) and an other says when you finde whitenes **in ye vessel** be Certain that in this whitenes readnes is hidden & then You must extract theSame but **boyle it till readnes apeares** . for betwixt readnes & whitenes is an asch ~~Coulour~~ Colour, ofwich is sayd after whitenes you can not Err for by augmenting the fire You bring it into an aschColour of wich an other says . **æstime ye asches for god wil give to you Liquefaction** and att last yeking is **Coronated with a red Diademe**. by ye **helP** of god ./ (Group 4, **S2**, ll. 250–257)

(77) And another sayth: When thou shalt finde whitenesse **a top in the glasse**, be assured that in that whitenesse, rednesse is hidden: and this thou must extract: but **con|coct it while it become all red**: for betweene true whitenesse and true rednesse, there is a certaine ash-colour: of which it is sayde. After whitenesse, thou canst not erre, for encreasing the fire, thou shalt come to an ash-colour: of which another saith: **Doo not set light by the ashes, for God shal giue it thee molten**: and then at the last the King is **inuested with a red crowne** by the **will** of God. (Group 3, **Oli**, pp. 13–14)

Here, the same information content appears, but the precise wording is almost entirely different in the two versions. Where **S2** instructs the reader to find whiteness generally in the alchemical vessel, **Oli** has a more obscure reference to finding whiteness on top of the glass (vessel). Word choices are frequently different even though the meanings are usually fairly synonymous, e.g. "boyle" (**S2**)/ "concoct" (**Oli**), "Coronated" (**S2**)/ "inuested" (**Oli**), "Diademe" (**S2**)/ "crowne" (**Oli**). I will discuss word choices with regard to alchemical terminology, including **S2**'s tendency to prefer Latinate forms, in Section 6.3.2. The extracts above also show some more complex differences in conveying the same information content: for instance, **S2** tells the reader to respect the ashes, "æstime ye asches", whereas **Oli** words this through the negative "Doo not set light by the ashes", that is, do not disregard the ashes. This example demonstrates that even though the same information content appears in mostly the same order, the two Groups are not *textually* related.

Additional evidence for different wording revealing the lack of a textual relationship is that **Oli** is somewhat more verbose than **S2**. This is exemplified in Table 5.16 by passages from Chapters III and VI (lines ordered by information content to make the differences clear):

Table 5.16. Verbosity in **Oli**.

S2	**Oli**
now I say lett the matter first be taken out of vegetables, as are herbs. & trees or other things growing out ofye Earth. (**S2**, Ch. III, ll. 86–87)	I put the case then, y^{t} our matter were first of all drawne out of vegetables, (of which sort are hearbs, trees, and whatsoeuer springeth out of the earth) (**Oli**, p. 5)
whe may Come to ~~its~~ \their/ internal purity (**S2**, Ch. III, ll. 145–146)	we may attain vnto the vttermost cleannesse of it, and the puritie of the same (**Oli**, p. 8)
when it is pure boyle till it apeares like fisch Eys (**S2**, Ch. VI, l. 249)	When it hath bin decocted pure and clean, that it shineth like the eyes of fishes, (**Oli**, p. 13)

Oli does not necessarily have more elaborate syntax throughout – sometimes **S2** has longer sentences than **Oli**. However, **Oli** does have a tendency for expressing the same information content more transparently than **S2**. The overall word counts of the two copies tell their own story: **Oli** has a word count of c. 3,800, where **S2** only reaches c. 3,300. As the two versions contain the same information content, this divergence in word count is evidence of the tendency shown in Table 5.16.

In other words, **S2** is not directly related to **Oli**. Based on the overall differences, it does not seem as though the scribe of **S2** had access to **Oli**, even though the dating of **S2** to the late 17th century would allow for this possibility. Indeed, if the scribe had got their hands on **Oli**, it would seem unlikely for them to have undertaken the project of translating *Speculum alchemiae* from *Theatrum Chemicum* (see Section

6.2.4): one might expect them to have copied the text of *MoA* directly from **Oli**, although it is possible that **Oli**'s language might have seemed too old-fashioned to the **S2** scribe. There is, however, no concrete evidence regarding what material the **S2** scribe had access to, so nothing conclusive can be said.

Even though **S2** mostly contains the same information content as the other Groups (especially Groups 1 and 3), there are some major variants that affect the information content to some extent. In Chapter II of **S2**, the seven metals are described, although here, too, only six are listed: "namely . gold, silver, \Tynn/ putter, lead, Copper Iron" (**S2**, l. 34). The scribe's "putter" is an unusual spelling of *pewter* (i.e. "[a] grey alloy of tin", *OED* s.v. pewter, n1). However, "Tynn" has been inserted above the line probably as a clarification, possibly in a different hand.[224] As discussed in Section 5.3.2, Group 3 has variation here between *steel* and *tin*; however, pewter is an interesting choice in **S2**. It derives from the Latin in *Theatrum Chemicum*, however: *Theatrum Chemicum* reads "Aurum, argentum, stannum, plumbum, cuprum, ferrum" (1613: 410), and "stannum" can mean either 'an alloy of silver and lead' (Simpson ed. 2000: 569, s.v. *stannum*), or just 'tin'. Thus, "putter" (pewter) seems like a reasonable rendition of "stannum".

There are three other examples of major variation in the following passage from Chapter VII; however, they do not affect the meaning significantly.[225] The variants are indicated with numbers for ease of comparison.

(78) **Group 4**:
in this my **[1] speculum** as to finde out the matter wil know wel Enough . vpon wich body he shal Project His medicine. for the **[2] masters ofthis art** whohave found it out by their Philosophy **[3] show manifestly enough a linear and open way** (**S2**, ll. 271–274)

(79) **Group 3**:
And without doubt, hee that is so quick sighted in this my **[1] Mirrour**, that by his own industry hee can finde out the true matter, hee doth full well knowe vppon what body the medicine is to bee proiected to bring it to perfection. For the **[2] forerunners of this Art**, who haue founde it out by their philosophie, **[3] do point out with their finger the direct & plain way** (**Oli**, pp. 14–15)

[224] The <y> in <Tynn> has a straight descender with no loop, whereas in the main text the descenders of <y>s tend to have long loops curving back to the right. However, even in the main text there are some instances where <y> has a straight descender: e.g. <by> (f. 43v, line 5), and <Philosophy> (f. 46r, line 28). In other words, there is also evidence for this insertion being in the hand of the main scribe.

[225] Group 2, i.e. **Ga**, does not have any of these variants and is thus not included here.

(80) **Group 1**:
and w*ith* ouȝte douȝte who so eu*er*e ys so suttellye groundede In þ^{is} chapyters þ*a*t he can*n*e fynde þ*er*bye þ^{e} trewe mater*e* of our*e* ston*ne* . he sauoryth well . wher vpon*ne* he schall ratheste make hys p*ro*jecci*ou*n After þ^{e} p*er*fecci*ou*n . ffor whye þ^{e} **[2] olde ffaders of þ^{is} scyen*n*ce** þ*a*t founde þ^{e} trewthe of þ^{e} mater*e* be her phelosophye **[3] schewede opynly w*ith* her*e* fyn*n*gers Aryȝghte weye** (**T**, ll. 268–276)

The first of these three variants, which is "speculum" in **S2** and the equivalent "Mirrour" in **Oli**, does not appear at all in **T** (or the other Group 1 copies). **S2**'s use of "speculum" corresponds to *Theatrum Chemicum*'s "in hoc meo Speculo" (1613: 417). The use of "Mirrour" and "speculum" in Groups 3 and 4 tie the work even further into the mirror-title tradition. The possessive pronoun preceding the noun is also notable: "*my* speculum", "*meo* Speculo", "*my* Mirrour" (emphasis mine) is a fascinating oblique reference to the author of *MoA*.

The second variant is something where Groups 1, 3, and 4 all differ in terms of the nuances: concerning the predecessors who have shown how the Great Work should be achieved, they are called "olde ffaders of þ^{is} scyen*n*ce" in **T**, "forerunners of this Art" in **Oli**, and "masters ofthis art" in **S2**. The relevant difference here is between Groups 1 and 3+4: 'science' versus 'art' in reference to alchemy. The lexical change here may be related to the status of alchemy in society, with what used to be an early science becoming more of an 'art' (possibly with more mystical leanings) towards the 16th and 17th centuries.

The third variant is related to these predecessors: in Groups 1 and 3, a metaphor is used in which they point or show the correct way with their fingers. However, in **S2**, they "show manifestly enough a linear and open way", with no mention of pointing fingers. "Manifestly" is ultimately related to the Latin word *manus* 'hand' (*OED*3, s.v. *manifest*, adj. & adv.). However, in *Theatrum Chemicum*, the corresponding passage is "Nam præcursores istius artis qui eam per suam philosophiam invenerunt, demonstrant **digitis** satis manifeste viam linearem" (1613: 417): that is, in the Latin, "manifeste" 'manifestly' is there, but also "digitis", 'with fingers'. Thus, the scribe/translator of **S2** has chosen to leave this detail out (or, of course, it might be an erroneous omission).

Overall, there is not much unique variation in information content in Group 4, as even the precise information content corresponds a great deal to that in Group 3. As mentioned, these two Groups ultimately share a common ancestor (*De Alchemia*, 1541; see Sections 6.2.3 and 6.2.4).

5.4.3 Orthography and overall discussion

The immediately striking aspect of **S2** is its idiosyncratic orthography and how the scribe combines words with connecting strokes, frequently crossing morphological boundaries (e.g. preposition + definite article + noun). In this section, I will describe these orthographical features with an emphasis on how they reflect **S2**'s relationship with the *Speculum alchemiae* in *Theatrum Chemicum*. The scribe's tendency to combine words can be seen in the following example:

> (81) of **yenature** of putter . putter is a clean imperfect body generated **outofa** clear white fix & not fix argent vive outwardly white but inwardly Red and **outofsuch** a sulphur (**S2**, ll. 41–44)

The combinations in the example show some ways in which the scribe writes separate words as one string.[226] An example of the combination of preposition + article + noun is "ofyestone", 'of the stone' (**S2**, l. 133). The scribe's reasons for this practice are unclear; it is possibly just due to ease of writing, as by combining words like this they would not need to lift their pen. Although **S2** is a neat manuscript, the scribe's hand is rather uneven, and word boundaries in general can be difficult to discern – and in addition, representing those boundaries is often a matter of editorial interpretation. Lexical words do not seem to be often combined with other lexical words; function words are prone to this, however. This is possibly because common function words such as prepositions are more likely to be interpreted correctly by the reader even if the scribe continued the flow of writing by not lifting their pen (entirely) from paper when writing. This particular tendency does not stem from *Theatrum Chemicum*, as the *Speculum alchemiae* there is quite standardised in its word boundaries.

Latin influence is a major factor in **S2**'s orthography, however; many spellings are likely influenced by **S2**'s source text in *Theatrum Chemicum*. For instance, <æ> is used in Latin-derived words ("prætious", l. 16). I explore the overall Latin lexical influence on **S2** in detail in Section 6.2.4, so I will not dwell further on this aspect in the present section.

Although **S2**'s orthographical tendencies are influenced by *Theatrum Chemicum*, its punctuation is mostly not. **S2**'s punctuation is sparse, mainly consisting of full stops, a few virgulae (only used at the end of chapters), and some commas. *Theatrum Chemicum* uses commas copiously, far more than **S2** does, uses full stops in a more 'standard' manner at the ends of sentences, and also employs

[226] I have chosen to represent these scribal patterns in my edition; see Chapter 7.

colons fairly often. However, there is one passage in Chapter IV where question marks make the transition from *Theatrum Chemicum* to **S2**:

> (82) what is the reason that whe doe not see nature worcke who formerly made mettals? doe whe not see that [...] the grosnes of the [...] is become in time argent vive? and out ofye fattnes ofyeEarth [...] is generated sulphur? and by the same Calidity [...] all mettals are generated? and that nature onely by decoction makes perfect & imperfect mettals. ? o madnes I pray. what forces you to make the aforesayd by fantastick & melancholick regimens,? (**S2**, ll. 162–171)

The rhetorical questions in this passage are certainly intended as questions, asking the reader why we ignore the workings of nature when preparing the Elixir. The question marks in the passage above also appear in *Theatrum Chemicum*, so in this passage alone, **S2** is influenced by the source text's punctuation.

These more minor tendencies nonetheless present compelling evidence for the relationship between **S2** and the *Theatrum Chemicum* edition. An additional sign of the relationship is evident when comparing the page breaks of **S2** to *Theatrum Chemicum*: the page breaks are identical up to f. 43r of S2 (i.e. midway through Chapter III, almost half of the text as a whole) despite **S2** being a translation.

5.4.4 Summary

In the subsections above, I showed how **S2** differs from the other Groups; it is clear that this manuscript forms a textual group of its own, Group 4. Collation of **S2** with **Oli** showed that although these two Groups share a lot of similarities, **S2** is indeed a distinct version of its own. As mentioned, the similarities between Groups 3 and 4 is in part explained by their common ancestor *De Alchemia*. I discuss *De Alchemia* further in the next chapter (Sections 6.2.3 and 6.2.4), as well as **S2**'s strikingly Latinate vocabulary (Section 6.3.2).

5.5 One work – four versions

Overall, the discussion in this chapter has been informed by my editorial work on *MoA*, and vice versa. Detailed analysis of the versions of *MoA* helped me choose the base text for the best-text edition in Part II – this base text is **T**, as I will elaborate upon in Section 7.3.2. The collations performed for this chapter have enabled me to form the textual apparatus for the edition. The textual analysis has also critically informed my editorial decisions. Textual relationships are related to editorial concerns; thus, in this chapter, I sought answers to the following questions:

1) How do the witnesses of *MoA* differ from each other?
2) What are their textual relationships?

Now, I will draw together the strands of this chapter to present a summary of the answers to these questions, already answered obliquely through the discussion in the previous sections. These questions of course also intertwine. As for the first question: Sections 5.1–5.4 have demonstrated the extent of the variation between the different versions of *MoA* – that is, the four Groups. The discussions of variation on the structural and textual levels showed that each Group is textually distinct enough that they are different *versions* of *MoA*. Thus, the textual variation justifies my division into four Groups.

Group 1 has four witnesses, the manuscripts **TCAGb**. Although there is enough variation within these copies to divide this Group into two subgroups (**TC** + **AGb**), my collation of the manuscripts and the analysis in Section 5.1 showed that the copies are indeed witnesses of the same version of *MoA*, a version transmitted only in manuscript form in the 15th and 16th centuries. Group 1 is the most unique in structure, as it has a rubric, prologue, preamble, list of chapters, and the seven chapters (of which Chapter III is divided into six conclusions, a division which does not appear in the other Groups).

Group 2 has only one witness, the manuscript **Ga**. Comparison to Group 1 in Section 5.2 demonstrated that **Ga** is indeed a distinct version – the lack of prologue and the general succinctness of **Ga** being key evidence – and also that it is unrelated to the later print-influenced versions of *MoA*. **Ga** is thus also a version transmitted through manuscript, although since there is only one extant witness in English, it is impossible to say whether it was ever part of a broader manuscript tradition.

Group 3 is where the printed witnesses come into play. The two witnesses, the full printed edition of **Oli** and the partial manuscript copy of **S1** (copying Chapters I–III), are a distinct version of *MoA* even on the textual level, compared to Groups 1 and 2; Section 6.2.3 will open up the translation history of this Group and give further evidence for its distinctness. Despite **S1**'s insertions from other sources, the discussion in Section 5.3 showed that the manuscript copy has **Oli** as its likely exemplar.

Group 4 has only one witness, the manuscript copy **S2**. Collation and comparison with **Oli** in Section 5.4 showed that **S2** is certainly distinct enough textually to form a version of its own. Despite the overall similarities in structure and information content, the wording of **S2** is almost completely different from **Oli**. Again, the discussion concerning translation in Section 6.2.4 will bring more light to the distinct nature of Group 4.

Concerning the textual relationships between the versions, there are also interconnections despite the Groups being distinct: Groups 1+2 and Groups 3+4 form broader connections. That is, Groups 1 and 2 are more connected with each other than with the other Groups; and Groups 3 and 4 are more connected with each other than the other Groups. This does not seem surprising, as the divide goes along the lines of manuscript versus print origin. These interconnections are exemplified in the following passage in Chapter V of *MoA*, describing the properties of the vessel in which the Stone must be prepared (Table 5.17). The passages are divided up according to information content.

Table 5.17. Interconnections between the Groups.

Group 1	**Group 2**	**Group 3**	**Group 4**
The wessell muste be rounde	The w*hi*ch vessell shalbe rounde	which vessell must be round, with a small necke,	this vessel must be round with a little neck
eyþ*er* of glase or of erth hauyng som*m*e thycknes of glasse w*ith* A letell necke [...]	of glasse in him self [...]	made of glasse or some earth, representing the nature or close knitting togither of glasse [...]	made ofglass, or ofsome Earth representing the nature or Compactnes ofye glass [...]
wherfor yt ys seyde In þ^{e} booke þ*a*t ys cleped. lume*n* luminij . /	Wherefore in Lumine Luminu*m* yt is written	wherevpon *Aristotle* sayth, in the light of lights,	hence it is that Aristotle says in yebooke Called Lumen luminum .
That oure . M*e*rcurij . ys to be soden*n*e. In Athrefolde wessell	that m*ercury* in a 3 fowld vessell shalbe decocte or sodden	that *Mercurie* is to be co~cocted in a threefold vessell,	that the mercury should be boyled in a Triple vessel
		and that the vessell must bee of most hard Glasse, or (which is better) of earth possessing the nature of Glasse	and that the vessel should be of a most Hard glass or better of Earth ~~representing~~ \posseding/ the nature of glass
(**T**, ll. 216–217, 223–224)	(**Ga**, ll. 169–170, 183–184)	(**Oli**, pp. 11–12)	(**S2**, f. 45v, ll. 217–219, 225–229)

In Groups 1, 3, and 4, the first mention of the vessel says that it should be made of glass or of earth possessing the nature of glass (i.e. probably glazed clay). Group 2 does not have this additional information. What is notable is that Groups 1 and 2 do not mention glass a second time – they only mention the 'threefold' vessel. However, Groups 3 and 4 include another mention of glazed clay, 'earth possessing the nature of glass': thus, these two Groups share information content that Groups 1 and 2 do

not. This is only one small example of the connections between Groups 3 and 4, as there are several. Another example, which connects Groups 1 and 2, is the inclusion of the Alkemus etymology in Chapter I (see examples (52) and (53) in Section 5.2.2). Groups 3 and 4 do not have this pseudo-etymology for alchemy. Based on evidence such as this, I consider it reasonable to see Groups 1 and 2 as more connected with regard to information content on the one hand, and Groups 3 and 4 on the other.

I would argue that overall, despite their differences, the witnesses of *MoA* are similar enough on the level of *information content* and the *order it is presented in* that they can still be considered the same work. Not all *witnesses* of *MoA* include all seven chapters of the treatise with the same content, but all *Groups* do. There are clearly divergent traditions going on – as Chapter 6 will further show – but on the more abstract level of work, none of the witnesses of *MoA* can be said to be radically different enough to represent a separate work. Even the succinct Group 2 has mainly the same information content in the same order as the other Groups. Indeed, the witnesses display a great deal of *textual fidelity* as well as fluidity, paralleling what Tavormina (2019: cxi) has found in her edition of ME uroscopies: "Translators, adaptors, and scribes […] appear to have valued general fidelity" to their exemplars in terms of information content, also in cases where they changed the texts' structure or linguistic form. This echoes Beadle (2013: 239), who considers scribes to have overall been "as concerned as conscientious editors are with the stability and accuracy of their texts". Thus, textual fidelity can go hand in hand with fluidity: on the one hand, the witnesses of *MoA* present a fairly unified front, with certain details constant through the different Groups – and on the other hand, they have plenty of variation, as this chapter has amply shown.

Indeed, some of the witnesses of *MoA* – most significantly, **A** in Group 1, **Ga** in Group 2, and **S1** in Group 3 – present intriguing examples of the practices of scribal editing. As Robinson (1980: 61) says, "a scribe collecting for himself felt free to modify the text in the light of his own requirements and experience. In so doing he produced complicated problems for the editor." I will return to the challenges related to this scribal editing, and how I have solved them, in Chapter 7. Scribal editing should not be seen merely as a problem, however. If a scribe "felt at liberty to abridge, paraphrase, elaborate, or otherwise alter the wording of an exemplar, as also to vary the title of a work or change the ascription of authorship" (Wilson 1939: 16), that meant that they were engaging critically with the text they were copying. The witnesses of *MoA* clearly show scribes thinking about what they copy, and – as in the cases of **Ga** and **S1** – integrating other text into *MoA* when they considered it to fit. One could argue, for instance, that the addition of the more theoretical text on metals from *Semita recta* in **S1**'s Chapter II is an improvement on the original

Chapter II of *MoA*. In addition, the **A** scribe's corrections and smaller-scale editing – if they indeed used **T** as an exemplar – shows definite engagement with the text.

So, while the *text of the documents* varies – although it is often transmitted fairly uniformly, as Group 1's witnesses show – the *text of the work* remains the same on a deeper level. I would count textual fidelity as also referring to the content. This textual fidelity and similar information content appearing in a similar order form the greatest argument for why these different versions are in fact all the same *work*. An example of this, and a bridge to the translation analysis in the next chapter, comes from the end of Chapter VI of *MoA*. Here, the four Groups have the same information content but express it differently:

(83) **Group 1:**
dyspyce noȝte þ^{e} Asshes . for gode wyll yȝffe þ^{e} to yt leq*ua*facc*iou*n . þe^{n} schall Akyng be **crownede** w*ith* Arede dyademe thorowe þ^{e} power*e* of Almyȝttye gode (**T**, ll. 252 –254)

(84) **Group 2:**
Then **sett not shortt** by thyne Ashes for god will send to them Liquefaccon & after y^{t} by the will of god the king shalbe **crowned** w*i*th A . dyademe of Redd (**Ga**, ll. 222–225)

(85) **Group 3:**
Doo not set light by the ashes, for God shal giue it thee molten: and then at the last the King is **inuested** with a red crowne by the will of God (**Oli**, pp. 13–14)

(86) **Group 4:**
æstime ye asches for god wil give to you Liquefaction and att last yeking is **Coronated** with a red Diademe. by ye helP of god (**S2**, ll. 256–257)

In these examples, the same information content appears: the ash colour that appears at a certain state of the alchemical process should not be dismissed, as liquefaction will happen and the Stone will turn red, expressed with the metaphor of a king crowned with a red diadem. *De Alchemia* will serve as a Latin comparison:

(87) **Ne cinerem uilipendas**, nam Deus reddet tibi liquefactum. Et tunc ultimo rex diademate rubeo **coronatur**, NVTV DEI (*De Alchemia* 1541: 269)
'Do not despise the ashes, for God will give to you liquefaction. And

> then finally the king is crowned with a red diadem, by the command of God'.[227]

The way in which the same information is conveyed is distinct in all four translations. Group 1 tells the reader not to despise the ashes; Group 2 not to set short by them; Group 3 not to set light by them; and Group 4 to esteem them. In Groups 1 and 2, the king is simply crowned; in Group 3, he is invested with a crown; in Group 4, he is 'coronated'. Even this short passage shows that despite the same basic content, the four Groups are distinct, as they employ different strategies for conveying the same message in English.

In Chapter 6, I will continue to work with the textual groups outlined in the present chapter. However, as the examples above suggest, the focus in the next chapter moves from the textual differences between the Groups to examining the Groups from another angle: as four different translations of *MoA*. Chapter 6 will delve further into one reason for why Groups 1 and 2 are so distinct, and why Groups 3 and 4 are more connected with each other. The differences stem in large part from the source texts – that is, where the English versions were translated from.

227 I would like to thank Veli-Matti Rissanen for his help with this Latin translation.

6 Translation as vernacularisation in *The Mirror of Alchemy*

The present chapter forms the second part of the analysis in this study. In the previous chapter, I introduced the four Groups of *MoA* from the point of view of textual variation and gave evidence for why they should be considered separate Groups. The division into Groups is highly relevant for the present chapter, but here, I contextualise those Groups differently. These textual divisions stem from the Groups' roots in *different translations* of the work known as *Speculum alchemiae*. In this chapter, therefore, I interrogate *MoA* as a translation from the perspective of vernacularisation of the language of science, with *Speculum alchemiae* as the source text (ST) and the different Groups of *MoA* as the target texts (TT). Blake (1992: 22) calls for more research to be done on the influence of translation in the history of English; the present study is such a contribution.

MoA, as a translation, is a product of a multilingual culture: medieval English literary culture was inherently multilingual, and further, translation is an inherently multilingual practice. My analysis in the present chapter thus treats *MoA* as an example of multilingual practices and of the vernacularisation processes that happened through translation. In addition, the fact that people considered *Speculum alchemiae* worthy of translation indicates the importance of this work in medieval Europe – and the later translations of course indicate that the work was valued also in early modern times.

In Section 6.1, I build on the studies introduced in Section 2.3.1, and delve deeper into how *MoA* compares to the tendencies found in these earlier studies on vernacularisation. In this section, I look at *MoA* on the level of *work*, not *version* (that is, translation). I examine how *MoA* fits into the general timeline of the vernacularisation of science in England (Section 6.1.1); and what features of *MoA* particularly show its indebtedness to the Latin scholastic tradition, including what *MoA* can tell us about its potential audience and readership (Section 6.1.2).

I move to the level of *version* in Section 6.2, which examines the four Groups specifically as translations: how they differ from each other, how they came about, and whether source texts can be found. This section builds on the textual analysis in the previous chapter.

I examine the similarities and differences between the translations in terms of word count in Section 6.3; however, the main focus of that section is the matter of loanwords. Borrowing is an aspect of multilingualism, and as Blake (1992: 18) mentions for the Early Modern English period, "there can be no doubt that translation was one of the most important contributors to the introduction of loans". My analysis centres on how alchemical terminology is translated in the four Groups. This is not restricted to examining loanwords, but lexicological examination of the terminology in *MoA* involves looking at the etymologies of that terminology and discovering how significant e.g. Latinate loanwords were in the translation of *MoA*.

6.1 *MoA* compared to general tendencies of vernacularisation in alchemical texts

In the present section, I examine *MoA* as a Latin alchemical work translated into English – that is, as a work that forms part of the history of the vernacularisation of science in England. As mentioned above, in this section, I will discuss *MoA* on the level of *work* rather than its four *versions*; the level of *text* was discussed in Chapter 5. I will focus on those general tendencies which are not impacted by the differences in *MoA*'s translations; those differences are the focus of the following sections. I summarised the findings in previous studies on the vernacularisation of early scientific texts on a broader level in Section 2.3.1. In the present section, I compare *MoA* to those findings.

6.1.1 Vernacularising alchemy

Overall, vernacularisation, in this case the gradual shift from predominantly Latin to predominantly English, happened over the course of about 400 years, from the 14th to the late 17th centuries. In the present section, I focus on what is known about the vernacularisation of alchemical writing, and will show how the extant documents of *MoA* fit in with the general developments.

Not much has been written on the overall vernacularisation of alchemical writing in England. The backbone of current research on the topic is formed by the work of Grund (2006a, 2006b, 2011b, 2013), Timmermann (2013), and to some extent Pereira (1999), although the latter has a broader scope: the use of vernaculars in alchemy throughout Europe. Braekman (1988: 11–19) also gives a partial survey on

the alchemical manuscript texts found in Middle English, both prose and verse (based on Singer 1928–1931). Due to this gap in research, the vernacularisation processes of medical texts discussed in Section 2.3.1 provide a useful mirror for *MoA*. One must, of course, be cautious when comparing different fields of scientific writing. For instance, Taavitsainen (2004: 39) notes that the discourse forms in medical writing have characteristics not found in other disciplines, as medicine was codified and had clear hierarchies ranging from laypeople's medical knowledge to university medicine. Taavitsainen (ibid.) considers medicine to be a special case in the sciences due to the "fundamental problem of the relation of theory and practice". However, alchemy, I argue, is also a field which is both theory- and practice-based – and indeed, the same can be argued for other early sciences such as astrology (cf. Varila 2016). Furthermore, medicine and alchemy are historically connected.

Medical vernacularisation was already underway in the late 14th century; in contrast, eVK2 lists only two English alchemical manuscripts from the 14th century.[228] However, over 70 manuscripts containing alchemical material from the 15th century can be found in eVK2 (as per Grund's (2013: 432) survey). These numbers indicate that the vernacularisation of alchemical texts truly began during the course of the 15th century. Indeed, Voigts (1995: 192) asks why "does alchemy appear to loom larger in vernacular treatises than Latin writings?" – suggesting that alchemy was remarkably popular in the vernacular. Pereira (1999: 345) notes that the second half of the 15th century already shows "a well-established vernacular alchemical tradition" in England; however, she mainly cites two works, Ripley's *Compound of Alchemy* and Norton's *Ordinal of Alchemy*, as evidence for the established nature of this tradition. Pereira also lists some other Middle English alchemical texts, such as the *Book of Quinte Essence* (Furnivall ed. [1866] 1965; the others are Robbins 1966; Braekman ed. 1988). Pereira relies on previous editions of alchemical works and is thus not a broad survey.

Timmermann (2013: 17) discusses the vernacular traditions of scientific, particularly alchemical poetry: although my study focuses on prose, verse was a major part of the vernacularisation process. A great deal of Middle English alchemical poetry has survived, especially from the 15th century, indicating vernacular interest in the transmission of alchemical ideas in verse (Timmermann 2013: 17). Timmermann (2013: 18) suggests that practising alchemists, some of them craftspeople who did not know Latin, may have used alchemical poetry as a

[228] Oxford, Bodleian Library, MS Bodley 177, and an unnamed manuscript in a private collection.

mnemonic aid. In any case, alchemical poetry is popular compared to other kinds of 15th-century English scientific poetry (Timmermann 2013: 19).

The fact that the earliest witnesses of *MoA* (MSS **TC**) are manuscript copies from the late 15th century is illustrative of the general trends that can be gathered from previous research: that alchemy was increasingly transmitted in English in the latter half of the 15th century (cf. Grund 2011b: 75). The processes of vernacularisation continued for alchemy throughout the 16th century – for instance, with the printing of the English *MoA* in 1597 – and even to the 17th. The vernacularisation of alchemy could be said to be complete by 1700, when – conversely – transmutational alchemy was fading. In the 1720s to 1740s, especially transmutational alchemy declined rapidly as a science, taken over by chemistry (Principe 2013: 84). No broader survey for alchemical writing in the vernacular currently exists, and more research is needed in the field for such a survey to be written. The present study can add to the evidence in terms of *MoA*.

In other words, as far as the current research shows, the vernacularisation timeline of alchemy is quite similar to other sciences, and medicine: a vernacularisation 'boom' in the 15th century (Pahta & Taavitsainen 2004: 11), and an approximate end point at about 1700. It is notable that alchemical material – as also evidenced by the witnesses of *MoA* – reflects similar trends as medical writing.

MoA bears witness to the fact that Middle English alchemical texts were copied also in later times. Grund (2013: 432) notes that the texts are often updated from Middle to Early Modern English and can be much changed; however, "at other times, their Middle English form has been faithfully represented". The witnesses of *MoA* reflect both options in the Group 1 manuscripts, which show evidence of specifically Middle English texts being copied in a later century. As I pointed out in Section 5.1.3, MS **A** is far more conservative in its orthography than a text from 1500 would tend to be, whereas the scribe of MS **G** updates the spelling and grammar in **Gb** to suit their own time, the mid-to-late 16th century. The other Groups – as I will describe in Section 6.2 below – have been translated at different times, from different source texts, so they are not directly influenced by Middle English. However, overall, *MoA* shows that the vernacularisation processes of alchemy were long-lasting: originally medieval works such as *Speculum alchemiae* were being translated not just in the 15th, but also in the 16th and 17th centuries. The multiple translations indicate that vernacularisation processes are exactly that: *processes*, meandering and gradual changes, not a sudden shift.

6.1.2 The Latin tradition and *MoA*'s audience

I will now turn to examine the indebtedness of *MoA* to the Latin tradition of scientific writing, and to what the audience for the Latin *Speculum alchemiae*, and *MoA* in turn, may have been. I introduced the Latin scholastic context in Section 2.2.1. One of the most obvious indications of *MoA*'s indebtedness to the Latin tradition is the sheer fact that, like the majority of ME scientific texts, it was translated from Latin (or French) (Pahta & Taavitsainen 2004: 13). In the present section, I mainly treat *MoA* as a *work*, and use the edition's base text in MS **T** as an example when referring to the work as a whole. However, some features of the Latin tradition are more evident in some Groups than others, so I will also refer to the different *versions* – i.e. Groups, i.e. translations – when needed.

Even though English alchemical texts were often based on Latin texts, textual fluidity is extremely common, and translations of Latin alchemical texts were often modified in the transmission/translation process.[229] As mentioned in Section 2.2.2, Grund (2013: 434) suggests that ME alchemical texts adapted from Latin "frequently leave out theoretical parts of the original texts", and notes that ME alchemical prose texts usually focus on practice rather than theory. This is a very interesting observation, but *MoA* bucks against this trend. Comparing with my observations of the Latin witnesses of *Speculum alchemiae*, *MoA* does not excise theoretical material from its potential source texts; I discuss the individual cases further in Section 6.2. As regards the predominance of practice over theory, *MoA* is quite a balanced case: Chapters I–III focus heavily on alchemical theory, but *MoA* gets steadily more practice-oriented as it progresses from Chapter IV onwards. Chapter VII, of course, works its way up to the extremely practical ending which gives specific guidelines for achieving the Philosophers' Stone.

According to Pahta (1998: 57), when it comes to medical texts, "[v]ernacular academic treatises have been less susceptible to revision than popular remedy material". It is possible that this is a case of the trends in alchemical and medical texts differing in general. *MoA*, however, would conform to Pahta's claim that treatises were revised less.

In what follows, I will examine how the features of the Latin *scholastic* treatise map onto *MoA*. Does *MoA* exhibit the common features of scholastic treatises as discussed in Section 2.2.1, where I discussed the scholastic tradition of writing? The two categories that I concentrate on in the present analysis are 1) references to

[229] See also Grund (2009) for a study of *Semita recta* and how it was reshaped into *The Mirror of Lights*.

authorities and 2) the importance of definitions, but I will also briefly touch upon 3) prescriptive phrases. As Taavitsainen and Pahta (1998: 167) have phrased it: "Scholastic science is logocentric in nature: scientific knowledge was to be obtained by analysis of language and by establishing the correct definitions of things". *MoA* conforms to this model, as a few examples will demonstrate.

I will start with whether *MoA* exhibits any references to authorities, and how these references appear. Medieval scholastic science viewed referring to (often Classical) authorities as a source of legitimate knowledge (Pahta & Taavitsainen 2004: 2). At first glance it might seem that *MoA* does not have a lot of references to authorities, as very few personal names appear. However, closer examination shows that the references are there, but are often oblique or vague. There are several references to 'philosophers' in general: for instance, "trewe phelosopher*e*s" (**T**, f. 21r, l. 277) and the more oblique "þ^{e} olde ffaders of þ^{is} scyen*n*ce" (**T**, f. 21r, ll. 272–273). 'Philosopher' has multiple senses; the *MED* gives senses of 'a scholar, learned man; a natural scientist; an alchemist; a magician; a moral philosopher; a philosopher, especially of antiquity' (*MED*, s.v. *philosophre*, subsenses 1a–e; cf. esp. the quotations under subsense 1c).[230] I would argue that *MoA* employs the 'alchemist' sense of philosopher, as the treatise does not deal more broadly with different kinds of natural science, but focuses exclusively on alchemy.

These general references to alchemists/philosophers often appear in connection to books or writing: "olde phelosophers In þer bok*e*s" (**T**, ll. 5–6), "þes phelosophers wrytte" (**T**, l. 19). Alchemical books as a general category are also referred to: "as yt schewethe opynlye In þ^{e} phelosophers bok*e*s" (**T**, l. 58). This paints a very scholastic picture of knowledge being transmitted primarily through earlier writings. It is only occasionally that some specific information is credited to these generic alchemists: notably, "Seyth noȝt þ^{e} phelosophers þ*a*t . M*er*curij . & fyer*e* suffecyth to þ^{e}" (**T**, ll. 184–185), 'do not the philosophers say that mercury and fire will suffice'; and a reference to a single alchemist/philosopher giving information on the colour stages of the alchemical process: "wher*e*for oon*ne* phelosopher seyth [...]" (**T**, l. 235).

[230] The *OED* adds a note on the present-day usual sense of philosopher (subsense 1a), 'A lover of wisdom; an expert in or student of philosophy (in various senses); a person skilled or engaged in philosophical inquiry. Formerly also: †a learned person, a scholar (*obsolete*)': "Originally denoting an expert in or student of any branch of knowledge, including the physical and natural sciences, alchemy, prophecy, the occult, etc., but in later use applied chiefly to those versed in the metaphysical and moral sciences. In the 20th cent. the term was generally restricted to those studying the fundamental nature of knowledge, reality, and existence, esp. as an academic discipline."

De Alchemia has at least some of these vaguer references to philosophers: e.g. in Chapter I, "in multis philosophorum libris" (*De Alchemia* 1541: 258). It would seem that Group 1 of *MoA* has more references to authorities such as this than the other Groups, due to certain passages that only appear in this Group – some of them discussed below. In other words, as already inferred in the previous chapter, the Latin manuscript exemplar for Group 1 had somewhat different information content from whatever manuscript version formed the exemplar for the printed tradition. This leads to the medieval witnesses of *MoA* having an even more scholastic bent than later ones, with more references to authorities.

MoA also has references to more than generic alchemists/philosophers of yore. Chapter I begins with such a specific reference, to Hermes: "yt be hovede you to *con*sedere þ^{e} words of . hermes . þ^{e} phelosophere seynge oon*ne* þ^{is} wyese" (**T**, ll. 53–54). Hermes Trismegistus is one of the fundamental alchemists, and by evoking his name, *MoA* aligns itself with a tradition stretching back to the very beginnings of ancient alchemy. The etymology of alchemy presented in Chapter I ("Alkemye ys Ascyense & hath hys name of A phelosophere þ*a*t hyȝte Alkem*us*", **T**, ll. 59–60) is also a reference to authority. Hermes and Alkemus are both called philosophers. The reference to Hermes occurs in all Groups of *MoA*, but Alkemus appears only in Groups 1 and 2 (and not in *De Alchemia*).

The other more specific references to authority in *MoA* are to Aristotle, who was frequently referred to as an alchemical authority. In Chapter III of *MoA*, in a passage only appearing in Group 1, his name is explicitly mentioned: "Arystotell seyth þ*a*t . 2^{u} . *contra*ryes naturall may noȝt be to gedere In oon*ne* bodye" (**T**, ll. 102–103). The Aristotelian primary qualities/contraries were introduced in Section 2.1.3; this attribution therefore appears to be based on actual Aristotelian thought. Aristotle is most likely also 'the philosopher' mentioned in the following passage in Group 1, a little after the previously quoted passage, as medieval writings often refer to him that way (cf. Minnis 1988: 80, 116):[231]

> (88) why seyth noȝt **þ^{e} phelosophere** þ*a*t Aman*ne* genderth Aman*ne* . Alyon*ne* genderth Alyon*ne* . thus nato*ur* Ioyeth nature (**T**, ll. 104–106)

This reference cannot be traced to Aristotle's thinking, however, but to Pseudo-Democritus in *Physika kai Mystika*: "The nature, in such a case, is charmed by the

[231] See *MED* s.v. *philosophre*, subsense 1f: 'the ~, an unidentified authority, often Aristotle.' *OED*, s.v. *philosopher*, subsense 1b, notes 'With *the*. Any such person taken as an authority, *esp*. (usually with capital initial) Aristotle. Now *archaic*.'

nature" (translation as in Sheppard 1959: 44; this same translation appeared in Section 2.1.3).[232] This same idea is echoed later in *MoA* (**T**, ll. 274–276).

Aristotle as 'the Philosopher' also appears in another quotation in Group 1:

(89) ffor þ^{e} phelosophe*r* seyth þ*er* ys noon*ne* v*er*ye*r*e preve þen þ*a*t þ^{e} Eye sethe (**T**, ll. 14–15)

This statement, intriguingly, seems to advocate for empiricism – 'seeing is believing' – in a time before empirical approaches became common in scientific inquiry. It may or may not be related to Aristotle's thoughts, but interestingly, it echoes Roger Bacon's actual thoughts on the power of observation and experience.

Groups 3 and 4 of *MoA* do not refer to Aristotle in the above passages, as the versions differ from Group 1 in information content in those sections. However, the importance of Aristotle as a scholastic authority does appear even in Groups 3 and 4: there is a single reference to Aristotle also in these Groups, albeit in a passage where Groups 1 and 2 do not have this attribution. This passage is, however, an example in all Groups of a specific and explicit reference to a source, *De lumine luminum* or *On the Light of Lights*:

(90) wherfor yt ys seyde **In þ^{e} booke þ*a*t ys cleped. lume*n* luminij** . / That oure . M*er*curij . ys to be soden*n*e. In Athrefolde wessell (Group 1, **T**, ll. 223–224)

I discussed the textual differences of this passage in Section 5.1.2.1, as well as the probable origin of the reference. Here, *De Alchemia* (1541: 267) has "unde Aristoteles dicit in lumine luminum" – so, an explicit attribution to Aristotle. As mentioned, Groups 3 and 4 of *MoA* also attribute *De lumine luminum* to Aristotle: Group 3 as "wherevpon *Aristotle* sayth, in the light of lights" (**Oli**, p. 12); and Group 4 as "hence it is that Aristotle says in yebooke Called Lumen luminum" (**S2**, f. 45v).

De lumine luminum is the only other work referred to by name in *MoA*. Other, vaguer references to sources appear in *MoA*, but these do not include references to specific works. Instead, the usual formulation is 'in another place' (cf. the Latin equivalent *et alibi*), without giving more specific references: "In Anoþ*er* place yt ys seyde lykenes Ioyeth hys lykenes" (**T**, f. 21r, l. 276). However, even these ambiguous references point to the scholastic importance of referring to outside sources as the most decisive proof of the validity of the information being conveyed in the treatise.

[232] Principe, translating from Martelli (ed., 2011: 184–187), renders this as "Nature delights in nature, nature triumphs over nature, nature masters nature" (Principe 2013: 12–13).

I will now briefly discuss the second category, the importance of definitions. References to authorities are not the only way that *MoA* exhibits scholastic features. Throughout the treatise, the argumentation hinges on the use of definitions, thus grounding *MoA* in the scholastic idea that "scientific knowledge was to be obtained by analysis of language and by establishing the correct definitions of things" (Taavitsainen & Pahta 1998: 167). Chapter I starts by defining alchemy in two ways, even:

> (91) Alkemye ys Abodelye s*ub*sta*un*ce made of oon*ne* & be oon*ne* p*er*fytlye Ioynyng to geder p*re*cyous þynge*s* // Be co*n*nynge & worchynge & t*ur*neth heme be nat*ur*all co*m*myxc*iou*n Into Abette*r* kende. **Anoþ*er* defeny=c*iou*n ys þ^{is}** Alkemye ys Ascyence þ*a*t techeth to t*ra*nsfro*m*me All man*er*e of bodyes Into ech oþ*er* be hys p*ro*per medesy*n*ne as yt schewethe opynlye In þ^{e} phelosophers bok*es* (**T**, ll. 54–58)[233]

MoA gives two definitions here: first, that alchemy is 'a bodily substance' made of one thing, perfectly joining precious things and improving them; and second, explicitly adding another definition with "Anoþ*er* defeny=c*iou*n ys þ^{is}", saying that alchemy is a body of knowledge teaching how to transform substances into each other with their proper 'medicine', as it is openly shown in the philosophers' books. Here, I take "phelosophers" to mean the plural.

This is far from the only example of definitions in *MoA*. Invoking definitions does not need to include the word 'definition'; for instance, in Chapter II, the metals are defined in terms of their attributes. The writer of the treatise claims, at the end of Chapter II: "her*e* I haue schewede þ^{e} natur*e* & þ^{e} gen*er*ac*iou*n of þes bodyes men*er*all" (**T**, ll. 88–89). However, the 'showing' is accomplished merely by giving the reader the names and attributes of the metals, something that does not strike the present-day reader as very illuminating.[234] At the time, however, this would have been quite an appropriate method of demonstrating the nature of the metals. The definitions in Chapter II are referred to at the start of Chapter III in **T**, where it is noted that "þ^{e} gen*er*ac*iou*n of bodyes men*er*all ys schewede [...] be þ^{is} **premysses**". "Premysse" (*MED*, s.v. *premis(se*, sense 3) means here 'a proposition or previous statement leading to a conclusion': these previous statements are the definitions of

[233] The hyphen in "defenyc*iou*n" is in the original manuscript, as the **T** scribe uses them if a word crosses onto the next line.

[234] For instance, regarding gold: "Sol ys A bodye pure & p*er*fyte genderde of M*ercurij* . pure fixe & clere & of sulpho*ur* clene fixe clere rede & yt hath noon*ne* defaute" (**T**, ll. 73–74).

the metals in Chapter II. A scholastic mindset is thus clear here: the nature of things can be shown with definitions, and these definitions are valid propositions leading to conclusions.

Chapter III has even more explicit reliance on the power of definitions: the argumentative force of the six conclusions (see Table 5.14 in Section 5.3.2.1), in fact, depends almost entirely upon definitions. The fifth conclusion claims that the Stone should not be made out of gold or silver. It includes a section proving that gold and silver are not more than perfect, i.e. not suitable to be used for the Stone:

(92) but þey Arnoȝte mor*e* þe^{n} p*er*fyȝte . **I preve yt be þ^{e} defenyc*iou*ns of heme** . þ^{e} golde ys \a/ p*er*fyȝte bodye masculyne . made of clenneste . M*er*curij . & of rede sulpho*ur* w*ith* ouȝte enye sup*er*fluyte or domini=c*iou*n . I sey noȝte mor*e* þe^{n} p*er*fyȝte . / The mon*n*e ys Abodye Almoste p*er*fyȝte fe=minine made of clene . M*er*curij. & of clene sulpho*ur* & whyete as yt ys schewede In þ^{e} secunde chapyt*er* . her*e* bye yt ys clerlye p*re*vede þ*a*t our*e* mater*e* schall noȝte be made of golde noþ*er* of syluer*e*. / (**T**, ll. 146–152)

Here, the proof comes through the definitions of what the properties of gold and silver are. Even though gold is perfect, and silver (here referred to as "mon*n*e", 'moon') is almost perfect, their properties show that they are not *more* than perfect, and thus cannot be used as the basis of the Stone. Having established the nature of metals through defining them, those definitions are central to the most essential alchemical choice – what the starting material for the Stone/Elixir should be.

The use of prescriptive phrases and argumentation based on classical models are also typical features of scholastic treatises. Of these, I will briefly examine prescriptive phrases. Scholastic treatises often use prescriptive/authoritarian phrases such as *it is to be known that* (e.g. Taavitsainen 2001). I examined **T** for phrases such as this; I discovered that *know* is used quite frequently in *MoA* to exhort the reader to pay attention to key information content. For instance, in Chapter VI, the reader is instructed that the Stone turning black is important: "**knowe þ*o*u** þ*a*t yt ys þ^{e} keye of þ^{e} wercke" (**T**, l. 236). In addition to this emphasis on knowing, in which the reader is often addressed (as *thou*), the examples below clearly show the prescriptive phrases examined in research on scholastic thought-styles in English scientific writing:

(93) **Be yt opy*n*nely knowen*e* þ*a*t** olde phelosophers In þer bok*es* haue tretyde of þ^{is} nobell scyens (**T**, ll. 5–6)

(94) Then*ne* for A playne vnderstondyng her of **knowe þ*a*t** Alkemye ys Ascyense (**T**, ll. 58–59)

(95) **hyt be hoveth you to knowe þ*at*** myn*er*all*es* In mynes be noȝt els bute M*er*curij & sulpho*ur* (**T**, l. 65)

These examples show clear similarity with the phrases examined e.g. in Taavitsainen and Pahta (1995). Particularly (93), with its passive construction, is a clear example of this tendency. *MoA* does not have many such prescriptive phrases, as it is quite a short treatise, but even these examples show that also this feature of scholastic treatises appears in *MoA*.

The present study does not allow for a detailed examination of *MoA* through the lens of argumentation based on classical models. However, even without a detailed analysis of all the features that make up a *scholastic* treatise, I consider *MoA* to clearly belong in that category based on the evidence examined above from the references to authority, the reliance on definitions, and the use of prescriptive phrases.

What is especially important is that this shows that *MoA*, as a translation from a medieval Latin scholastic treatise, retained the characteristics of the scholastic tradition even in translation. Even though Group 1 – which has the earliest witnesses (Section 4.2.2) – seems to exhibit even more scholastic features in its references to 'the Philosopher' in passages that do not appear in the other versions, all Groups retain references to authorities in the scholastic style, even the later witnesses. Thus, *MoA* is an example of a treatise where the Latin tradition of scholastic argumentation was transferred into the vernacular through the means of translation. Within the scope of this study, **T** was the only witness used as an example of these tendencies. Further analysis of whether e.g. the use of prescriptive phrases changes through time in the witnesses of *MoA* would be a worthwhile future undertaking.

These features of scholastic treatises already indicate something about the possible audience of *MoA*; this is connected to the Latin tradition, as the above analysis has shown that *MoA* is very much indebted to Latin models. Audience is, of course, an essential factor to consider (cf. Pahta & Taavitsainen 2004: 15): an audience less comfortable with reading (or not able to read) in Latin is precisely the target of vernacularisation in scientific writing. Since *MoA* was translated, it is probable that the audience for the English translation was a little different from the audience for *Speculum alchemiae*. Some 15th-century Latin manuscripts of *Speculum alchemiae* were later owned by John Dee (BL MSS Sloane 2325 and 2327, and CCCC MS 185). Dee is a good example of the target audience of the Latin *Speculum alchemiae*: an educated scholar proficient in Latin, well-versed in alchemical knowledge, whose annotation of his manuscripts shows his proficiency (cf. Roberts 2004).

However, the target audience for the translated *MoA* may well have been a little different, particularly in Group 3, in which the printed **Oli** must have brought *MoA* to a broader audience than just a few alchemical practitioners. The audience for Group 1 may have consisted of just that, however: alchemical practitioners who, based on the amount of other English texts in the manuscripts, wished to have their alchemical knowledge mainly in the vernacular rather than in Latin. As a scholarly treatise, *MoA* is not a very popularised text; the alchemical poems edited by Timmermann (2013) would seem far more popularised. However, *MoA* does claim – in the Group 1 version – to be "A compendeose Abstrace of Alkamy" (**T**, l. 1), which could suggest beginner-friendliness. *MoA* does not have reams of theory (see Section 2.2.2, with Grund's (2013) suggestion that theory was generally more rare in English alchemical manuscript texts), and especially in Group 1, the general structure of the treatise is clear.

Based on the signs of later use in the manuscripts of *MoA* (Section 4.3), the potential readership of *MoA* mainly seemed to be alchemists, but *MoA* may have brought alchemical knowledge also to readers who did not have much previous knowledge. Certainly, the instructive nature of the treatise (as also evidenced by the prescriptive phrases, as well as by rather frequent references to the reader) points to this possibility. Already the prologue of *MoA* in Group 1 declares that the treatise intends to deal with alchemy in a plain and open way:

(96) Thes seyde Cappeters I schall wrytte vnto you **pleynly** w*ith* ouȝt þ^{e} ent*er*ecyens of Any myste w*ith* ouȝte demynyc*iou*n or sup*er*fluete (**T**, ll. 24–26)[235]

The "I" of *MoA* claims that the chapters are written without the distance caused by any mist, with neither reduction nor overabundance of information. This "symbolic openness of English" (Evans et al. 1999: 325) is echoed also in another 15th-century alchemical text: Norton's *Ordinal of Alchemy* (discussed in Evans et al. 1999: 365–326):

(97) this boke is made þat **lay-men** shuld it se,
And **clerkis al-so** aftir my decese,
wherbi al lay-men which puttith them in prese
To seche bi alchymy grete riches to wynne
May fynde goode concelle ar þei such werk bigyn
(Reidy ed. 1975: 5, ll. 2–6).

[235] For "ent*er*ecyens", see Section 6.3.2.3.

Here, Norton clearly states the audience of his alchemical work. Due to the instructional nature of *MoA*, I consider it entirely possible that *MoA*'s intended audience may have been somewhat similar, also including laypeople interested in alchemy, but who may not have been able to read alchemical treatises in Latin. As Evans et al. (1999: 326) remark: "English is the base metal alchemy turns into gold and the best medium for describing the process".

In the next section, I will turn to the four *versions* of *MoA* and discuss the treatise through the lens of translation, suggesting potential source texts or even showing with certainty what the source text for a Group has been; I briefly analyse what translation styles are used and how this reflects the understanding of the Latin source text.

6.2 The four translations of *MoA*

In Chapter 5, I presented my textual arguments for dividing the witnesses of *MoA* into four different versions, which I call Groups. These four versions of *MoA* correspond to four different translations of the work *Speculum alchemiae*, and many of the textual differences discussed in Chapter 5 stem from the different source texts used by the translators. Naturally, the translator's goals and competence have an impact as well. In the subsections that follow, I will describe the four Groups as translations. My focus is on showing how the four translations are distinct on a general level in order to lay the groundwork for examining and comparing them with each other with regard to length and vocabulary in the following section.

I do not consider the different translations of *MoA* to be retranslations (see Section 2.3.3). However, they are certainly multiple translations of the same work, translated and transmitted over a period of about 200 years. A brief introduction to all four translations is in order, although the Groups themselves are familiar from my analysis in the previous chapter. The translation histories of the Groups are sketched in Figure 6.1:

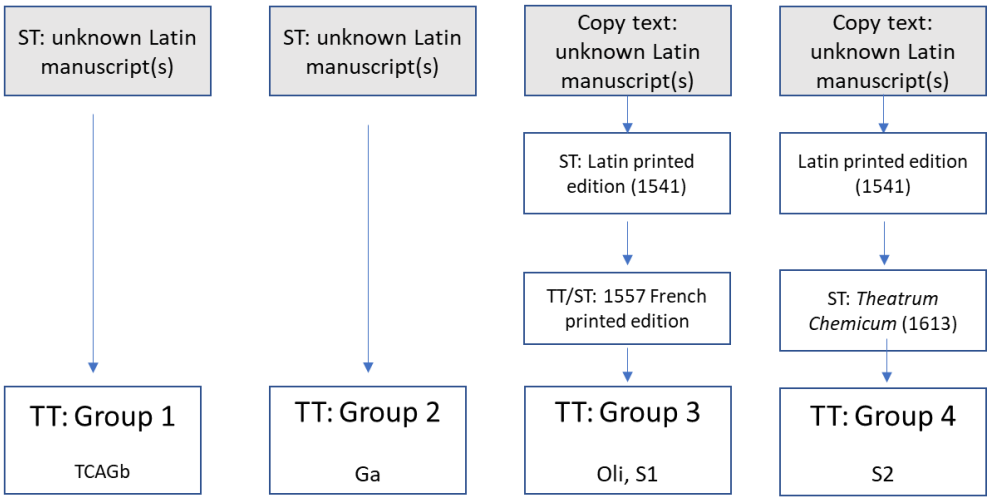


Figure 6.1. The translation groups. (ST = source text, TT = target text)

Group 1's translation survives in five manuscript copies from the 15th and 16th centuries, evidencing a manuscript-transmitted translation from Latin; as mentioned previously, this study examines four of them (**TCAGb**). Group 2, with a different Latin source text, is found in one 16th-century copy (**Ga**). Group 3 consists of one 17th-century manuscript partially copying the 1597 English printed translation – and that printed edition, which was in turn translated from a French ST (**S1, Oli**). Group 4, with one manuscript, is an independent translation of a Latin printed version from 1613 (**S2**). The following subsections outline the circumstances that led *MoA* to be translated four times: the four Groups' potential or confirmed source texts, their translation histories, and any overarching translation strategies.

First, however, I will return to the Latin manuscript copies of *Speculum alchemiae*, introduced in Section 3.2.2. For Groups 1 and 2, I will compare the versions of *MoA* with relevant copies of *Speculum alchemiae*, focusing in part on the overall textual structure of the treatise. I have located comparable copies of the Latin treatise primarily through examining the structure. Thus, a brief summary of the structural features of the Latin manuscript copies is in order. Only the UK copies of *Speculum alchemiae* are part of the following discussion, as I have examined them in person. They are rather similar in structure; fourteen of the 19 UK copies of *Speculum alchemiae* have a prologue or preface (collectively termed "prefatory matter" in Table 6.1 below), while five do not. Of those five, three copies (those in MS Bodley 484, MS CCC 185, and MS Sloane 3744) have traces of the prologue in their opening words "Multifarie multisque modis" used as titles (see Section 3.2.2).

Many of the non-fragmentary manuscript copies of *Speculum alchemiae* have a structure similar to *MoA*'s Group 1 wherein there is optionally a title and/or a rubric; and definitely 1) a prologue, 2) a 'preamble' and a list of chapters following the prologue (perhaps to be considered part of the prologue), 3) the seven chapters in order, and 4) an explicit. The Latin copies have the most structural variation in the explicit, as many copies otherwise following the structure do not have an explicit, and the explicits in any case are somewhat or very different from the English version.

Most of the copies have the list of chapters as part of the running text (as opposed to e.g. **T**'s clearly formatted list). This feature is indicated with an asterisk in Table 6.1 below, which shows the textual structure of the manuscripts I have personally consulted. Lists of chapters formatted as a list are indicated with a dagger symbol (†) in the table. The structural patterns in Table 6.1 are ordered from the most frequent to the least. I have not noted rubrics and explicits in this table, as there is much variation in them and notably, the rubrics and explicits do not quite correspond to their English equivalents.

Table 6.1. Textual structure of the *Speculum alchemiae* manuscripts in the UK.

Structure	Number of copies	Manuscripts
Prefatory matter List of chapters Chapters I–VII	7	• * Gonville & Caius College 181/214 (15th c.) • * Trinity College R.14.44 (15th c.)[236] • * British Library Add. 15549 (15th c.) • † British Library Sloane 1118 (15th c.)[237] • * Wellcome Library 517 (15th c.) • * Wellcome Library 758 (c. 1500) • * Bodleian Library Ashmole 1416 (15th c.)[238]
Prefatory matter Chapters I–VII	5	• British Library Harley 3528 (15th c.) • Wellcome Library 383 (16th c.)[239] • Wellcome Library 384 (16th c.)[240] • Wellcome Library 719 (16th c.) • Royal College of Physicians (Edi) ERG/1/1/1-52 (16th or 17th c.)
Only Chapters I –VI (missing Ch VII)	3	• British Library Sloane 3744 (15th c.) • Bodleian Library Bodley 484 (15th c.) • Oxford, Corpus Christi College 185 (15th c.)[241]
List of chapters Chapters I–VII	1	• * Cambridge University Library Ff.4.12[242]
Prefatory matter List of chapters Chapters I –V, VII (missing Ch VI)	1	• † British Library Sloane 692 (15th c.)[243]
Prefatory matter List of chapters Chapters I–IV	1	• * British Library Sloane 2325 (15th c.)

236 The copy in MS R.14.44 ends mid-chapter in Chapter VII, incomplete.
237 In MS Sloane 1118, the list of chapters follows the prologue.
238 Chapter VII in MS Ashmole 1416 is only partially copied, but ends with an explicit on f. 104r. The end of that chapter appears on f. 106v after another alchemical text.
239 In WL MS 383, between Chapters III and IV, an "apologia Jo: bap*tis*ta contradico" (seemingly by the scribe) is inserted (see Appendix 2).
240 The prologue in WL MS 384 may be a little truncated. Starting with Chapter II, the chapter numbering of this copy diverges from the seven-chapter numbering, as the text is split by the scribe into more chapters: see the description in Appendix 2. However, the content of the chapters matches that of the other *Speculum alchemiae* manuscripts.
241 Chapter III in MS CCC 185 is truncated.
242 In MS Ff.iv.12, the list of chapters is formatted as a list and starts the whole text.
243 In MS Sloane 692, the list of chapters is placed in the middle of Chapter II (as part of the running text).

(missing Chs V–VII)		
Only Chapters II–VII (missing Ch I)	1	• British Library Sloane 2327[244]

* = list of chapters as part of the running text, † = list of chapters in list format.

The major information conveyed in Table 6.1 is that the UK manuscripts of *Speculum alchemiae* fall into three main groups, in order of how many witnesses survive: (1) ones with prefatory matter, a list of chapters, and all seven chapters; (2) ones with (shorter) prefatory matter, no list of chapters, and all seven chapters; and (3) ones with no prefatory matter, no list of chapters, and lacking Chapter VII. This division has meaning for all of the English Groups, as the following sections will show.

Table 6.1 also shows that some of the Latin versions are incomplete, lacking chapters either from the beginning of end of the treatise. Rubrics are not common in the Latin copies, and only four copies have one: MSS R.14.44, Add. 15549, WL 758, and CCC 185. As discussed in Section 3.2.2, this Latin rubric is not the same as the English one in Group 1.

The list of chapters is the most common element *not* to appear in the Latin copies, and it is connected with the 'preamble' which usually precedes it. Drawing clear lines between prologue and main text is difficult here, and there are no doubt further textual complexities within the chapter structures of the Latin *Speculum alchemiae* copies. As the aim of the present study is not to provide a full analysis of the relationships between the Latin manuscripts of *Speculum alchemiae*, I can only provide the above preliminary sketch of the Latin copies' structure. However, even this sketch will help to connect potential source texts with their target texts in the witnesses of *MoA*.

6.2.1 Group 1: Manuscript translation with prologue

As I demonstrated in Section 5.1, the manuscript witnesses of Group 1 – **TCAGb** – form a textually unified group. The four copies contain almost entirely the same information content, and are overall rather close on a lexical level. Inevitably for a medieval text, there is variation; and it is possible that **T** and **C** may have had different exemplars. However, even those exemplars seem to have ultimately stemmed from the same source (see Figure 5.5 in Section 5.1.4). Overall, then, these four manuscript copies can be discussed as the same version of *MoA*: that is, as a

[244] Chapter II in MS Sloane 2327 is only partially complete.

single translation. As before, I will use **T** as the source for textual examples, as it is the base text of the edition.

The source text for the translation in Group 1, as shown in Figure 6.1, is an unknown Latin manuscript (or several). In Section 5.1.2, I suggested that the copy of *Speculum alchemiae* in TCC MS R.14.44 is very close to the information content and structure of Group 1, and gave my reasoning for this. R.14.44 belongs to the first group of Latin witnesses mentioned above: it has prefatory matter, a list of chapters, and all seven chapters. However, I am not suggesting that R.14.44 is actually the source text for Group 1. Indeed, as the Latin tradition has not been explored sufficiently, I cannot determine which Latin manuscript might have acted as ST for the (potentially no longer extant) first copy of the Group 1 translation. It is possible that the ST manuscript has not survived to the present day. However, since I have examined the UK manuscript witnesses of *Speculum alchemiae* on the broader level of structure and approximate content, I feel confident in suggesting R.14.44 is at least very close to the Latin version (extant in at least the seven copies listed in Table 6.1) which was translated into English in the Group 1 witnesses. As mentioned in Section 5.1.2, R.14.44 is very similar in overall structure to Group 1, and the Latin prologue has the same content as Group 1's prologue and preamble. The following examples, (98) from Group 1's preamble and (99) from R.14.44's prologue, demonstrate this with a list of some substances that "dyu*er*se men hath laborede" upon (**T**, f. 18r, l. 30). These substances include various minerals such as alums, borax, vitriol, marcasite, magnesia, and crude zinc oxide ("tut*es*"/ "tutie"):

(98) As firste vppon . 4to . sperytt*es* . & Affter vppon*e* þ^{e} . 7^{a} . mettall*es*. Also vppon*e* saltt*es*. Alumys. borauc*es*. Attramen*tes*. Also vppon*e* All man*er*e of kend*es* of markecaset*es*. magnaset*es*. tut*es*. & vppon*e* many oþ*er* myn*er*all*es* thyng*es*. (Group 1, **T**, ll. 33–36)

(99) p*ri*mo sup*er* quatuor spirit*is* alkimicos et sup*er* septem corpore metallica nec no*n* sup*er* sales Alumina bauracia attramen*t*a sup*er* q*ue* om*n*ia genera marcasiti & tutie & sup*er* alia mineralia multa (R.14.44, f. 117v)

I consider the inclusion of material that is in Group 1's preamble to be a strong indicator of similarities. Although a more in-depth textual comparison was not possible, a brief examination of R.14.44 shows that this Latin witness also has similar metatext as in Group 1. Other Latin witnesses that appear similar to Group 1 on the level of content and structure – for instance, including the information content

in Group 1's preamble – appear in BL MS Sloane 1118,[245] BL MS Harley 3528, Gonville & Caius College Library MS 181/214, and WL MS 758 (as seen in Table 6.1). Notably, these Latin witnesses suggest that what in Group 1 is a prologue and preamble is just one longer prologue in one version of *Speculum alchemiae*. Thus, separating the two may be an innovation by the English translation.

As I will discuss in Sections 6.2.3 and 6.2.4, the 1541 printed *De Alchemia* seems to derive from a different Latin manuscript version than the ST for Group 1. Since the preface in *De Alchemia* is much shorter and lacks the information content of the preamble, I consider it likely that two kinds of prologue circulated in the Latin manuscript tradition of *Speculum alchemiae* – in addition to a version with no prologue (Group 2). Indeed, these divisions can be seen in Table 6.1 above. I will mention some possible manuscript exemplars for this shorter preface in Section 6.2.3.

Concerning translation itself, Group 1 has more in-text discussion of translational aspects than the other translations of *MoA*. Group 1's rubric (not present in any of the other Groups) shows a concern for translation:

> (100) Her be gynneth A compendeose Abstrace of Alkamy **draven ouȝte of laty*n*ne be Atrewe grownd** vpon*ne* wate wyese ȝe schall werche w*ith* ouȝte error*e* vnto Atrewe conclu*c**iou*n of A p*er*fete Elyx*er*e both for þ^{e} whyete & þ^{e} Rede & c (**T**, ll. 1–3)

Here, Group 1 is the only one of *MoA*'s Groups that explicitly acknowledges itself as a translation, and even states the source-language: this compendious abstract of alchemy is 'drawn out of Latin'. Notably, in **TC**, the rubric also claims that the translation is good: it has been translated "be Atrewe grownd", 'according to true authority', which implies that the translation can be trusted.[246] **AGb** lack this additional emphasis on the truthfulness of the translation.[247] This claim, as I mentioned above, cannot be verified since a detailed comparison between the English and Latin versions was not possible within this study. However, it is interesting in itself that this phrase exists in the rubric. It suggests that the

[245] MS Sloane 1118 belongs to the Core Group of the Sloane Group of scientific manuscripts, "united by codicological similarities and a shared subject matter" (Honkapohja 2017: 6).

[246] "Grownd" is a complex word here; see the Glossary. On the question of the worth of a translation, this seems to go against the modesty topos common in the prefaces of later translations, e.g. in the Renaissance (see Ruokkeinen, in prep).

[247] "Her begynnyth A compe*n*dyose ab*s*stract of alkany drau=yn oute of latyn vppon whate wyse ȝe schall werke w*ith* oute erroure [...]" (**A**, f. 43r).

trustworthiness of translation might be a concern for readers (cf. Section 6.1.2 on the potential audience). The rubric may also be claiming some additional textual authority for *MoA* through acknowledging that the original text was in Latin. The rubric of Group 1 is a feature of the English translation, as the Latin manuscripts either have no distinct rubric (beginning directly with the prologue's "Multipharíam multisque modis loquebantur"), or they have different ones, such as one beginning "Istum tractatu*m* iam p*er*fecte & breuit*er* co*m*pletu*m* nec in aliq*uo* diminutu*m* sup*er* specul*um* alkemie vobis tradam" (BL MS Add. 15549, f. 101r), 'I bequeath to you now this perfect and briefly completed treatise, not in any way diminished, about the mirror of alchemy'.[248]

Group 1 includes another reference with relevance to translation on a more general level in Chapter III of *MoA*:

> (101) Thyn*n*ke verylye þ*a*t phelosophers ordeynede þys scyense & wrotte yt In sych st*r**a*nge termes no3t be cause yt schulde be take **Afftere lett*er*** bute **Affter þ^{e} ffegur*e* & lekenes** (**T**, ll. 109–111)

This extract is a reference to alchemical writing in general, but there is a definite similarity in the language used here and the language generally used in medieval discussions of translation. The contrast between translating "Afftere lett*er*", word for word, or "Affter þ^{e} ffegur*e* & lekenes", 'according to metaphor and analogy' i.e. sense for sense, is clearly expressed, and the text expands these notions of translation to understanding alchemical metaphors. None of the other Groups have a passage like this.

Another way in which Group 1 diverges from its possible Latin source text is one major feature of textual organisation. This feature is in Chapter III of *MoA*, where the English copies in Group 1 divide a section of the text into six conclusions. The conclusions are presented as reasons why certain materials should not be chosen as the basis for the preparation of the Stone/Elixir.

Significantly, the division of the information content into six numbered conclusions may be an innovation of the English translation. Conclusion as a term comes from Latin (possibly via Old French), and means in this case 'a principle, proposition, doctrine' (*MED*, s.v. *conclusioun*, subsense 4a). However, this feature of textual organisation does not appear in any of the Latin manuscript witnesses of *Speculum alchemiae* which I have examined (see Appendix 2), not even the witnesses otherwise closer to Group 1. The Latin witnesses all give the same reasons for the choice of correct substance, but they do not divide and label these items into separate conclusions. In contrast, the explicitly labelled six conclusions appear in all

[248] I would like to thank Veli-Matti Rissanen for his help with this Latin translation.

copies of *MoA*'s Group 1. It is of course possible that the explicitly marked six conclusions appear in a no longer extant Latin copy that served as the ST for one of the Group 1 manuscripts. However, the fact that this feature does not appear in any of the 20 *Speculum alchemiae* manuscripts in UK repositories would seem to suggest that this is unlikely. In other words, even though the translation of *MoA* in Group 1 may otherwise follow its ST quite closely, the translator – or a later scribe copying the translation – divided up the six conclusions. It is a very helpful device for the reader, as it divides up the argumentation in the very long Chapter III into short, clear segments. In this way, the target text has improved on its source text.

6.2.2 Group 2: Manuscript translation without prologue

Group 2, which is formed of only one witness, **Ga**, is an independent version of *MoA* (as demonstrated in Section 5.2). As such, Group 2 is a separate translation: side-by-side textual comparison with Group 1 showed that the two Groups are not connected apart from their general information content. Thus, they probably do not derive from the same Latin ST unless the Group 2 translator made considerable modifications to the text. Even apart from the text itself, a striking feature that makes Group 2 different is its structure: it has no rubric and prologue. In addition, it lacks the distinctive metatext and paratextual organisation evident in Group 1, and is much more concise, omitting some of the information content in Group 1. Translators could edit and modify their STs to a great degree (cf. Murray Jones 1989), but in the case of Group 2, there is evidence in the Latin copies of shorter versions lacking prefatory matter and a list of chapters (as seen in Table 6.1). For this reason, I consider it likely that Group 2 had a different ST from Group 1.

In other words, the translation in Group 2 may have had a Latin source text with less information content than the source text for Group 1. Group 2's source text may have had a prologue; prologues could be omitted when copying, as **S1** shows. However, there are also Latin manuscript copies of *Speculum alchemiae* that lack the prologue and start with "Hermes", as **Ga** does (see Section 5.2.2 and Table 6.1): notably, BL MS Sloane 3744, BLO MS Bodley 484, and CCC MS 185. Of these, Sloane 3744 seems the most similar to **Ga** in terms of its content and organisation. These manuscript witnesses are also otherwise somewhat similar to **Ga**, structurally and regarding textual organisation. However, as with Group 1, a more detailed comparison was not possible, and I could thus not with certainty locate **Ga**'s probable Latin source text among these manuscripts. It is possible that the conciseness of the English translation in **Ga** is due to the translator consciously

paraphrasing and shortening the text they translated, instead of an equally concise Latin version existing.

Although I cannot venture any conclusions on the unresearched Latin tradition of *Speculum alchemiae*, it seems to me noteworthy that there exists a similar divide in the Latin manuscript tradition as is evidenced in Groups 1 and 2 of *MoA*. I propose that in the Latin tradition, there were at least two diverging strands of the work. These versions were similar in overall information content – they were the same *work* – but differed in textual organisation. I suggest that the differences between these two versions are characterised especially by the absence or presence of a prologue. In addition, there seems to be a third strand involved, that evidenced in Groups 3 and 4 – a version of *Speculum alchemiae* in which a preface (prologue) exists, but which is much shorter than the prologue of Group 1. It is quite remarkable that all of these versions of *Speculum alchemiae* seem to have ended up being translated into English.

The version translated in Group 1 must have originated in the 15th century, as the earliest Latin versions appear in the 15th century. However, it is difficult to date the Group 2 translation; MS **G** is from the mid-to-late 16th century, but the translation itself may well be older, as I have not been able to find out where the scribe copied the earlier sections of the manuscript from. Due to the lack of evidence, it is unknown whether the scribe of **G** copied the text of **Ga** from e.g. a 15th-century manuscript. The scribe certainly had access to earlier manuscripts, as their copying from MS **A**, from c. 1500, shows. Due to the **G** scribe's apparent lack of Latin proficiency, I do not think that the **G** scribe was also the translator in the case of Group 2. Thus, **Ga** must have been copied from another manuscript, which I have not been able to locate; it may no longer be extant.

6.2.3 Group 3: The 1597 English printed translation

The translation that forms Group 3 consists of one manuscript copy and a printed edition. As discussed in Section 5.3, **S1** (the first three chapters of *MoA*) was copied from the 1597 English printed edition of *MoA*, **Oli**. I discussed the copying relationship in detail in the previous chapter, and will not elaborate on it further here. Instead, in this section I will turn to the translation aspects of Group 3. Group 3 differs from the other translations of *MoA* in one major feature: instead of being translated directly from Latin, it is the product of a more complex chain of translation transmission, which I have sketched out in Figure 6.2:

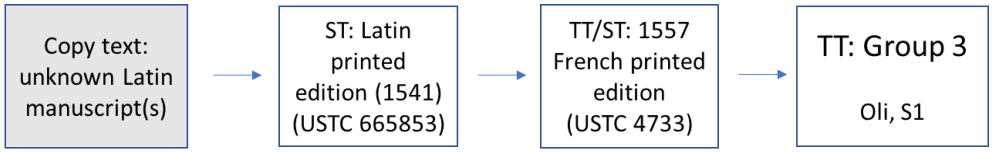


Figure 6.2. The translation history of Group 3.

The history presented in Figure 6.2 is of course only partial, as the translation history before the first printed Latin edition is unknown. I have located three French manuscript witnesses of *Le miroir d'alquimie* (see Section 3.2.3, Table 3.5), but these manuscripts are not relevant for tracing the history of the English *MoA*.[249] This is because the French printed edition of 1557 (USTC 4733) had a Latin printed edition as its source text – *De Alchemia* (USTC 665853). I will introduce the translation chain in chronological order: from *De Alchemia* to *Le miroir d'alquimie* to **Oli** (and hence **S1**).

I introduced *De Alchemia* in Section 3.2.2 – printed in Nuremberg in 1541, it was the first appearance of *Speculum alchemiae* in print. As mentioned, due to the lack of research on *Speculum alchemiae*, the possible exemplar manuscript for the printed edition must remain unknown. I have examined three Latin manuscripts of *Speculum alchemiae* which have a very short prologue like the version in *De Alchemia* does, do not have a preamble or list of chapters, and have all seven chapters: Wellcome Library (WL) MS 384, WL MS 719, and Royal College of Physicians (RCP) MS ERG/1/1/1-52. However, all three of these date from after 1541, when *De Alchemia* was published: WL MS 384 is from c. 1565, WL MS 719 is from 1578–1594, and RCP MS ERG/1/1/1-52 is from the 17th century. Based on codicological and palaeographical evidence (see Appendix 2), I suspect all three of these manuscript witnesses may be copied from the printed edition.[250] Table 6.1 includes a 15th-century manuscript, BL MS Harley 3528, in the group that has only prefatory matter and Chapters I–VII; however, despite the lack of a list of chapters, Harley 3528 is closer to Group 1 than Group 3 of the English translations, since it has textual content that corresponds to Group 1's preamble. In other words, the present study cannot present any further antecedents to the Latin version that was the ultimate source text for Group 3 of *MoA*.

249 Indeed, the multiple translations of *Miroir* would provide material for a separate study.

250 WL MS 719 even has some chapter titles copied out in a script mimicking printed roman typeface, e.g. the title for Chapter III on f. 93v (cf. Nafde 2020 for some examples of scribes imitating printed typefaces).

The next step in the translation history of Group 3 is from the Latin printed *De Alchemia* to the French printed edition from 1557. *Le miroir d'alquimie de Rogier Bacon Philosophe tres-excellent* was published in Lyon (Linden 1992: x). This edition's title-page states that it was translated into French from Latin, and the colophon after the *Miroir* reiterates that it was "mis en Francoys par vn gentilhome du D'aulphiné", by a gentleman from Dauphiné (a former province in south-eastern France). Linden claims that *De Alchemia* is the source of the French translation (1992: xii), although he does not give additional evidence for this. However, expecting a printed edition to have another printed edition as its source text seems reasonable, as early printers appeared to prefer a printed source copytext to a manuscript exemplar if such a printed exemplar could be found (cf. Kenney 1974: 18–19, 59–60). *Le miroir d'alquimie* contains only four of the same treatises as *De Alchemia* does (I will give the names in English): *The Mirror of Alchemy, The Smaragdine Table, Hortunalus's Commentary on the Table,* and *The Booke of the Secrets of Calid*, and the French edition adds several other treatises not included in *De Alchemia*. However, a brief textual comparison of the *Speculum alchemiae* of the Latin edition with the *Miroir d'alquimie* of the French edition shows that there is a clear connection at least between these two witnesses: the same version of the work certainly appears in both, so I see no reason to contest Linden's claim that the French translation of 1557 used the Latin of 1541 as its source text.

Then, in the final step of Group 3's translation history, this French edition was translated into English and published in 1597 – this is **Oli**. Linden (1992) has discussed the relationship of **Oli** to the French printed edition, using entries in the Stationers' Register from 1593 as evidence for the English edition having been translated from the French:

> (102) Thomas Scarlet. | Entred for his copie under the handes of master Hartwell and master Styrrop to be printed in Englishe | *the myrrour of Alkamye of* Roger Bacon *a most excellent Philosopher*. to be translated out of the French into Englishe. (quoted in Linden 1992: x)

The immediate source text for Group 3 is thus remarkably clear, as this primary evidence shows. The compiler of **Oli** did not include all the nine works in the French edition; they chose five of those to translate into English. Even though the editions (both French and English) have *MoA* as the main title, there are thus several other works included (listed in Section 4.3). *MoA* is titled *Le Livre du Tres-Savant Philosophe Rogier Bacon, intitulé le miroir d'alquimie* in the French edition, and is the first work in the volume. One of the texts not included in **Oli** is the version of *Miroir* attributed to Jean de Meun. The English publisher might have simply

preferred an English attribution of the work over a French one, and printing the same work twice might have seemed wasteful.

Linden briefly discusses the translation relationship between the French and English editions; he includes the other treatises, concentrating on more than just *MoA*. He states that "[t]he English edition of 1597 is an extremely faithful translation of the French version of 1557 both as to content and phrasing" (1992: xi). In addition, the English edition follows the French in paratextual matters: headings and chapter numbering are identical. The English even follows the French in typography: the use of italics, according to Linden (1992: xi), is identical. The French edition (unlike *De Alchemia*) introduces some paratextual aids to the reader, notably in Chapter II, where it separates the description of the properties of metals with headings in italic typeface, and **Oli** reproduces these. There are exceptions to these tendencies, but not in the case of *MoA*.

Oli being translated from French and not directly from Latin may simply have been a case of availability: although *De Alchemia* was probably available in England as well, the French edition may have been more accessible to the publisher. Language skills may also have been a factor.

I will discuss the French influence on Group 3 more specifically with regard to terminology in Section 6.3.2. One example will suffice here. Group 3 is the exception in translating the name of the treatise *De Lumine Luminum* in Chapter V, as "the light of lights" (**Oli** p. 12; see Section 5.1.2.1 for the variants in the other Groups). However, this seems to be due to the French translation. *De Alchemia* reads "lumine luminum" here (1541: 267), and *Miroir d'alquimie* reads "la lumiere des lumieres" (1557: 26), translating the name directly into its French equivalent. This translation strategy is continued in **Oli**. Group 3 (with **Oli** as the only witness for Chapter V) is the only translation to employ this strategy: all the other Groups have the Latin title of the treatise.

Although the translation witnessed in **Oli** and **S1** seems overall to be close to its French source text, **Oli** adds one detail which is then reproduced in **S1** (where **S1** copies from **Oli** at all, it is a faithful copy). This is a change to the text of the title-page of the whole edition as well as the title of *MoA* itself. The relevant parts of the title-page read as follows in Table 6.2 (the original layout is not represented, as I have removed the line breaks):

Table 6.2. The titles in English and French.

	Oli	**1557 French edition**
Title-page	THE Mirror of Alchimy, Composed by the thrice-famous and learned Fryer, *Roger Bachon*, sometimes fellow of *Martin* Colledge: and afterwards of *Brasen-nose* Colledge in *Oxenforde*. (**Oli**, title-page)	Le Miroir d'Alquimie de Rogier Bacon Philosophe Tres-excellent.[251] (1557, title-page)
Title following preface	The Mirrour of Alchimy, composed by the famous Fryer, *Roger Bachon*, sometime fellow of *Martin* Colledge, and *Brasen-nose Colledge in Oxenforde*. (**Oli**, p. 1)	Le livre du tres-savant philosophe Rogier Bacon, intitulé le miroir d'alquimie. (1557: 5)

The French edition merely mentions Bacon as a "tres-savant philosophe" – similarly to *De Alchemia*, in which Bacon is called "Doctissimus vir", 'a most learned man'.[252] Here, then, the English translation has added information on Roger Bacon: significantly, this is information explicitly connecting him to England, as the Oxonian Merton College and Brasenose College are mentioned. The reason for adding this information is obvious, especially concerning the title-page itself. The title-page was a commercial site (cf. Varila & Peikola 2019), and the details on Bacon must have been added to appeal to a specifically English audience.

6.2.4 Group 4: Translated from the 1613 *Theatrum Chemicum*

In Section 5.4, I gave textual evidence showing that even though Group 4, **S2**, is closer to Group 3 than to the other Groups, it is nevertheless a textually distinct version of *MoA*. In this section I will show that **S2** is a witness of a unique translation and, although it shares an ultimate source text with Group 3, its translation history is very different.

As **S2** was translated in the 17th century, one may ask whether the translator was influenced by the 1597 translation in **Oli**. After all, it is possible that the translator knew of the earlier printed edition. My collation of **S2** and **Oli** in Section 5.4.2 already showed that there is too much major variation between the two versions for

251 Original entirely capitalised; capitalisation not represented here for ease of reading.

252 The full title in Latin reads "Doctissimi viri Rogerii Bachonis de alchemia libellus, cui titulum fecit, Speculum Alchemiæ" (1541: 257), 'A little book on alchemy by the most learned man Roger Bacon, the title of which is The Mirror of Alchemy'.

them to be textually connected. That is, they are two different translations. Indeed, already Linden notes (1992: xv) that the *MoA* in **S2** is "rendered in English but in a completely different translation from the 1597 printed edition and from MS Sloane 2405" (that is, **S1**). If the scribe of **S2** had access to **Oli**, it would not seem sensible for them to attempt a translation of their own – unless, of course, they considered the translation in **Oli** to be so inferior that they wished to essay a new translation, or they simply translated *MoA* again for the sheer joy of the exercise.

In this case, it is fairly easy to establish **S2**'s source text on a general level. Clues as to where **S2** was translated from can be found in the handwritten Sloane catalogue (Sloane Catalogue: 476): the catalogue labels this version as an "English translation of Roger Bacon's Speculum Alchemiae" and notes that it is "Printed, in Latin, in the Theatrum Chemicum, Vol. II. p. 377". Indeed, as I noted at the start of Section 5.4, it is clear that **S2** was translated from *De alchemia libellus, cui titulum fecit, Speculum Alchemiae* (attributed to Roger Bacon, *Rogerii Bachonis*) in Lazarus Zetzner's printed alchemical compendium *Theatrum Chemicum*. I introduced this compendium in Section 3.2.2, with its complex printing history.

The connection to *Theatrum Chemicum* is in fact evident even in the manuscript **S2** itself; the scribe of **S2** has explicitly marked the origin of some other texts translated from *Theatrum Chemicum* into the manuscript. For instance, there is a note preceding a recipe on f. 65r saying "Concerning Sulphur in ye 4th Volume ofye Theatrym Chymicum pag. 360", and ff. 66r–67r also contain recipes copied from *Theatrum Chemicum* (volumes II and IV).[253] In fact, most of the texts in **S2** have predecessors in either Volume II or IV of *Theatrum Chemicum* (see Appendix 1).

Zetzner issued the first three volumes of *Theatrum Chemicum* first in 1602, then reissued them with a fourth volume in 1613. This creates a somewhat complex situation, as the page numbers of the different editions differ. Prinke's digital facsimile edition (2005) of *Theatrum Chemicum* reproduces the 1613 edition of Volume II and the 1652 edition of Volume IV. As the **S2** scribe writes down the page numbers of some of the recipes translated, there is direct evidence for which edition the translator used as a source text; but the page numbers in Prinke's edition do not correspond to the content in **S2**. In other words, I suspect the scribe of **S2** had access to the 1602 edition of Volume II and the 1613 edition of Volume IV. However, I was not able to access the correct editions myself. I will therefore refer to the page numbers in *Theatrum Chemicum* as they appear in the volumes reproduced in Prinke

[253] The list of contents in my manuscript description of **S2** in Appendix 1 indicates which items have been translated from *Theatrum Chemicum* (based on the scribe's notes).

(2005), knowing that they do not correspond to the editions used in **S2**. *Speculum alchemiae* in *Theatrum Chemicum* is in Volume II, pp. 409–417, of the 1613 edition.

Group 4, then, used a different printed source text from Group 3. However, Group 4 has a definite connection to Group 3. That is, the ultimate source text of Group 4 is the same as that of Group 3: the version of *Speculum alchemiae* printed in *De Alchemia* from 1541. In other words, Group 4 aligns with Group 3 when it comes to the untraceable manuscript history of the translation (see above). I compared the Latin versions in *De Alchemia* and *Theatrum Chemicum* (the 1613 edition available in Prinke 2005) with each other, and they are almost identical with regard to the text, their main differences being those of layout. The only major variation is in the title: *Theatrum Chemicum* does not include the "Doctissimus vir" appellation for Roger Bacon, but this seems to be the only instance where the text diverges. It is thus likely that the *Speculum alchemiae* printed in *De Alchemia* was the exemplar for that in *Theatrum Chemicum*. This is corroborated by Gilly (2003: 436), in his table listing "Nürnberg, J. Petreius, 1541" as a source for *Speculum alchemiae* in Volume II of *Theatrum Chemicum*.

In addition to the external evidence given above, I compared **S2** with the Latin *Speculum alchemiae* in *Theatrum Chemicum*, and this comparison shows that **S2** was certainly translated from that printed edition (despite Prinke 2005 having only the 1613 edition of Volume II, the text itself does not appear to have changed between the editions). It seems possible, especially given the direct references to pages specifically from *Theatrum Chemicum*, that the scribe of **S2** translated the texts from Latin to English themself, including *MoA*. This may also hold true for all the other texts in the manuscript, even ones that may be from different sources. However, **S2** is clearly not a translation draft: the translator must have been proficient in Latin, as **S2** is fluent Early Modern English and there is none of the roughness nor the frequent crossings-out that one would expect an early draft to have. The translator was clearly translating sense by sense, not word by word.

In other words, Group 4, **S2**, was translated from Latin without an intermediate French translation like Group 3. The manuscript title itself suggests that **S2** has a close connection to Latin: "The Speculum Alchimiæ of Roger Bacon" (see Chapter 5, Table 5.2). The translator has not translated the work's title as *The Mirror of Alchemy*, and overall, the diction of **S2** shows copious Latin influence: the vocabulary is far more Latinate than in other copies of *MoA*, as I will discuss in Section 6.3.2 with regard to alchemical terminology. The Latinate influence appears predominantly in non-specialist lexis: the scribe uses words such as *ænigma* where the Latin has the same word, and *secret* when Latin has *secretum*. The **S2** scribe's orthography is also influenced by Latin, e.g. *præceding*. In other words, the translator was far from averse to loanwords or other Latin influence.

6.3 Comparison and analysis of the translations

The previous sections placed *MoA* in the context of the general vernacularisation tendencies of other alchemical writings and examined the translation histories and source texts of the four translation Groups. In the analysis in the present section, I compare the four translations with each other. I will first compare them through looking at their word counts, both in total and chapter by chapter, and next, through examining their specialised terminology. I seek to answer the following questions: How do the translations of *MoA* differ in terms of Latin-influenced terminology, and is there a change over time? To answer these questions, I employ close reading of the witnesses of *MoA*, comparing them, as applicable, with examples from the Latin manuscript tradition and with the printed editions from 1541 (Latin), 1557 (French), and 1613 (Latin). These questions refine the overall research question for this chapter: how *MoA* reflects the processes of the vernacularisation of science through translation.

My analysis in this section reflects some of the themes in Murray Jones's study of the four translations of John of Arderne's Latin medical work *Practica* (1989; discussed in Section 2.3.2): *MoA*, too, has four independent translations, and I examine their translation strategies through lexicon and textual structure. However, Murray Jones's methodology is not entirely applicable to *MoA*, and thus, in my analysis, I will instead employ a similar methodology as Pahta et al. (2011) do in their article on Galen's *Methodus medendi*. The article discusses three early English versions of a medical text by the Greek medical authority Galen. One of these versions is from the 15th century, in manuscript; the other two are from the 16th and 17th centuries, and are in print. The material that Pahta et al. deal with in their article is thus somewhat comparable to *MoA*: there is interaction of manuscript and print, and the English materials range from ME to EModE. There are also some differences. For instance, Pahta et al. treat the three English versions they study as parallel versions, not translations – this is the only reasonable option for them, because the translation sequences of the texts compared with the original Greek text are not clear. In opposition to this, the discussion in Section 6.2 has already shown that the translation histories of *MoA* can be traced to quite some extent.

Pahta et al. (2011: 179) selected three overall features for analysis of Book 3 of *Methodus medendi*: "text structure, the use of reporting verbs and special terminology". These features all showcase potential differences in transferring scientific discourse from Latin to English. Firstly, Pahta et al. used word count as a measure to compare the parallel texts' overall text structure, as word count is "[t]he simplest quantitative measure for comparing the textual structure of parallel texts" (2011: 184). They compared the overall word counts between the different versions,

as well as chapter-by-chapter word counts: I will do the same below (Section 6.3.1) in my analysis of *MoA*. Pahta et al. also looked at sentence length, comparing it to results in the *MEMT* and *EMEMT* corpora.[254] Implementing the quantitative sentence level of analysis for *MoA* was not within the scope of my study, however, as almost all the witnesses of *MoA* are manuscript texts with varying punctuation, many of them not using punctuation to determine sentence breaks. I would thus have to impose sentence structure on these historical texts, which (as I will discuss in Chapter 7) does not align with my editorial philosophy.

The second feature that Pahta et al. examine is the use of reporting verbs (RVs), "speech-act verbs or verbs of communication that are used to report speech, thought and attitudes" in the translations (2011: 188). They chose to examine RVs because RVs are indicative of evaluation and stance (ibid.), and thus can give information about "how the authors of vernacular versions chose to present the information of Galen's work to their respective audiences" and thus "how they assessed its information value" (ibid.).

The third feature Pahta et al. examined is specialised terminology: this is what I will concentrate on in my analysis of *MoA*. As Book 3 of *Methodus medendi* focuses on treating wounds, Pahta et al. picked out terms in the three English versions related to the description and curing of wounds for their analysis (2011: 190). They examined the types of wound terms used in the English versions in terms of etymology: there are native words of Germanic etymology, as well as direct classical loans, but also e.g. medieval Latinate loans via French, and 16th-century Latinate neologisms. The preferences for terminology differ according to the translation. In addition to presenting the variants in tables, Pahta et al. analyse two medical terms in more detail. They conclude that the three early English versions of the originally Latin work show how the same medical information was communicated in the vernacular in varying ways over about 200 years (Pahta et al. 2011: 195). Pahta et al.'s terminological analysis shows that the language of medicine in the 15th to 17th centuries fluctuated with regard to terminology, with some terms staying the same throughout and others being eventually replaced by new formations, either derived from native word stock or loaned/adapted from Latin and Greek.

Pahta et al.'s analysis forms the basis for the methodology behind this section. I will employ two of their features for my analysis in the present section: text structure and specialised terminology. I will not examine RVs in the present section, as Section 6.1.2 already dealt with them to some degree in my examination of the

254 *MEMT*, *Middle English Medical Texts*, and *EMEMT*, *Early Modern English Medical Texts*, are subcorpora of the *Corpus of Early English Medical Writing* (*CEEM*).

references to authorities. My main reason for not involving RVs in this analysis, however, is that in the case of *MoA*, the disparate lengths of the witnesses and the terminology used say much more about the *translations themselves* than the use of RVs. Concerning text structure, I will note that I use the more transparent term *word count comparison* where Pahta et al. (2011) use text structure, as the latter may be somewhat misleading concerning the type of analysis.

I showed the textual differences between the four Groups in the previous chapter. These differences, as has been mentioned previously, stem from these four Groups being four different translations. In the following subsections, I will examine first the word count of the four translations of *MoA*, and then proceed from this broader level to the level of specialised terminology; I will finish with a discussion of how the translations of *MoA* differ in terms of Latin-influenced terminology and whether there is a change over time from the 15th to 17th-century witnesses. This timeline matches the overall vernacularisation process from ME to EModE scientific writing.

6.3.1 Word count comparison

This section forms a quantitative addition to the qualitative analysis of the rest of my study. Following Pahta et al. (2011), I will first examine the overall word counts of the translation Groups, and then examine the word counts chapter by chapter. This analysis builds on what was already shown in Chapter 5 – that the four translations represent different versions of *MoA*, and those versions are of varying lengths. Looking at the word counts of the versions overall and of the individual chapters of the treatise enables a macro-level view of this facet of what makes the translations unique.

For the purposes of the word count analysis in this section, I created files where I regularised the word count for the representatives of the Groups. Group 1 is represented by **T**;[255] Group 2 is represented by its only witness, **Ga**; Group 3 is represented by **Oli**, as **S1** is only a partial copy; and Group 4 is represented by its only witness, **S2**. In order to get comparable figures, I regularised word divisions in the witnesses according to Present-Day English standards: for instance, this meant regularising the unusual preposition + article + noun combinations in **S2**. I also removed all items from the transcriptions that word counting software in Microsoft

[255] The word counts of the four witnesses in that Group vary and **T** has the highest word count of the Group, but as **T** is the basis for the best-text edition, I have chosen it to represent Group 1 throughout my analysis.

Word could erroneously count as separate word, such as punctuation separated by spaces. Puncti (.) and virgulae (/) in the manuscripts are usually written not close to the word they follow, and I have indicated this in my transcriptions by separating them: e.g. "lekenes . wherfore" (**T**, l. 111). As keeping punctuation such as this would inflate the word count, I removed it from the files comparing word count; however, "&" remains, as it stands for 'and' (or 'et'). My main goal was to ensure the *comparability* of the versions.

The overall word count comparison for the four translations can be seen in Figure 6.3. With the regularised word divisions, Group 1 is 4,138 words; Group 2 is 2,416 words; Group 3 is 3,851 words; and Group 4 is 3,451 words.

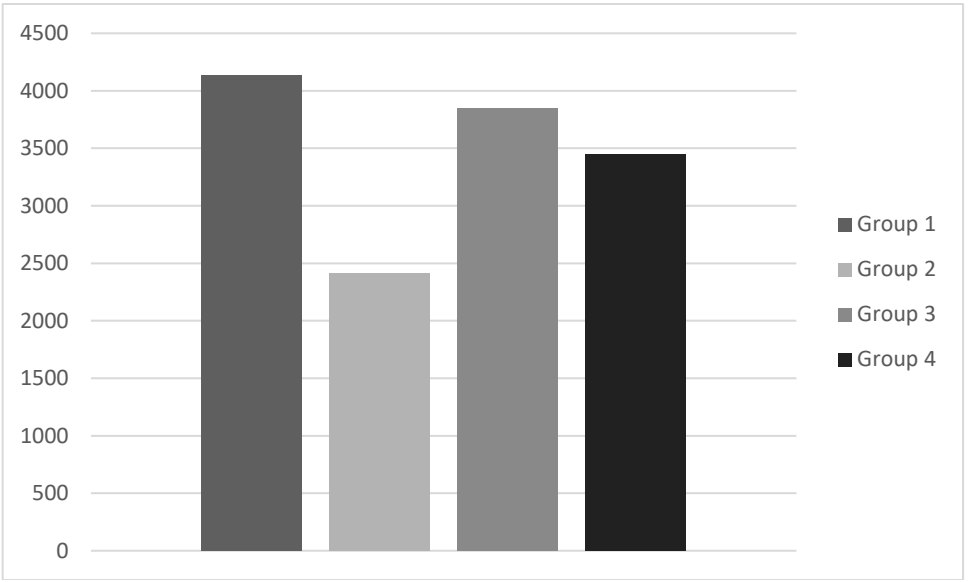


Figure 6.3. Overall word count of the translations (regularised).

The immediately striking fact about Figure 6.3 is that Group 2 is so much shorter: over one third shorter than Group 1. As discussed in Section 5.2 and Section 6.2.2, this is due to the Group 2 translation most likely stemming from a different Latin tradition of *Speculum alchemiae*, or being much modified by the translator. The numerical evidence of the word count of the English translations certainly points to the distinctness of Group 2. Although examining the word count of the (unedited) possible Latin antecedents I suggested for Group 2 in Section 6.2.2 was impossible for the purposes of the present study, they are nonetheless all shorter than the possible Latin antecedents for Group 1, as the Group 2 antecedents do not include a

prologue, preamble, or list of chapters. The English translation in Group 2, in general, also lacks much of the metatext which is present in Group 1: there are also no additional words due to chapter titles and such.

Considered overall, Group 1 is the longest translation – even the shortest of the witnesses of Group 1, **Gb**, is almost 3,900 words. The reason for the length is in the overall structure of this version: Group 1 has a far longer prologue compared to the preface in Groups 3 and 4. Group 1's prologue is 294 words, whereas the preface in Group 3 is only 107 words; Group 2, of course, does not include a prologue at all. In addition to the prologue, Group 1 includes the 'preamble' and list of chapters as prefatory matter. On the lexical level, **T** also includes quite a lot of metatext. However, the more extensive prefatory matter is the main reason for Group 1's length.

As for the other translations: I will discuss Group 4 first, and Group 3 below. Group 4 is the shortest of the three Groups with a prologue/preface (Groups 1, 3, and 4). Group 4 is, as mentioned in Section 6.2.4, based on a different Latin version of the work compared to Group 1, so in that regard, the differences can be explained. The preface in Group 4 (and the version of *Speculum alchemiae* in *Theatrum Chemicum*) is far shorter than that in Group 1, as mentioned above (Group 4's preface is only 93 words long). Group 4 has no preamble or list of chapters. The difference compared to Group 3 is of more interest, as the two translations stem from the same original source text, and yet Group 4 is still about 300 words shorter. This seems to be because of different translation strategies, although possibly also due to the different immediate source texts.

Group 3's two witnesses are very different when it comes to length (Section 5.3). **Oli**, as seen in Figure 6.3, is almost 3,900 words: that is, 200 words shorter than Group 1. **Oli** is thus the second longest version overall. If one were to replace **Oli** with the other Group 3 representative, **S1**, the results would be quite different, as **S1** is only 2,013 words long. The reason for **S1** being even shorter than Group 2 is of course that only the first three chapters of *MoA* are copied at all, without a preface. However, **S1**'s other excerpts inserted into Chapters II and III of *MoA* make it longer than might be expected for only the first three chapters. For comparison, Chapters I–III of **Oli**, not including the preface, amount to 1,720 words. Thus, the scribal editing and additions of the scribe/compiler of **S1** mean that the overall word count for Group 3 as seen through the lens of **S1** is more than it would otherwise be. Given the fragmentary nature of **S1** and the insertions from other sources, **Oli** is a far more reliable source for comparing between all four Groups. Thus, when I examine word count chapter by chapter in what follows, **Oli** is the sole representative for Group 3.

Dividing the translation groups of *MoA* into the prefatory material and seven chapters was facilitated by my close reading of all the witnesses of *MoA* leading to a familiarity with the work. In addition, most of the witnesses mark chapter divisions with explicit paratexts such as chapter titles. Group 2 posed the biggest challenge, as this version does not have chapter numbers or titles. However, my knowledge of the information content of *MoA* made it relatively simple to find the chapter divisions for Group 2 as well (cf. the discussion on 'now' in Section 5.2.1).

What do the lengths of the individual chapters reveal about the translations? Figure 6.4 shows the chapter lengths for all seven chapters of *MoA*, as well as the prefatory matter[256] for the three Groups that have any (Groups 1, 3, and 4).

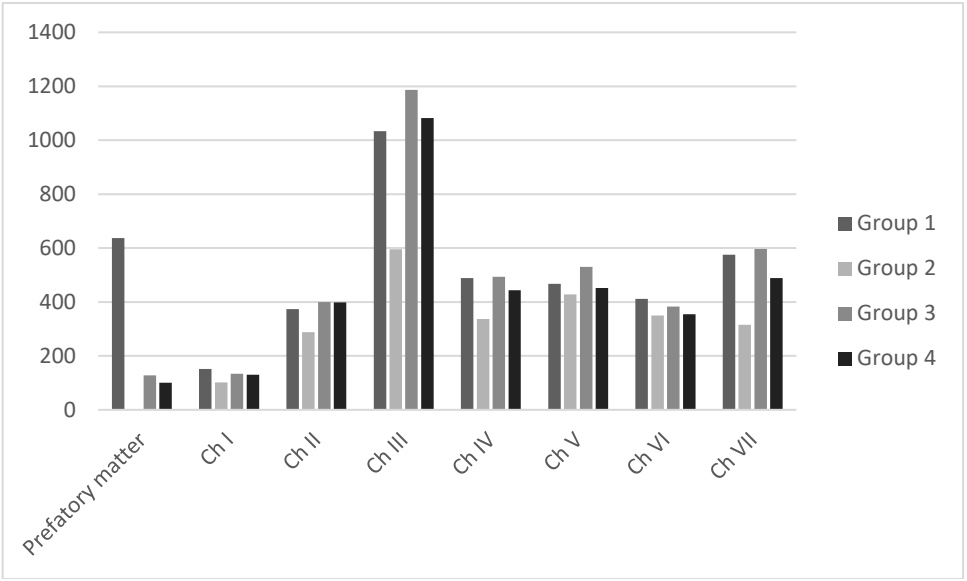


Figure 6.4. Word counts chapter by chapter (regularised).

Paying attention to the chapter by chapter word count reveals what the overall word count cannot: that is, the additional length of Group 1 as compared especially with Group 3 (with **Oli**) comes mainly from the extensiveness of the prefatory matter in Group 1. In addition, Chapter I is longer in Group 1. However, it should be noted that for all other chapters, Group 3 is in fact the longest version.

256 Prefatory matter includes the rubric, prologue and preamble for Group 1, the title for Group 3, and the title and preface for Group 4.

The other notable fact that Figure 6.4 demonstrates is the length of Chapter III. I will focus on this chapter in the following section on terminology, so I will discuss it further here. Chapter III is by far the longest chapter in all four Groups. It is also the longest in all the Latin witnesses of *Speculum alchemiae* which I have examined, so the translations all seem to follow the length of their source texts. Chapter III of *MoA* – and of *Speculum alchemiae* – has considerably more information content than the other chapters in the treatise. The chapter goes into detail concerning the substance out of which the Stone/Elixir should be made, and proceeds to do so by presenting the reasoning for why several alternatives are not correct, and what the correct substance is. Thus, it is to be expected that it should be the longest chapter in each of the groups, even Group 2, which (as noted above) is overall a shorter version. However, what Figure 6.4 shows is that the shortness of Group 2 is not just because of any single chapter: all of the chapters in Group 2 are shorter than their counterparts in the other Groups.

Group 3 has the longest Chapter III of them all. As noted, Group 3 is longer than the other Groups in all except Chapters I and VI (and, of course, the prefatory matter). As I noted in Section 5.3.2.1, Group 3 has some information content in the fourth conclusion in Chapter III which does not appear in Group 1 (on the 'seven spirits'). However, this does not explain why Group 4, which also has this information content, is shorter than Group 3 here – although it does explain why Group 4's Chapter III is longer than that of Group 1.

The reason for the length of Group 3's Chapter III – and indeed, all the other chapters – compared to Group 4 appears simply to be that this translation is more verbose than the other Groups (see Section 5.4.2). This may partly be due to influence from the immediate source text of **Oli**, i.e. the French translation from 1557. The example below, concerning the choice of substance for the Stone, suggests that the English translator of Group 3 followed the French translation closely:

(103) by our wisdome and discretion, and by our artificiall fire, we may **attain vnto the vttermost cleannesse of it**, and the **puritie of the same**, and bring it to that passe, that after the worke ended, it might bee a thousand thousand times more strong and perfect, then the simple bodies themselues (**Oli**, p. 8)

(104) auec nostre engin, & prude*n*ce, & nostre feu artificiel, nous puissions **paruenir à la profonde essence pure & nette d'elle**, & à la **mo*n*dificatio*n* d'iceux**: & la re*n*dre telle, qu'apres l'accomplissemen*t*

> de l'art, soit mille miliers plus forte & parfaicte, q*ue* les corps simples (*Miroir,* 1557: 18–19)[257]

The passage in boldface is more elaborately formulated compared to Group 4 (which is closest textually to Group 3):

> (105) by our prudence & ingenuity and our artifficial fire whe may **Come to ~~its~~ \their/ internal purity** , and make the same also that after the Complement ofthe worck the ['they'] are a million times stronger & perfecter then the simple bodys (Group 4, **S2**, ll. 145–148)

This may be a case of the translator of Group 4 misunderstanding the source text to some extent, as the corresponding Latin passage in *Theatrum Chemicum* is as follows:

> (106) cum ingenio & prudentia nostra, igneque nostro artificiali **ad mundiciam sui intimam & ad ipsorum puritatem pervenire possimus**, & talem efficere, quod ipsa post operis complementum sit millies millesies fortior & perfectior, quam ipsa corpora simplicia (*Theatrum Chemicum* 1613: 413)[258]

That is, the 'verbosity' in Group 3 is possibly mainly a case of the Group 3 translation staying closer to its source text, while the Group 4 translation cuts some corners (whether due to personal interpretation or misunderstanding).

Due to the differences between the material used by Pahta et al. (2011) and *MoA*, direct comparison of results between these studies is not fruitful. However, this section has shown that using Pahta et al.'s (2011) methodology is certainly useful for *MoA* when it comes to the category of word count comparison (text structure). The length of the different translations overall gives further evidence for the different source texts for the translations – although it should be noted that the differences in length may in part also be due to different translation methods being applied to the same ST. Examining the word counts of individual chapters shows that the general

257 'With our ingenuity, and prudence, and our artificial fire, we may arrive at its profound, pure, and clean essence, and its mundification; and make it so that after the accomplisment of the art, it will be a thousand thousand times stronger and more perfect than the simple bodies'.

258 'With our ingenuity and prudence, and with our artificial fire, we may reach its inmost cleanness and purity, and bring about such [a thing] that after the completion of the work itself it will be a thousand thousand times stronger and more perfect than those simple bodies'. I would like to thank Veli-Matti Rissanen for his help with this Latin translation. *De Alchemia* (1541: 264) has the same reading (minor orthographical variation aside).

tendencies are usually rooted in the variation in information content that appears in the four Groups.

6.3.2 Specialised terminology

According to Peter Murray Jones, "distinctive surgical vocabulary" (1989: 64) was one of the challenges of medieval medical translators. Technical vocabulary is also an issue in the translation of alchemical texts, including *MoA*. Vernacularising scientific terms was one of the most obvious ways in which English was made into a language of science. Regarding alchemical poetry, Timmermann (2013: 20) has said that through translators and scribes having to come up with English equivalents for alchemical terms from Latin, Greek, and Arabic, "alchemical poetry became instrumental in the refinement of a scientific terminology in Middle English". As the present section will show through *MoA*, alchemical prose did not lag behind in this regard.

The treatment of special terminology in multiple translations is the second methodological approach I am adapting from Pahta et al. (2011). My analysis in this section will focus on Chapter III of *MoA*. My reason for choosing this particular chapter as the focus of analysis is straightforward: Chapter III is the longest chapter overall, long enough to be meaningful in terms of results. In this section, unlike in the previous, I will use **S1** to represent Group 3: Chapter III appears in **S1**, and moreover, the manuscript witness has some terminological variation that is worth showing. By using Chapter III as a microcosm of *MoA*, therefore, it is possible to compare and contrast all four different translations in order to answer a specific question: How do the translations of *MoA* differ in terms of Latin-influenced terminology, and is there a change over time?

My analysis is dictionary-assisted, focusing on the etymologies of the alchemical terms in Chapter III. Pahta et al. (2011: 190) focused on medical terms related to wounds in a certain portion of *Methodus medendi* in their analysis, examining the types of terms through etymology and analysing two of them in detail. I approach Chapter III of *MoA* in a similar way. Comparison according to the exact model used by Pahta et al. (2011) proved challenging in the case of *MoA*, however. Due to the nature of *Methodus medendi* as a work, Pahta et al. (2011) could narrow down their terminological focus in terms of subject matter, but as the whole of *MoA* discusses alchemy in a fairly broad way, this was not a feasible approach in the present study. Instead, I divide the special terminology in Chapter III on a broader scale, into 1) alchemical substances and 2) alchemical processes. I have added particularly

relevant examples from other Chapters of the treatise as needed to strengthen particular arguments.

Antedatings and potential new word forms are also a relevant matter for vernacularisation via translation. There are several words in *MoA* that seem to antedate the current first usages in *MED* and/or *OED*; many of these are alchemical terms. I also comment on these antedatings in the best-text edition, but as the words are interspersed throughout my textual commentary, I devote the final subsection of this discussion on specialised terminology to listing and discussing the antedatings and unrecorded words.

6.3.2.1 Alchemical substances

Alchemy is a science of matter, and thus the various substances used in alchemical work are a relevant category of specialised terminology. The alchemical substances appearing in Chapter III can be seen in Table 6.3. Due to the nature of this category of substances, the terms appearing here are all nouns (although some include necessary modifiers and determiners). *MoA* as a whole includes many additional mentions of alchemical substances, but the terms appearing in Chapter III provide a good selection central to alchemical practice (this is also true of alchemical processes, examined below). I have divided the substances in the table by the type of substance according to the alchemical worldview. “Product” here means substances formed through alchemical efforts, i.e. mainly the Elixir/Stone. The words here (as also in the other tables in this subsection and the next) are types, not tokens; they all occur in the chosen representatives for the Groups, but my intention is not to examine their relative frequency or other quantitative matters. For the purpose of the analysis in the present subsection and Section 6.3.2.2, I have silently expanded manuscript abbreviations in the words appearing in the tables. This is because – as they represent types and not tokens – they can appear many times in the text, and are often abbreviated differently.

Table 6.3. Alchemical substances in Chapter III.

Type of substance	Group 1	Group 2	Group 3	Group 4
Metal				
metallorum[259]	metalles		mettalls	mettals
Argento uiuo	Mercurij	mercury	arg. Viue	argent vive
Aurum	golde	Sonne	Gold	gold
Argentum	syluere, monne	Moone	Silver	Silver
septem spiritibus			ye seuen spirits	the seven spirits
Mineral				
mineralia	bodyes menerall, Abodye menerall, menerall	bodyes, myneralls	minerals, minerall thing	minerals, Mineral thing
Sulphure	sulphour	sulpher	sulfur	sulphur
medijs mineralibus	medell meneralles		middle minerals	midle minerals
Magnesiarum	Magnesijs		magnesia	magnesias
Marchasitarum	Marckesetes		marchasites	marchasites
saliu*m*	saltes		salts	salts
sulphur uiuu*m*			sulfur viue	sulphur Vive
auripigmentu*m*			auripigment	orpement
Arsenicum citrinum			citrin arsenicum	arsenick yellow or Red
Compound				
Tutiaru*m*	tutijs		tutia	tutias
Atramentoru*m*, seu uitrioloru*m*	Attramentes		coppres	attraments, Vitriols
aluminu*m*	Alummys		allumes	allums

[259] The Latin equivalents are from *De Alchemia* (1541), so the correspondences for Groups 1 and 2 are not as direct. However, the printed edition was chosen for purposes of comparability between the Groups. The Latin examples are in the form in which they first appear in Chapter III.

Type of substance	**Group 1**	**Group 2**	**Group 3**	**Group 4**
Baurach	boraces		Baurach	Borax
Product				
elixir	Elyxere	Elixer	Elixir	Elixir
lapidis nostri	oure stonne, þis stonne	our Philosophers Stone, our stone	our stone	the stone, ye stone
materia nostra, ergo materia	þis matere		our metter	
ergo materia	þis bodye			

I have included determiners attached to the nouns where they appear in the text. This is relevant, as they can change the meaning of a word in the alchemical sense: "our stone" always means the Philosophers' Stone, for instance. This tendency has been categorised as a feature of *Decknamen*, as was mentioned in Section 2.2.2: that is, using the possessive pronoun or "this" as a way to indicate to those in the know that the alchemical product is meant. All the Groups use this kind of strategy. *De Alchemia*, as an example of the Latin tradition, uses this as well – "pro lapidis nostri materia" (1541: 260), 'for the material of our stone'. Concerning Group 3, the French edition has here "pour la matiere de nostre pierre" (1557: 13). This thus seems to be an example of the English translations all using the same alchemical style as their source texts.

In terms of terminology used for metals, both the ordinary terms (*gold, silver*) as well as their celestial correlations (*sun, moon*) appear in Groups 1 and 2; Group 1 uses *Sol* ('sun') in Chapter II (**T**, ll. 71, 73). It may be significant that Groups 3 and 4 – the newer translations – do not use the planetary variants at all, in Chapter III or elsewhere in the treatise. One could view this as part of the development of alchemical language towards what is considered scientific in the present day. However, this distinction between Groups 1+2 and 3+4 may simply be due to the source texts: in *De Alchemia*, the ordinary terms for metals are used ("Aurum, argentu*m*" etc.; 1541: 258), and the same is true of *Miroir* ("or, argent"; 1557: 9), which used *De Alchemia* as its source text.

The terms *metal* and *mineral* are often used interchangeably in *MoA,* and thus my categorisation of *mineral* into the category where other actually mineral substances are is perhaps misleading; however, for the purposes of my categorisation, metals form a reasonable subcategory of their own.

Table 6.3 shows that Group 2 lacks many of the more precise terms for minerals and compounds that appear in the other groups. As discussed previously, the text of Group 2 is shorter than in the other translations. Thus, Group 2 does not have the list of very precise alchemical substances that is included in all the other Groups (see the etymological discussion below). As for another list of substances, Groups 3 and 4 have an overarching category for alchemical substances in Chapter III, "y^{e} seuen spirits" (**S1**, l. 153). This refers to a list of various substances, including mercury and sulphur, auripigment and arsenic (see example (59) in Section 5.3.2.1). This list is what gives Groups 3 and 4 more overall terms in Table 6.3.

These, then, are the most important terms for alchemical substances appearing in Chapter III. In order to examine the Latinate influence, I will next discuss their etymologies in more detail.

Etymology of the alchemical substances

The specialised terms discussed above came into English at different times and from different sources. As *MoA* was translated four times, do the different translations deal differently with the alchemical terminology for substances such as metals? Where do the terms come from, and when did they enter English? In order to discuss this, I will examine the special terminology using lexicographical resources, particularly focusing on the distinction between terms of Germanic etymology on the one hand, and Latin and French on the other. The etymological angle is important, as the vernacularisation of science (especially through translation) happened partly through the adoption of new terminology into English, or the adaptation of already existing native lexemes (cf. Skaffari 2009: 63).

It can be difficult to distinguish between medieval loanwords from Latin and Old French, as the forms of the loanwords in ME may reflect influence from either of those languages, and both were extensive sources of loanwords. As Skaffari (2009: 54–55) notes, for ME, "a mixed category of Latin-French" was a major source of loanwords, even more significant than Latin. Often the etymologies simply are uncertain, and orthographical evidence does not help, as some ME loans from Latin may have been adopted according to French orthographical models, and conversely, French loanwords might be spelled in a Latinate way (Skaffari 2009: 110). These complexities are reflected especially in the *MED*, and to some extent the *OED*, when these dictionaries suggest both (or either) Latin and French origins for the terms examined in my study. I have prioritised the *MED* here, as it is the more specialised dictionary. Thus, if the *MED* has given only one source language where the *OED*

has two, I have classified the term under only one language. Overall, however, I use these two dictionaries to support each other.

The present study is concerned with the overall terminological developments for English alchemical writing – native word-formation versus loanwords – rather than any precise quantification of the proportions of Latin and French. In ambiguous cases, thus, I use the category *Latin-French* to include terms of both Latin and/or French origin. That is, I use this term for all the Romance-derived terms as opposed to Germanic. Latin-French allows for a more inclusive examination of the specialised terminology in the present study (cf. Skaffari 2009: 55).

Table 6.4 presents the terms from Table 6.3 categorised according to the etymology of the alchemical terminology. In terms consisting of e.g. an adjective and a noun, the two deriving from different sources, I have categorised them according to the word which I consider most meaningful in that particular sense (and highlighted it). First attestations are not marked for the words of Germanic origin. The *MED* is the primary source for etymologies, as mentioned above; I cite the *OED* in cases where the *MED* does not include the correct sense.

Table 6.4. Etymologies of alchemical substance terms in Chapter III.

Etymology	First attestation (+ first alch. attest.)[260]	Group 1	Group 2	Group 3	Group 4
Germanic				coppres[261]	
		þis bodye[262]	bodyes		
		golde[263]		Gold	gold
		monne[264]	Moone		
		saltes[265]		salts	salts
		syluere[266]		Silver	Silver
			Sonne[267]		
		oure stonne, þis stonne[268]	our stone	our stone, ye stone	the stone, ye stone
Latin	a1398			auripigment[269]	
	a1400 (alch.)				attraments[270]
	c1395 (alch.)	Magnesijs [271]		magnesia	magnesias
	?c1425 (alch.)	Marckesetes[272]		marchasites	marchasites

260 First attestations of the word in any sense are from the *MED*. "Alch." in parentheses is given after the date if the first attestation is itself alchemical in meaning; a date in parentheses indicates the first alchemical attestation. The occasional double parentheses are from the *MED* entry in cases where there is not just one dating.

261 The meaning of this term is complex (as discussed below), but the word is of Old English origin (*OED*1; s.v. *copper*).

262 *MED*, s.v. *bodi,* subsense 10b(a).

263 *MED*, s.v. *gold* n., subsense 1a; poss. sense 7.

264 *MED*, s.v. *mon(e* n.(1), sense 7.

265 *MED*, s.v. *salt* n.(1), subsense 1a(a); sense 2.

266 *MED*, s.v. *silver* n., subsense 1a.

267 *MED*, s.v. *sonne* n., subsense 6b.

268 *MED*, s.v. *ston*, subsense 9c.

269 *MED*, s.v. *auripigment,* sense 1.

270 *MED*, s.v. *atrament*, subsense 1b.

271 *MED*, s.v. *magnesia*, sense 1. Originally from Greek.

272 *MED*. s.v. *marcasite*, sense 1a.

Etymology	First attestation	Group 1	Group 2	Group 3	Group 4
	a1393 (alch.)	menerall, bodyes **menerall**, Abodye **menerall**, medell **meneralles**[273]	myneralls	minerals, **minerall** thing, middle **minerals**	minerals, **Mineral** thing, midle **minerals**
	a1300 (a1500(c1477))	tutijs[274]		tutia	tutias
French	a1398 (a1456(a1449))	Alummys[275]		allumes	allums
	c1325(c1300)	metalles[276]		mettalls	mettals
	1296 (c1395)				orpement[277]
Latin-French	a1300			argent viue[278]	argent vive
	?a1425			citrin **arsenicum**[279]	**arsenick** yellow or Red
	*a*1200 (c. 1386)	boraces[280]		Baurach	Borax
	c1395 (alch.)	Elyxere[281]	Elixer	Elixir	Elixir
	1340 (c1395)	þis **matere**[282]		our **metter**	

273 *MED*, s.v. *mineral* n., subsenses 1a and 1b; also s.v. *mineral* adj., subsense 1a.
274 *MED*, s.v. *tutie* n., subsense 1a.
275 *MED*, s.v. *alum* n., subsenses 1a, 1b (OF *alum*, from L *alumen*).
276 *MED*, s.v. *metal* n., subsenses 1a, 1b, 1c.
277 *MED*, s.v. *orpiment*, subsenses 1a, 1c.
278 *MED*, s.v. *argent*, subsense 1c (*argent vif*).
279 *MED*, s.v. *arsenik*, particularly subsense 1b.
280 *MED*, s.v. *boras*, sense 1, esp. subsense 1b. Ultimately from Arabic.
281 *MED*, s.v. *elixir, elixer*, senses 1 and 2. Ultimately from Arabic.
282 *MED*, s.v. *mater(e* n., subsense 2a(c).

	c1395 (alch.)	Mercurij[283]	mercury		
	a1393 (alch.)		our **Philosophers** Stone[284]		
	a1393 (alch.)	sulphour[285]	sulpher	sulfur, sulfur viue	sulphur, sulphur Vive
	c1395 (alch.)				Vitriols[286]

Table 6.4 shows that the number of types of native Germanic words, adapted to alchemical meanings (such as *stone* expanding to indicate *lapis philosophorum*), are almost equal to loanwords deriving from Latin exclusively on the one hand, and the mixed category of Latin-French on the other. Loanwords that can be clearly traced only to French are in the minority. The category of Latin-French is thus very important here. In the case of *MoA*, since the source texts for all but one of the translations were in Latin, this might suggest that Latin was the main influence for the translators choosing these mixed-category loanwords.

What is noteworthy about the datings of the terms in Table 6.4 is that most of them predate the 15th century. Many of the datings are from the very late 14th century, c. 1395, in their alchemical meanings. Only very few of the words appear in alchemical meanings before the late 14th century, and those few are very basic terms such as *metal*. There is a simple reason for the date 1395 turning up so often: that is the dating the *MED* uses for Chaucer's *Canon's Yeoman's Tale*, which describes alchemical pursuits. Thus, this literary verse work is the source of first datings for many technical terms. There is no scholarly consensus of the sources Chaucer may have used. Chaucer's presentation of alchemy in this poem "is both general and eclectic", but his knowledge seems to stem from a familiarity with alchemical discourses and common themes; he probably used a broad variety of sources (Collette & DiMarco 2005: 722).[287]

Notably, the Latin-derived terms refer to (quint?)essential alchemical substances. The most obviously Latinate terms, terms that are not quite as nativised

283 *MED*, s.v. *Mercuri(e*, subsense 1d.
284 *MED*, s.v. *philosophre*, subsense 1c. It should be noted that the noun *philosopher* (meaning 'alchemist') turns up in all the other Groups in other chapters.
285 *MED*, s.v. *sulphur,* subsenses 1a, 1c.
286 *MED*, s.v. *vitriol*, subsense 1a.
287 Carolyn P. Collette and Vincent DiMarco (2005) examine the sources and analogues for *The Canon's Yeoman's Tale* in detail.

as others in terms of orthography and morphology (as seen in Table 6.4), are the specific minerals and compounds, given here in PDE: *magnesia* (i.e. magnesium oxide; "Magnesia*rum*" in *De Alchemia*, 1541: 261),[288] *marcasite* (white iron pyrite; "Marchasitaru*m*"), *tutty* (i.e. cadmia / an oxide of zinc; "Tutiaru*m*"), and *auripigment* (orpiment; a sulphide of arsenic; "auripigmentu*m*"). A list with most of these terms appears in Groups 1, 3, and 4; the substances are listed as very detailed examples of what should not be used as the basis for preparing the Stone:

(107) **Group 1**:
þe medell meneralles . s. Magnesijs. Marckesetes tutijs . Attramentes. Alummys . boraces. noþer of noonne manere of saltes
(**T**, ll. 130–131)

(108) **Group 3**:
middle minerals: of w*hi*ch sorte are all kinds of magnesia, marchasites, of tutia, coppres, allumes Baurach salts and manie other
(**S1**, ll. 148–150)

(109) **Group 4**:
midle minerals . as are alsorts of magnesias, marchasites, tutias attraments or Vitriols, allums, Borax, salts or they likes
(**S2**, ll. 95–96)

These terms relate to very specific minerals and compounds. As such, it is understandable that the word choices would be motivated by Latin, the original language of *Speculum alchemiae*. As regards these various 'middle minerals', as they are called in *MoA*, the terms used are mostly translated in similar ways in all three Groups that have the list, as the example above shows. However, there is a difference in the translations when it comes to *atraments* (defined as "vitriol", subsense 1b, in the *MED*, s.v. *atrament*). This is "Att*ra*ment*es*" in Group 1 (**T**, l. 131), but "coppres" in Group 3 (**S1**, l. 149), and "attraments or Vitriols" in Group 4 (**S2**, l. 96). It is "Atramentoru*m*, seu uitriolor*um*" in *De Alchemia* (1541: 261), with the doublet attested in English in Group 4. One might be tempted to think this is a case of the **S1** scribe's interpretation, but in fact **Oli** has exactly the same translation. However, this is not influence from the French translation: *Miroir* has "d'atrame*n*s, vitriols" (1557: 14). As it is in the plural, "coppres" does not seem to refer to the metal copper; however, the wealth of terms in *OED* subsense 1b gives some indication of the

[288] The Latin equivalents in *De Alchemia*, given in parentheses, are all from this same page. Due to the overall sentence structure in that passage, the substances are in genitive plural form.

variety of substances "coppres" could refer to. The precise meaning of the term in Group 3 is still uncertain, however.

There are some differences between Groups 1+2 and 3+4 that may be significant when it comes to terminology. For instance, *mercury* is used in Groups 1 and 2; Group 3 uses the Latin-French-derived *argent-vive* exclusively, and Group 4 mainly uses *argent-vive*, with only two examples of *mercury*, neither of them occurring in Chapter III.[289] In both Groups 3 and 4, the reason for using *argent-vive* is that the ultimate source text for both, the *Speculum* in *De Alchemia*, uses "Argentum uiuum" (1541: 258); and for Group 3, the immediate source text (*Miroir*, 1557) uses "arge*n*t vif" (1557: 9).

The case of *auripigment* (Group 3) and *orpement* (Group 4) is a good illustration of the same term having varying forms in the different translations. The passage including auripigment/orpiment does not occur in the same form in Groups 1 or 2. What is very interesting here is that even though Group 3's immediate source text is French while Group 4's is Latin, the forms the term takes are from the 'opposite' languages. Group 3, despite the source text in *Miroir* reading "orpiment" (1557: 15), has "auripigment" in both **S1** and **Oli**; and Group 4, despite the source text in *Theatrum Chemicum* reading "auripigmentum" (1613: 412), has "orpement".

Some of the alchemical substances in Chapter III are united by their being borrowed from Arabic into Latin. Although I will not explore all the etymologies beyond the immediate source language, Arabic is an exception due to the immense influence Arabic alchemy had on Western European alchemy. This influence can also be seen in alchemical terminology, even in this single chapter of *MoA*. The ultimately Arabic words are in the categories of Latin and Latin-French: *borax*, *elixir*, and *tutty* (*tutia*). Of these, *elixir* is of course of extreme importance to alchemy, and the Arabic influence is evident in the *el* prefix (the definite article, *al*). After the word *alchemy* itself, *elixir* is probably the most major alchemical concept with an ultimately Arabic origin.

A more obscure Arabic-derived loanword appears elsewhere in *MoA*, in Chapter IV, in a passage giving various alchemical guidelines from different sources. The relevant readings emphasise the importance of mercury and fire, which will suffice for the operation of preparing the Elixir/Stone:

289 *Theatrum Chemicum* (1613: 410) has "Argentum vivum" in the first case, but in the second example – "the mercury should be boyled in a Triple vessel" (**S2**, f. 45v, ll. 226–227), *Theatrum Chemicum* (1613: 415) reads "quod Mercurius in triplici vase est coquendus". Thus, in this second case, the source text has clearly influenced the translation of **S2**.

(110) **Group 1**:
Seyth noȝt þe phelosophers þat . **Mercurij . & fyere** suffecyth to þe (**T**, f. 20r, ll. 184–185)

(111) **Group 2**:
Saye not the Philosophers / **Igni and Azocke** is sufficient (**Ga**, ll. 124–125; underlining in the manuscript)

(112) **Group 3**:
Againe, **fire and Azot**, are sufficient for thee (**Oli**, p. 9)

(113) **Group 4**:
item. **azoth & fire** are enough (**S2**, l. 175)

This is a fascinating example of the translational variation when it comes to terminology. Here, all the other Groups except 1 use various forms of the Arabic-derived word *azoth*, which the *OED* says is a "[c]orruption (ultimately) of Arabic *az-zāūq*" (*OED*1 s.v. *azoth*, n.).[290] The first recorded use for *azoth* in *MED* (s.v. *azoc, azogo*) is dated a1500, but in *OED* the first recorded use is in Norton's *Ordinal of Alchemy*, dated in the *OED* to 1477 (although the quoted Norton example in the *OED* is from Elias Ashmole's printed *Theatrum Chemicum Britannicum,* 1652). In any case, the word may or may not have been familiar to the Group 1 copies' scribes.

There are other things to note about this particular passage, although they deal with specialised terminology only insofar that *fire* is a special alchemical term. Group 4 flips the word order, although *Theatrum Chemicum* reads (1613: 414): "Item: Ignis & azot tibi sufficiunt". Group 3's spelling of "Azot" may be influenced by the French, which reads (1557: 21): "Ite*m* le feu & l'azat te suffisent". Group 2 does not use the English term for fire, and indeed, "Igni" could be considered a code-switch into Latin in the example above. The other Groups use the English term.

Overall, and significantly, concerning the Latin and Latin-French loanwords, many of them were in fact adopted into English for the specific purposes of alchemy, as Table 6.4 shows. Other words underwent semantic change and acquired specialised connotations in alchemical contexts. A Latin-French loan such as this is *matter*, appearing in Chapter III in Groups 1 and 3. The word originally entered English in the 13th century; the first quotation in the *MED* for it in the alchemical

290 The *OED* entry suggests comparison with the now obsolete word *assogue*, 'A Spanish vessel carrying quicksilver to America for use in the silver-mines'. The etymology for azoth is given here more fully: "< French *assogue* (in same sense), < Spanish *azogue*, Portuguese *azougue*, quicksilver, < Spanish Arabic *az-zaouga* (P. de Alcala) = Arabic *al-zā'ūq*, i.e. *al* = the, *zā'ūq*, < Persian *žiywah* quicksilver".

sense is from Chaucer's *Canon's Yeoman's Prologue* and *Tale*, c. 1395 (subsense 2c, "a substance or fluid used in a chemical or alchemical operation; ingredient, element; ?a mixture of ingredients"). As with other simple terms that became specialised alchemical terms, notably *stone*, *matter* is often used with a determiner: 'this matter' or "Our metter" (**S1**, ll. 129–130) to indicate that a specifically alchemical usage is intended. This is a common tendency in alchemical writing, as has been mentioned previously.

6.3.2.2 Alchemical processes

From alchemical substances, I turn to the alchemical processes in Chapter III, listed in Table 6.5. In order to make sense of the plethora of processes, I have divided them up into the seven categories seen in the table. The categorisation is based on the nature of the process. The semantic categories in the *Historical Thesaurus of the Oxford English Dictionary* (*HTOED*) might be considered useful for such a categorisation. However, the *HTOED*, of course, is not specialised in alchemy: for instance, some of the words in the table are simply categorised under "miscellaneous other processes" of chemistry, e.g. *fixion*. For this reason, while I used the *HTOED* to confirm that my initial groupings were acceptable, I did not end up using the *HTOED*'s own categories as they were not precise enough for the purposes of my analysis. I have included all word classes when combing through Chapter III for alchemical processes: to include merely one word class such as verbs or nouns would mean gaining a shallower view of the alchemical processes mentioned in the chapter.

Table 6.5. Alchemical processes in Chapter III.

Category	Group 1	Group 2	Group 3	Group 4
1) Creation	generacioun (n.), genderth (v.)	formed (v.) engendred (v.), gendred (v.)	brought foorth (v.) generatione (n.), ingendred (v.)	generation (n.), generated (v.)
2) Boiling	decoctioun (n.)	decocte (v.) liquefaccion (n.)	decoctione (n.), decoct (v.)	boyling, boyled (v.) Decoction (n.) liquefaction (n.)

Category	Group 1	Group 2	Group 3	Group 4
3) Combination	conmyxcioun (n.) loynede (ppl.) knyte (ppl.) medell (v.)	cleave (v.) compounde (ppl.) loynethe (v.) medled (ppl.) mixteon (n.), myxed (ppl.)	cleaue (v.) commixtione (n.) knitting together (ger.) mingled (ppl.) mixe (v.), mixed (ppl.)	adheres (v.) admixtion (n.) Commixtion (n.) joyned (v.) mix (v.) fusion (n.)
4) Separation	separacioun (n.)		extracted (ppl.)	extracted (ppl.)
5) Solidification	fixioun (n.) gaderde to gedere (v.)	fix (v.) brought togeather (v.)	coagulatione (n.), coagulated (ppl.) congeled (ppl.) fixit (ppl.), fixatione (n.) gathered to geither (v.)	Congeale (v.), Congealed (ppl.) fixe, fixation (n.)
6) Purification	clensynge (ger.) p*erfy3*te (adj.), p*erfectyou*n (n.)	clense (v.) mundyefycacion (n.) p*erfect* (adj.), p*erfecci*on (n.) puryfie (v.)	concoctione (n.) firment (n.) mundificatione (n.) perfect (adj., v.), perfectione (n.) purifie (v.)	ferment (n.) mundification (n.) perfect (adj., v.), perfection (n.), plusquam perfect (adj.) puriffication (n.)
7) Change	chaunge (v.) degeste (ppl:), degestyon (n.) tornne (v.)		make a change (v./n.), chaungeth (v.) digested (ppl.)	digested (ppl.)

	transformacioun (n.)	transmutacion (n.), transmute (v.) volatyve (adj.)	transmutatione (n.) volatile (adj.)	Transmutation (n.), transmutes (v.) volatile (adj.)

The terms I have selected from Chapter III are ones which provide the most fruitful material for comparison, and which I consider the most representative of the alchemical process as a whole in that chapter when viewing *MoA* as a whole and the processes of alchemy in general. I have not, thus, included *all* words that could be seen as specialised terminology; instead, the terms in Table 6.5 represent the most relevant terminology for examining alchemy in particular. In addition, as Chapter III is a more theoretical chapter, it does not include as many individual processes as some of the later chapters (especially Chapter VI). However, given my reason for choosing Chapter III, it still provides a well-rounded view of the kind of terminology used. In addition, in the analysis below, I give supplemental examples from other Chapters when needed.

The kinds of alchemical processes mentioned in Chapter III range from the very beginning of the work – the generation of metals, etc. – to the final end goal, transmutation. I will now examine the terms by category, focusing on the terms used for the same general concept. Below, I will examine the etymologies of these terms in more detail, although I touch on the general divisions into native (Germanic) vs. borrowed (Latin(-French)) even here.

In all four translations, the terms in category **1) Creation** are rather similar, and there is not a great variety of them. In all the translations, the category of creation contains terms that are within the same narrow semantic field of producing or being produced, making, and bringing forth (by natural process).[291] 'Engendering', 'gendering', 'generation', and their verb equivalents are rooted in medical/scientific discourse: quotations in the *MED* include works of science such as *De proprietatibus rerum*. Groups 2 and 3 also include non-Latinate variants with the meaning of

[291] Compare the *MED* definitions of some of the terms: s.v. *generacioun*, subsense 2a, "The process of producing or being produced; formation, development, making, origin"; s.v. *gendren*, subsense 3a, "To produce (sth.), bring forth, make"; s.v. *engendren*, either *MED* subsense 2, "To be brought forth by natural process; to come into being, originate, grow, develop" or subsense 3b, "*Phys*. To produce or bring forth (something); to arise"; s.v. *formen*, subsense 1a, "To create (something), to make (out of nothing)".

creation or production: Group 2 says, of mercury and sulphur, "that none earth=ly thinge maye cleave to the body ne make Imp*er*fecc*i*on but yf it be compounde & **formed** of them" (**Ga**, ll. 48–50). Group 3's translation (**S1** and **Oli**), in addition to using the more Latinate terms for generation, also translates this concept as "brought foorth" in a passage explaining that both mercury and sulphur are needed for the generation of metals: "of y:^{e} commixtione of them both divers mettals and minerals are diuersly **brought foorth**" (**S1**, ll. 128–129). The verb used in *Miroir* (1557: 13) here is "so*n*t e*n*ge*n*drez", 'are engendered'; and in *De Alchemia* (1541: 261), this is "procrea*n*tur" 'are produced/created'. Perhaps the English translator of Group 3 simply wanted more variation here instead of repeating the same term.

Category **2) Boiling** is also rather similar in all the translations. This category, as its name suggests, contains terms related to applying heat to achieve boiling for various purposes. 'Decoction', or 'decoct',[292] is used in all four Groups to mean the process of concentrating a substance by boiling it down. Groups 2 and 4 also mention *liquefaction* (*OED*2, sense 1, "The action or process of liquefying, or the state of being liquefied; reduction to a liquid state"), although in different parts of the text. The other groups do not use this term at all in Chapter III.

Group 1 does not use the 'simplest' term *boil* at all, like Group 3 does. In fact, Group 1 does not use that verb anywhere in the treatise, even though it was already a part of the language in the 15th century (a borrowing from Old French; see Table 6.6c); instead, Group 1 uses the Germanic verb *seethe*. This verb does not occur in Chapter III in Group 1 (and thus is not in Table 6.5), but it has the same meaning as *decoct*.

Related to *seethe*, I discussed the major variation in a passage from Chapter IV in Section 5.1.2.3. In this passage, Group 1 uses "seth" (**T**, l. 185); Group 2 uses "make decoction" (**Ga**, l. 126); Group 3 uses "seeth" (**Oli**, p. 9); and Group 4 uses "boyle" (**S2**, l. 174). The difference in translation choices here is intriguing. Although Groups 3 and 4 generally have a variety of more Latinate terms (as will be seen below), here, the only Group to translate this passage with a Latin-derived term (a compound verb with 'make' + 'decoction') is Group 2. The verb in *De Alchemia* (1541: 265) is "coque", and in *Miroir* (1557: 21) "decuicts". In the case of Group 3, it is especially interesting that the translator should choose the verb 'seethe', as this is very far from the source text's model.

I have included procedures involving the mixing together of substances in category **3) Combination**. The *HTOED* lists many of the terms in this category in a

[292] *OED*1, s.v. *decoct* v., "†1. To boil down or away; to concentrate by boiling. *Obsolete*"; however, sense 5 (also obsolete in PDE) is also relevant: "†5. To prepare or mature (metals or mineral ores) by heat".

category "condition or state of being mixed or blended". Therefore, this category is rather diverse in terms of the terminology used in the different translations, but they all belong in the same broad semantic field. The terms used refer to various procedures, ranging from rather general – "knyte"[293] and "Ioynede"[294] (**T**, l. 98) in Group 1, meaning any kind of combination of substances – to a very specific kind of joining together, "fusion" [295] (**S2**, l. 116) in Group 4. Apart from the specificity of *fusion*, however, the terms are on the general side, referring simply to the fact of combining different substances to advance the alchemist's purposes. *Cleave*, appearing in Groups 2 and 3, is used in the sense of combining, not separating (*MED*. s.v. *cleven* (v.1), subsense 1a, "To stick or adhere (to sth.)"; *OED*, s.v. *cleave, v.* 2, sense 1, "To stick fast or adhere, as by a glutinous surface"): in Group 3, it appears as "of the afore saide twoe [i.e. mercury and sulphur] all mettalls are made, neither doth anie **cleaue vnto them**, but yt which is of them" (**S1**, ll. 122–123). Group 4 uses 'adhere' in the same passage: "But out of the afforesayd two all mettals grow, and nothing **adheres to them**" (**S2**, ll. 76–77). This refers to the principle of similitude: only things derived from mercury and sulphur can be combined.

Category **4) Separation**, referring to the opposite of Category 3, is a smaller but significant category, as separation and extraction of different substances are important in alchemy. However, "separac*ioun*" as a term only appears in Group 1 (**T**, l. 159). Groups 1 and 2 do not use *extraction* (*MED*, subsense 1b, "the process of obtaining (the quintessence of a substance)"): this is because in Groups 3 and 4, that term is used only in the title of the chapter, "Out of wich nearest the matter ofthe Elixir must be extracted" (**S2**, ll. 61–62). Group 2 does not have a chapter title here, and Group 1 uses "chose" here (**A**, f. 44r).[296] Here, *Miroir* (1557: 12) has "tirer" 'to choose'; *De Alchemia* (1541: 260) has "elicienda" 'to draw out, to elicit'. 'Extract' is therefore not a translation choice obvious from either of the source texts, and it is

293 *MED*, s.v. *knitten*, subsense 5a, "To unite (people, kingdoms, etc.), join together; combine (qualities, activities, etc.); unite (sb. or sth. to sb. else or sth. else, the divine to human nature, the soul to God, etc.); keep (the four elements) together".

294 *MED*, s.v. *joinen*, v. (1), subsense 5b, "[…]join (alchemical bodies) with (spirits)"; this subsense is marked as figurative in use, however, which I would argue is not quite the case when 'join' is used in medieval alchemical writings of a practical nature. The first citation in the *MED* of this sense is already from a1393.

295 *OED*2, s.v. *fusion*, subsense 1a: "The action or operation of fusing or rendering fluid by heat; the state of flowing or fluidity in consequence of heat".

296 Here, I use **A** as an example since **T** has only "&c" here: "ouȝte of þ^{e} whiche metall*es* þ^{e} mater*e* of þ^{e} Elyx*er*e .&c" (ll. 91–92), and **A** has the full chapter topic: "Owȝte of þ^{e} wyche metall*es* þe mater of þe Elyxer*e* is ratheste to be chose & c" (f. 44r).

interesting that both Groups 3 and 4 – which do not appear to be directly connected, as discussed in Section 5.4.2 – should have made the same translation choice here.

Category **5) Solidification** includes terms for parts of the alchemical process in which substances are converted into solids (or towards a more solid form) through one method or another. *Fixion*, i.e. *fixation,*[297] is the most common term used, along with related verbs and adjectives; in Groups 1 and 2, it is the only term for solidification used in Chapter III. As the Philosophers' Stone was a solid object, achieving fixion/fixation was a crucial advanced step of the alchemical process. Table 6.5 shows that Group 1 uses "fixioun" while Groups 3 and 4 use the form "fixation" for the noun; this shows the development of this term through time, as *fixion* (*OED*2, s.v. *fixion*, n.) is now obsolete, and the last *OED* citation for it is from a1631.[298] The first citation for *fixation* in an alchemical sense is from 1477, so both forms clearly coexisted for a while, but *fixation* remained in use while *fixion* became obsolete.

Another term for solidification is used in Groups 3 and 4: *congeal*.[299] This is a step towards solid fixation, as congelation results in materials that are solid, but soft. One of the *OED* definitions (subsense I1b) implies that congelation should be achieved through cooling; however, this does not seem to be the meaning in at least Group 4, where heat is applied ('them' here refers to mercury and sulphur):

(114) **Group 4**:
then whe must mixthem in a due proportion ,wich no man knowes,
and **by boyling Congeale** them into a solid Masse (**S2**, ll. 105–107)

Thus, in Group 4, *OED* sense 3 seems to apply more here. In this passage, Group 3 uses different terms for the same process:

(115) **Group 3**:
wee ~~should~~ \must/ mixe euerie thinge as it is accordg to a due

297 *OED*, s.v. *fixation* n. 3, subsense 2a, "*esp*. in scientific uses: The action of depriving of volatility or fluidity"; "†In Alchemy: The process of reducing a volatile spirit or essence to a permanent bodily form; the conversion (of mercury) into a solid by amalgamation or combination".

298 The *OED* gives a cross-reference from *fixion* to sense 2 of *fixation*, but this must be an error, as it is in fact sense 2 which corresponds to the citations in the entry for *fixion* (see *OED*2 s.v. *fixation*, subsense 2a).

299 *OED*, s.v. *congeal* (trans.), subsense I1b, "To solidify by cooling (not frost)"; or perhaps sense 3, "To make (a liquid) viscid or jelly-like; to stiffen, curdle, clot, coagulate (esp. the blood [)]". In *MED*, subsense 2a, "Of various substances: to turn into a solid state or a solid; solidify, crystallize": this definition does not imply that cold is a necessary means of achieving congelation (first citation from a1393).

proportione w*hi*ch no man knoweth and afterwards **decocte it to coagulatione** into a solide lumpe (**S1**, ll. 162–165)

Here, Groups 1 and 2 express this process of solidification differently:

(116) **Group 1**:
gaderde to gedere Into Amasse equaly p*ro*porssyo*u*n (**T**, ll. 154–155)

(117) **Group 2**:
brought togeath*er* to a masse or substaunce (**Ga**, l. 100)

Group 3 also uses this kind of native equivalent, but in another passage, where "gathered to geither" is used together with the terms "proportioned" and "coagulated":

(118) wher in wee shall find ye. said things proportioned coagulated and **gathered to geither** after a due manner (**S1**, ll. 169–170)

These things are not synonyms, as the French and Latin source texts show:

(119) ouso*n*t les choses dessusdites, p*ro*portio*n*nées, coagulées doucement, & tout ainsi qu'il appartie*n*t (1557: 15) (< appartenir à, 'belong to') 'where the aforesaid things are, proportioned, softly coagulated, and belonging to it in that way'

(120) in quibus inuenimus prædicta proportionata, coagulata & coadunata debito modo (1541: 262) (*coaduno* 'join together') 'in which we will find the aforementioned [things] proportioned, coagulated, and joined together in a due way'

It is perhaps questionable whether 'gather together' can be classified as a special term here, but it does appear to be used to signify a specific part of the alchemical process, especially considering the Latin verb used, and therefore I consider including it to be justified. *Coagulated*[300] (and *coagulation*) is used only in Group 3 in Chapter III, but it appears to be synonymous with *congeal*, as it is used to translate the same part of the text as in Group 4 (where *congeal* is used).

The next category in Table 6.5 is **6) Purification**. Here, a wide variety of terms is used in the translations. There is not a single term in this category that appears in all four Groups in Chapter III. The noun "clensynge" in Group 1 and the verb "clense" in Group 2 do not appear in the *MED* in an alchemical sense (see Section

[300] *OED*, s.v. *coagulate*, v, subsense 1a, "*transitive*. To convert (certain fluids, as blood, milk, albumen, etc.) into a soft solid mass, as by chemical action, heat, exposure to air, etc.; to curdle, clot, congeal".

6.3.2.3). The *OED* does not have quotations for either *cleansing (n.)* or *cleanse (v.)* in an alchemical or chemical sense, either; however, subsense 5b s.v. *cleanse* seems to be fairly close to an alchemical context: "To clear of inequalities or unevennesses; to smooth, polish (wood or metal)". This term, in Group 1 at least, seems to mean a part of the process that comes before the final purification, as it appears in the following list long before fixion:

> (121) Then*ne* may whe [...] w*ith* our*e* fyer*e* Artyfecyall com*m*e vnto **þ**[e] **Inwarde clensy*n*ge** decocc*iou*n. sep*ar*ac*iou*n. & fixio*u*n of hym*e* . (**T**, ll. 157–159)

'Inward' cleansing may mean an even more particular process, but it seems fairly transparent: the substance being worked upon will be cleansed or purified from within. In any case, cleansing clearly belongs to the category of purification. *Concoction*[301] is used in Group 3 (which has the most varied terms for this category) in the same passage as quoted in (121) above; indeed, it is used to translate the same concept which Group 1 uses "Inwarde clensy*n*ge" for: "with our artificiall fier, and experience of our arte, wee are able to bring vnto his due concoctione, **mund=ificatione**, colour, and fixatione" (**S1**, ll. 210–212).

Group 2 also uses two other terms for purification: "puryfie",[302] used in a binomial with "clense": "and their kynde make a thinge p*er*fect yet yt cannot **puryfie & clense** yt Inwardly" (**Ga**, ll. 94–95), and "mundyefycation"[303] in "the inward mundyefycac*i*on / & purytie" (**Ga**, ll. 102). Mundification does not have alchemical definitions in the *OED* (it originated as a medical term, cf. *MED* s.v. *mundificacioun*); the sense of "cleansing an ulcer, wound, etc." has been extended to alchemical contexts to mean cleansing a substance used in the work. I discuss mundification further in an etymological sense below. Mundification appears as a term for purification in Groups 2, 3, and 4, and is clearly used in an alchemical sense, as in Group 3, for instance:

301 *OED*, s.v. *concoction*, "†2. a. Ripening, maturing, or bringing to a state of perfection; also, the state of perfection so produced: maturation of what is coarse, impure, or crude; 'alteration of matter by moist heat'. *Obsolete*."

302 *OED*, s.v. *purify*, subsense 3a, "To make physically pure or clean; to remove dirt, filth, etc., from; (in later use *esp*.) to remove impurities or contaminants from (a substance)"; *MED* s.v. *purifien*, subsense 1a, "To remove impurities or noxious matter from (sth.), cleanse, clarify, make pure or clean".

303 *OED*, s.v. *mundification* (now obsolete), sense 1, "The action of cleansing an ulcer, wound, etc.; the state of being cleansed. Also *figurative*."

(122) though we are not ignorent of yᵉ. fier yet could wee not come to yᵉ.[304] through **mundification** and prfectione ofit by reason of his most firme knitting together and naturall compositione (**S1**, 202–205)

(123) leur profonde mondification, & perfectio*n* (*Miroir* 1557: 18) 'its thorough mundification and perfection'

(124) intimam sui mundificationem & perfectionem (*De Alchemia* 1541: 263)
'its inmost mundiciation and perfection'

This is not the same passage as Group 2's use of mundification; it is difficult to compare Groups 3 and 2 in (122), as Group 2 differs in information content. "Mundification and prfectione" are used as a binomial in (122); they may refer to the same stage of the alchemical work. *Perfection*[305] and the adjective *perfect* are used in Chapter III in all Groups. Groups 3 and 4 also use the verb *perfect*. The concept of perfection, as an adjective, adverb and noun, also turns up throughout the rest of the treatise in all Groups. Group 1, for instance, has frequent references to e.g. "**p*er*fete** Elyx*er*e" (**T**, l. 3) in the rubric and "þᵉ **p*er*fec=c*iou*n** & þᵉ fulfyllyng of All þᵉ werke" (**T**, ll. 257–258) in Chapter VII. Conversely, *imperfection* is also mentioned frequently: the dichotomy between perfect and imperfect, and the shift from imperfect to perfect, is important for *MoA*, as Group 1 demonstrates in "to labou*r*e for to make Inp*er*fyȝte bodyes p*er*fyȝte" (**T**, ll. 180–181). In addition, Group 4 uses "plusquam perfect" (**S2**, l. 120) in Chapter III where e.g. Group 3 has "more then perfect" (**S1**, ll. 182–183). For Group 4, this is clear influence from the source text: *Theatrum Chemicum* has "plusquam perfecta" here (1613: 412).

The final term in Category 6 is the noun *ferment*,[306] used in Groups 3 and 4. The first citation in the *OED* in the alchemical sense is from 1471 (from Ripley's *Compound of Alchemy*), but this term is not used at all in Groups 1 and 2. Even in Groups 3 and 4, this term is only used once:

304 This abbreviation should probably be interpreted as 'them'.

305 *OED*, s.v. *perfection*, subsense 3c, "The fineness or purity of a metal; (*Alchemy*) the complete purity which is the goal of transmuting base metals into gold. Now *hist*."

306 *OED*, s.v. *fermentation*, "The action or process of fermenting. 1. A process of the nature of that resulting from the operation of leaven on dough or on saccharine liquids. […] †b. in *Alchemy*. *Obsolete*." C.f. s.v. *ferment*, n., subsense 1b (obsolete), "*spec*. in *Alchemy* (cf. FERMENTATION n. 1b); sometimes applied to the 'philosopher's stone'": this alchemical sense does not seem to apply to *MoA*.

(125) **Group 3**:
neither may they be put in y.[e] stone or worke **for firment** to shorten y:[e] worke (**S1**, ll. 187–189)

(126) **Group 4**:
neither would it \be/ put for the abbreviation ~~in~~to the stone **for a ferment** (**S2**, ll. 123–124)

It is clear that *ferment* is being used as a noun here. It is not surprising that the concept of fermentation should be related to alchemy: as Taylor (1949: 36) notes, "It was not unreasonable [...] to suppose that gold could act as a seed or a ferment growing in and transforming a mass of base metal, as leaven transforms dough" (see also Lagerkvist 2005).

The final category for the alchemical processes in Chapter III is **7) Change**. I have included a variety of terms in this category, all of them relating to changing the nature of a substance. The terms in this category are mostly less specific than the ones in the previous categories. I have also included in this group terms related to the alchemical process, which are not specifically related to any particular process but which betoken some kind of change in the substance being worked upon. *Change* appears in Group 1 as a verb, and in Group 3 as a verb and a noun. A verb similar to this more 'general' term is *turn*,[307] used in Group 1 in a context warning that substances will change back into the form they had before: "þey whyll **torn*n*e** Ageyn*n*e As þey where at þ[e] begynny*n*ge" (**T**, ll. 141–142).

However, the major alchemical change is of course transmutation, and it is important to examine this term in detail. Table 6.5 shows that Group 1 is the only group *not* to use the term 'transmutation' in Chapter III; indeed, that term cannot be found at all in all of **T**'s *MoA*, nor in any of the other copies in Group 1. *MED* has a quotation of the term, in the alchemical sense (subsense 2b) from a1398, in John Trevisa's translation of *De proprietatibus rerum*: 'transmutation' was, therefore, in at least limited use as a term in the late 15th century when **T** and **C** were copied, although the case may be different for alchemical texts; this is of course too small a sample to give any broader statements. The term *transmutation*, as mentioned, appears in all the other translation groups, as does the verb *transmute*. This is perhaps the most quintessential alchemical word, relating to the ultimate change in substance. The following example shows the same passage in Chapter III in Groups 2, 3, and 4; this is in the context of arguing that only mercury and sulphur (the "twoe" mentioned in Group 3) should be used for the Stone/Elixir.

307 To cause (sth.) to change in substance, transmute (*MED*, s.v. *turnen*, subsense 26a(b)).

(127) **Group 2**:
no straunge thinge is mightie or sufficient to make him p*er*fect or newe **transmutac*i*on** (**Ga**, ll. 51–52)

(128) **Group 3**:
no [...] strainge thing w*hi*ch hath not his originall from these twoe is able to perfect them or to make a change & and new **transmutatione** of them (**S1**, ll. 112–115)

(129) **Group 4**:
nothing extraneous wich has not its original from this two, is potent <a>nd powerful enough to perfect the same, or. make new ones. by their **Transmutation** (**S2**, ll. 70–72)

Group 1 also has this passage, but the same information content is conveyed in very different terms, and the word "chau*n*ge" is used instead of transmutation:

(130) **Group 1**:
noon*ne* þyng may Ioynede noþ*er* knyte to them noþ*er* **chau*n*ge** hem*e* but gyffe yt haue hys . Orygynall & beynge of hem*e* (**T**, ll. 112–113)

In *De Alchemia*, "transmutationem" is used (1541: 260); in *Miroir*, "tra*n*smutatio*n*" (1557: 12). MS R.14.44, which is in many ways a good comparison for **T**, has "transformac*ion*em" here (f. 121), so it is probably not quite the same meaning. Group 1 uses "t*ra*nsformac*iou*n" not in the passage above, but elsewhere in Chapter III (**T**, l. 101). I will discuss this word further in Section 6.3.2.3.

Digestion[308] and *digest* (v.),[309] used in Groups 1, 3, and 4, are also concepts referring to change. As the *MED* entry, s.v. *digestioun*, defines it, this is in alchemical terms "the transformation of any substance used in alchemy" (subsense 2b); however, I would suggest that in *MoA*, the type of *digestion* referred to is not quite this generic, but rather closer to subsense 1a: "the transformation of physical matter (usually by heat)". Another more specific term referring to change is the adjective *volative/volatile*. This adjective appears in Groups 2, 3, and 4:

[308] *OED*, s.v. *digestion*, sense 5, "†a. The operation of maturing or preparing a substance by the action of gentle heat; concoction, maturation, condensation, coagulation; also susceptibility to this operation, and concrete the condition resulting from it. *Obsolete*."

[309] *MED*, s.v. *digesten*, sense 2: "to break (sth.) down into a subtler form; transform (usually by means of heat) [...] transform (the alchemists' 'stone')". *OED* s.v. *digest* (v.), subsense †**8a:** "To mature, or bring to a state of perfection, especially by the action of heat. Also *figurative*. *Obsolete*."

(131) **Group 2**:
<u>for the **volatyve** Son*ne* ou*er*cometh the fix son*ne*</u> (**Ga**, ll. 87–88; underlining original)

(132) **Group 3**:
because y.^e^ most **volatile** doth ouercume y.^e^ most fixit (**S1**, ll. 189–190)

(133) **Group 4**:
because the most **volatile** Overcomes ye most fixe (**S2**, l. 125)

The spelling "volatyve" in **Ga** may be an error, although it is also possible that this particular form has just not been attested before. Volatile, in the above examples, is in its meaning of "Characterized by a natural tendency to dispersion in fumes or vapour; liable to, or susceptible of, evaporation and diffusion, at ordinary temperatures" (*OED2*, s.v. *volatile*, adj., subsense 3a). *MED* does not include a definition for this meaning at all, as *volatile* only appears as a noun referring to various winged or flying creatures such as birds. The bird sense is obsolete in Present-Day English (*OED2* sense †1). In the passage in examples (131–133), it is used in opposition to *fixed* (*OED* s.v. *fixed*, subsense 4b; see the discussion on *fixion* above). The *Miroir* and *De Alchemia* have similar passages.[310] The fact that this term did not extend beyond the sense of flying creatures in Middle English (according to the *MED*) would seem to explain why it is not used in Group 1.

This discussion has shown that Chapter III of *MoA* presents a wide range of terms for alchemical processes. In what follows, I will discuss these terms from an etymological point of view.

Etymologies of the alchemical processes

I will discuss the etymologies of some key terms below, as with the alchemical substances discussed above. Tables 6.6a–d show the etymologies, divided up by their source languages. Briefly put, Latin-derived terms are frequent here too, as are Latin-French terms overall (I discussed this category above). This can be clearly seen in Table 6.6d, where the list of terms borrowed either from French or Latin contains the most items in all Groups. I use the same classification principles as I did with the alchemical substances in the previous section, with the *MED* as the primary authority. There are also more than a few originally Germanic terms whose meanings have been modified to adapt to an alchemical context (Table 6.6a).

310 *De Alchemia* (1541: 262–263): "qu*um* summa **uolatilis** superat summa*m* fixi"; *Miroir* (1577: 16–17): "que la grandeur du **volatil** surmonte la quantité du fix".

Table 6.6a. Etymologies of alchemical process terms in Chapter III: Germanic.

First attestation (first alchemical attestation)[311]	**Group 1**	**Group 2**	**Group 3**	**Group 4**
c1175			brought foorth[312]	
?a1200		cleave[313]	cleaue	
?a1200 (v.), a1400 (ger.)	clensynge[314]	clense		
c1225/?1200	gaderde to gedere[315]		gathered to geither	
c1375(a1550)	knyte[316]		knitting together	
a1475			mingled[317]	
c1225/?c1200	werche,[318] wrouȝghte		worke, wrowht	worcks

311 First attestations of the word in any sense are from the *MED*. "Alch." in parentheses is given after the date if the first attestation is itself alchemical in meaning; a date in parentheses indicates the first alchemical attestation.

312 *MED*, s.v. *bringen* v., subsense 6b; *OED* s.v. *bring* v., *to bring forth* sense 1.

313 *MED*, s.v. *cleven* v.(1), subsense 1a.

314 *MED*, s.v. *clensing,* subsense 1a; cf. s.v. *clensen* v., subsense 2a.

315 *MED*, s.v. *gaderen* v., subsense 4a.

316 *MED*, s.v. *knitten*, subsense 5a.

317 *OED*, s.v. *mingle* v., subsense 1a (see *MED* s.v. *menglen* v., sense 1). Cf. later chemical uses of *mingle* in *OED* citations from 1707, 1839, 1865, 1886.

318 *MED*, s.v. *werken* v.(1),

Table 6.6b. Etymologies of alchemical process terms in Chapter III: Latin.

First attestation (first alchemical attestation)	Group 1	Group 2	Group 3	Group 4
?a1425				admixtion[319]
a1400 (a1550) (n.)			coagulatione, coagulated[320]	
1555 (alch.)			concoctione[321]	
?a1425 (a1500)		decocte[322]	decoct	
a1328 (a1475)	degeste[323]		digested	digested
?a1425			extracted[324]	extracted
a1393 (n., alch.), c1386 (a1475) (v.)	fixioun (1555 *OED*)[325]	fix	fixatione, fixit	fixation, fixe
1555				fusion[326]
1552 (1563)				generated[327]
c1425 (a1550)		liquefaccion[328]		liquefaction
c1415 (a1500/c1477)		transmute (v.)[329]		

319 *MED*, s.v. *admixtioun*, sense 1.
320 *MED*, s.v. *coagulacioun*, has an alchemical meaning in subsense 1b 'solidification'. *MED* does not give alchemical senses to the verb *coagulaten*. *OED* has an alchemical citation from 1605 in obsolete sense 1b.
321 Not in *MED*. *OED* s.v. *concoction,* obsolete subsense 2a.
322 *MED*, s.v. *decocten*, sense 1. Subsense 1b is alchemical.
323 *MED*, s.v. *digesten*, sense 2.
324 *MED*, s.v. *extracten*, subsense 1c.
325 See Section 6.3.2.3.
326 *OED*1, s.v. *fusion*, subsense 1a.
327 *OED*3, s.v. *generate* v., subsense 2b.
328 *MED*, s.v. *liquefaccion*, sense 1.
329 *MED*, s.v. *transmuten* v., sense 1c.

Table 6.6c. Etymologies of alchemical process terms in Chapter III: French.

First attestation (first alchemical attestation)	**Group 1**	**Group 2**	**Group 3**	**Group 4**
c1300				boyling, boyled[330]
c1300 (a1398)	chaunge[331]		chaungeth	
a1398	genderth[332]	gendred, engendred	ingendred	
a1382 (a1456/a1449)	generacioun[333]		generatione	generation
c1330/?c1300	loynede[334]	loynethe		joyned
c1350/a1333	medell[335]	medled		
a1398 (a1550/c1477)		puryfie[336]	purifie	

330 *MED*, s.v. *boilen*, subsense 1a.
331 *MED*, s.v. *chaungen*, sense 4.
332 *MED*, s.v. *gendren* v., subsense 3a; s.v. *engendren* sense 2 (same first attestation).
333 *MED*, s.v. *generacioun*, subsense 2a.
334 *MED*, s.v. *joinen* v.(1), subsense 1a.
335 *MED*, s.v. *medlen* v., sense 1a.
336 *MED*, s.v. *purifien*, subsense 1a.

Table 6.6d. Etymologies of alchemical process terms in Chapter III: Latin-French.

First attestation (first alchemical attestation)	Group 1	Group 2	Group 3	Group 4
1557				adheres[337]
a1387 (a1550)	conmyxcioun[338]		commixtione	Commixtion
a1400		compounde[339]		
a1393 (a1550)			congeled[340]	Congeale
c1425/a1420 (a1550)	decoctioun[341]		decoctione	Decoction
a1398 (a1550)	degestyon[342]			
?a1425 (a1550)			firment[343]	ferment
c1350		formed[344]		
a1398 (a1500/c1477) (n.), ?1440 (a1500/c1477) (ppl.), 1538 (v.)		mixteon, myxed[345]	mixe	mix
?a1425		mundyefycacion[346]	mundificatione	mundification
a1382 (adj.), a1398 (a1500/c1477) (n.); a1398 (v.)	perfyȝte (adj.), perfectyoun[347] (n.)	perfect (adj.), perfeccion (n.)	perfect (adj., v.), perfectione (n.)	perfect (adj., v.), perfection (n.), plusquam perfect (adj.)

337 *OED*3, s.v. *adhere*, subsense 4a (intrans.).
338 *MED*, s.v. *commixtioun*, subsense 1a.
339 *MED*, s.v. *compounen*, sense 1.
340 *MED*, s.v. *congelen*, subsense 2a. Alchemical sense 4a.
341 *MED*, s.v. *decoccioun*, sense 1.
342 *MED*, s.v. *digestioun*, sense 2.
343 *MED*, s.v. *ferment* n., sense 1. Alchemical sense 1c.
344 *MED*, s.v. *formen*, sense 1.
345 *MED*, s.v. *mixtioun*, sense 1; s.v. *mixt(e* ppl., sense 1. *Mix* as a separate verb in this sense is not in *MED*; see *OED* s.v. *mix* v., subsense 1a. (the verb is formed through back-formation from *mixed* adj. (seen as a ppl.)): "Rare in any form other than the past participle before the 17th cent".
346 Not in the *MED* or *OED* in an alchemical sense (s.v. *mundificacioun*). See below.
347 *MED*, s.v. *parfit* adj., subsense 1a; s.v. *perfeccioun*, subsense 1a; s.v. *parfiten* v., sense 1.

First attestation (first alchemical attestation)	Group 1	Group 2	Group 3	Group 4
1597				puriffication[348]
a1425/a1400 (a1500/1471)	separacioun[349]			
a1325	tornne[350]			
c1425/a1420	transforma-cioun[351]			
c1425/a1420 (c1450/a1449)		transmutacion[352]	transmutatione	Transmutation
1605 (alch.)		volatyve	volatile[353]	volatile

The Tables show that some of the first attestations have a date of 1550, but these citations are from Norton and Ripley, both 15th-century alchemists: the *MED* citation's late date must be due to the citation coming from a later edition or manuscript. As for the overall terminological makeup of the different translations in the case of alchemical processes in Chapter III: Group 1 uses Germanic-derived terms for rather 'basic' concepts (e.g. "knyte" for substances combining together, Table 6.6a), as well as the unambiguously French loans ("genderth", Table 6.6c). These terms have specialised in meaning to refer to the domain of alchemy in *MoA*, although the *MED* citations do not often reflect this. The loanwords from Latin (e.g. "fixioun", Table 6.6b) and the ambiguous ones from Latin or French (e.g. "decoctioun", Table 6.6d) are more technical and specialised in nature – all but "tornne", which was originally borrowed as a verb into English from Latin already in the OE period, but its use may have been further strengthened by the Old French form of the word (cf. Skaffari 2009: 294). However, according to Chapter III, at

348 Not in the *MED* in this sense. *OED*3 s.v. *purification*, subsense 3a. *OED* first citation is from one of the other treatises in **Oli**.

349 *MED*, s.v. *separacioun*, sense 1.

350 *MED*, s.v. *turnen* v., subsense 26a(b).

351 '[C]hange through natural means, perhaps transmutation' (this subsense not recorded in *MED*, s.v. transformacioun, which gives only one sense: 'a supernatural alteration in semblance or form; metamorphosis; also, a deceptive alteration of appearance, disguise'; cf. *OED*2, subsense 1a, 'the action of changing in form, shape, or appearance').

352 *MED*, s.v. *transmutacioun*, sense 2. Alchemical sense 2b.

353 Not in the *MED* in this sense. *OED*1 (1920), subsense 3a.

least, Group 1 appears to be a clear example of a translation where Latinate terms are used to expand the technical vocabulary of alchemy in English. In addition, as I will discuss below, Group 1 has several antedatings for alchemical terminology.

Group 2 does not have as clear-cut a situation with the specialised terminology. Only two Germanic-derived terms for processes appear in this chapter, both of which are on a rather general level ("cleave" and "clense", Table 6.6a). Many of the unambiguously French-derived terms are also more general in nature (e.g. "gendred"), but "puryfie" is more specific, for instance (Table 6.6c). The Latin and French and/or Latin derived terms, while they are predominantly specialised, also include more general terms such as "myxed" and "formed" (Table 6.6d).

Group 3 has plenty of Germanic-derived terms referring to alchemical processes (e.g. "knitting together", Table 6.6a). This is notable considering the French source text of this translation. The French-derived terms are mostly more general (e.g. "chaungeth", "ingendred", Table 6.6c). The Latin-derived terms are mainly technical in nature, referring to specific parts of the overall alchemical process (e.g. "coagulatione", Table 6.6b), as are the Latin-French (e.g. "commixtione", Table 6.6d); "perfect"/"perfectione" is an exception.

Group 4 only has a single process-related term of Germanic origin in Chapter III (the verb "worcks", Table 6.6a). French loanwords are used for general terms (e.g. "joyned"), but the term "boyling" is used in a specifically alchemical sense (Table 6.6c). Latin-derived (e.g. "admixtion", Table 6.6b), and Latin-French (e.g. "mundification", Table 6.6d), terms are used as technical vocabulary for specific processes. I discussed Group 4's indebtedness to Latin vocabulary in Section 6.2.4; however, in terms of specialised vocabulary, Group 4 does not have a great deal more Latin-derived terminology compared to the other Groups. This is quite surprising considering how very Latinate **S2**'s language is for general vocabulary (in Chapter III, e.g. "Election" in the sense of 'choice', **S2**, l. 64).

In other words, the overall distribution in all groups is similar in that Latin-derived terms are the most technical and highly specific. Latin-French terms can be put in this same category. Terms for alchemical processes ultimately borrowed from Latin (and those which are ambiguously either French- or Latin-derived) can be found in all the categories of the processes from Table 6.6 above. There is thus no particular category that would contain more Latinate terms than another.

There are some cases where the groups differ in a term used for a particular operation. I will discuss one of those cases in detail: *mundification*, briefly mentioned above in the general discussion of the seven categories. It is a now obsolete term referring to the act of cleansing, and as mentioned above, the *OED* does not have specifically alchemical definitions for it. The word derives from Latin: "< post-classical Latin *mundification-*, *mundificatio* cleansing (from 12th cent. in

British sources; from *c*1200 in British medical sources) < *mundificat-* , past participial stem of *mundificare* mundify v. + *-io* -ion suffix[1]. Compare Middle French, French *mondification* (mid 16th cent.)" (*OED*, s.v. *mundification*, n.). That this term is borrowed from Latin, not French, is apparent from the orthography: influence from French would suggest a form with <o> in the first syllable, as quoted in the *OED* etymology. It is interesting that Group 3 should also use the form <mundificatione> (also in **Oli**), as the immediate source text for that translation was French.

Table 6.7 shows two examples where Group 3 uses *mundification* and where the other Groups make different translation choices. As in Chapter 5, I have divided up the examples by information content to make comparison between the translations easier.

Table 6.7. Mundification.

Group 1	Group 2	Group 3	Group 4
þey Are soo stronglye made be natour **soo clenne perfyte**	forasmuche as they be symple perfect	it is so simplie prfect	it is also simply perfected
	without **cleansinge of mans witt** /	with out **artificiall mundificatione**:	with out any **ingenious puriffication**,
& so stronglye degeste be natourall heete		and so strongly digested and sod with a naturall heat	and is so strongly digested and boyled by natural Calidity
(**T**, ll. 139–140)	(**Ga**, ll. 90–91)	(**S1**, ll. 194–196)	(**S2**, ll. 128–130)
Thenne may whe with oure Avyse labour & trewe delygence . contenue þer vpoun & with oure fyere Artyfecyall comme	& so we shall come with oure naturall witt & Artificiall fyer	which with our artificiall fier, and experience of our arte, wee are able to bring	wich whe may by aur artificial fire and Experience of our art bring
vnto **þe Inwarde clensynge** decoccioun. separacioun. & fixioun of hym	in the **inward mundye fycacion / & purytie** of him	vnto his due concoctione, **mund=ificatione**, colour, and fixatione, continuing our inge=nious labor vpon it.	to a due decoction **mundification** Coloration & fixation operating over it our most ingenious operation
(**T**, ll. 157–159)	(**Ga**, ll. 100–103; underlining in original)	(**S1**, ll. 210–213)	(**S2**, ll. 139–141)

The first passage appearing in Table 6.7 is from the fifth conclusion of Chapter III, i.e. that the starting point for the Stone/Elixir should not be gold or silver. The second passage is from the sixth conclusion of Chapter III: this is the conclusion telling the reader that a substance containing both mercury and sulphur should be used as the starting point for the Stone/Elixir. Both of the conclusions are concerned with the perfection and purity of the substance to be chosen.

Table 6.7 shows that Group 1 does not use *mundification* at all. Indeed, it is rather difficult to align direct correspondences as to what words Group 1 uses instead in the above-quoted sections in Group 3, as the translations (and their source texts) are so different. However, close reading of Chapter III provides some correspondences. In the first example in Table 6.7, corresponding in information content to the other Groups, Group 1 uses a different structure entirely, with no corresponding noun meaning 'purity' or similar. The same information is conveyed by the substance being *made* clean and perfect by nature. It can be presumed that this difference derives from Group 1's source text.

In the first example, Group 2 uses *cleansing*, of Germanic origin. 'They' here refers to gold and silver. "Cleansinge of mans witt" refers to the "artificiall mundificatione" phrased as such in Group 3: this is all in all a non-Latinate way of translating the same concept. However, in the second Table 6.7 example, *mundification* is used: "inward mundye fycac*i*on / & purytie". This binomial, repeating near-synonyms, may be a clarification by the translator, or it may be from Group 2's source text (cf. Pahta 1998: 105). *Purity* here does not quite mean the same as *mundification*, as the latter refers to the *operation* of cleansing while the former refers to the state of being clean. However, they are similar enough.

In Group 4, *mundification* is used in the second passage. However, where the first instance of *mundification* in Group 3 occurs Group 4 has a different translation for the word: "puriffication". In this case, checking Group 4's source text is feasible. *Theatrum Chemicum* (1613: 412), intriguingly, has "sine **mundificatione** ingeniosa" in this passage, 'without ingenious mundification', where **S2** has "with out any ingenious **puriffication**". In other words, here, the translator of Group 4 – who otherwise follows their Latin source text in terms of lexical choices, as, indeed, exemplified by "ingenious" ("ingeniosa") – diverges from *Theatrum Chemicum* by choosing a near-synonym instead of the term used in the source text.

Summing up, thus, three terms referring to cleanliness/purification are used in the four translations: the Latinate *mundification*, the French/Latin *purification*, and the Old English *clean* and *cleansing*. What the example of *mundification* shows is that the Groups make highly different translation choices for the same concepts, and

that – as in the case of Group 4, for instance – they do not always make the same choices throughout the translation.

6.3.2.3 Unrecorded words and antedatings

Examining specialised terminology may also lead to discovering unrecorded words, antedatings, and cases where the text of *MoA* provides new senses or forms for words in the *MED* and *OED* (cf. Grund 2014). This subsection moves away from the focus on Chapter III, however, as I will discuss antedatings throughout *MoA*. This subsection has a different kind of narrow focus: Group 1, specifically the copy of *MoA* in MS **T**. As mentioned at the start of Section 5.1, and as I will further discuss in Chapter 7, **T** forms the base text for the best-text edition that is part of the present study. It is also one of the two 15th-century witnesses of *MoA*, and thus a more likely candidate for antedatings than the early modern witnesses: the *OED*, for instance, mostly uses printed editions for citations, and thus unedited material should be looked at more carefully.

The present subsection draws attention to an aspect of the textual commentary in Part II that might otherwise remain unnoticed: the unrecorded words and antedatings in **T**. As Grund (2013: 439) has remarked concerning TCC MS R.14.37, studying that manuscript "has revealed a host of Middle English words that have never been recorded before by the *OED* or *MED* or that antedate the *OED* record by sometimes more than two hundred years". Grund gives this as one more reason to edit alchemical ME texts. Indeed, even a relatively short work such as *MoA* shows that this reason is certainly a valid one. Table 6.8 shows the words in **T** which are either (1) entirely unrecorded in the *MED* and/or *OED* (or extremely rare spellings of words already borrowed into English); (2) new senses not previously recorded in the *MED*; (3) antedatings to the *OED*. In cases where a form is recorded in the *OED* but not the *MED*, a lexical item can belong to both categories 1 and 3.

Table 6.8. Unrecorded forms and antedatings in **T**. [354]

(1) Unrecorded form or rare spelling	**Lexical item (with edition line nos.)**	**Meaning**
(not in *MED* or *OED*)	**Abstrace** (n.), l. 1 (*abstract* < Latin, *abstrace* < French? (cf. Fr. *abstrait*)	(uncertain) a compact treatise
(not in *MED*; †*adurent* in *OED*3)	**Adurent** (adj.), ll. 86, 87 < Latin(-French?)	burning; hot and dry
(not in *MED*; †*adustible* in *OED3*)	**Adusteble** (adj.), l. 82 < Latin-French	capable of being adusted (*adust* v.2), burned, or scorched (*OED*, s.v. *adustible*)
(not in *MED*, c.f. *combustioun* n.; *combustible* in *OED1*)	**con**busteble (adj.), l. 84 < Latin-French	capable of being burnt or consumed by fire, fit for burning, burnable (*OED*, sense 1)
(not in *MED* or *OED*)	**ente***r***ecyens** (n.), l. 25 < Latin? French?	distance?
(not in *MED*; †*fixion* in *OED*2)	**fyxyo***u***ns, fixio***u***n** (n.), ll. 31, 76, 81, 84, 159 < Latin	"the process of reducing a volatile spirit or essence to a permanent bodily form" (*OED*, s.v. †*fixion*)
(not in *MED*; *fusion* in *OED*2)	**fusyoun** (n.), ll. 87, 289 < Latin	the operation of making a substance fluid by heating it; the state of fluidity as a consequence of that heat
(not in *MED*; †*inceration* in *OED*2)	**Inseraciouns** (n.), l. 31 < Latin	"the bringing of a substance to the consistency of moist wax" (*OED*, s.v. †*inceration*)
(not in *MED* or *OED*)	**magnasetes** (n.), l. 35 < Latin?	probably a variant of *magnesia*, i.e. an ingredient of the Philosophers' Stone
(not in *MED* or *OED*)	**occultatyffed** (adj.), l. 14 < Latin	hidden, concealed (cf. Latin *occul(ta)tus*)
(not in *MED* or *OED*)	**super***u***enyens** (pr. ppl.?), l. 68 < Latin	arriving, coming up (esp. unexpectedly) (cf. Latin *supervenio*)
(not in *MED* or *OED*)	**termente** (v.), l. 38 < Latin-French?	ended

[354] The etymologies for the lexical items are based on the *OED*; when no *OED* entry is available, I have suggested the most likely source language (followed by a question mark). The meanings are based on the *MED* and *OED*; if a word is not recorded in any previous resource, I have suggested a meaning based on the context of *MoA*.

(2) Unrecorded sense in *MED*		
	clensyng (n.), l. 158 < Gmc.	the action of cleaning or purifying, here in an alchemical sense
	feminine (adj.), ll. 149–150 < Latin-French	of things thought to possess female functions or qualities: female, feminine
	super*e*ore (adj.), l. 232 < Latin-French	that is on a higher physical level; situated above or further up than something else
	terrestryall (adj.), ll. 80, 83, 85, 86, 87, 88 < Latin-French	"of the nature or character of earth", especially relating to dryness and solidity; "possessing earth-like properties or qualities"; earthy (*OED*, s.v. *terrestrial*, sense 1)
	tr*a*nsformac*iou*n (n.), ll. 41, 101 < Latin-French	change through natural means, perhaps transmutation
(3) Antedating		
1st *OED* citation: 1626 (*OED*3)	**Adurent** (adj.), ll. 86, 87	
1st *OED* citation: 1611 (*OED3*)	**Adusteble** (adj.), l. 82	
1st OED citation: 1529	**co*n*busteble** (adj.), l. 84	
1st *OED* citation: 1555 (*OED*2)	**fyxyo*u*ns, fixio*u*n** (n.), ll. 31, 76, 81, 84, 159	
1st *OED* citation: 1555 (*OED*2)	**fusyoun** (n.), ll. 87, 289	
1st *OED* citation: 1612 (*OED*2)	**Inseraciouns** (n.), l. 31	
1st *OED* citation in this precise sense: 1632	**super*e*ore** (adj.), l. 232	
1st *OED* citation in this sense: 1594	**terrestryall** (adj.), ll. 80, 83, 85, 86, 87, 88	

These lexical items can be divided into specialised terminology and general vocabulary, as about half of them do not refer only to alchemical matters: the non-alchemical words are "Abstrace", "ent*er*ecyens", "feminine", "occultatyffed", "sup*er*eor*e*", "superuenyens", and "termente". The words "feminine" and "sup*er*eor*e*" appear in *MoA* in unrecorded senses (2); the others appear in unrecorded forms (1), some of which do not appear in entries in the *MED* nor the *OED*. For these, **T** seems to have distinct enough forms that this is not just a case of spelling variation. In the case of "feminine", it appears simply that *MED*, s.v. *feminin(e* (adj.

& n.) does not have a corresponding subsense, so I have formed the meaning by analogy with *masculyne*. With regard to "sup*er*eor*e"* in the meaning of 'above': the closest sense in the *MED* is for 'of land: more northern' (s.v. *superior*, subsense 1c). The first *OED* citation in the sense of 'above' is from 1632, which means that *MoA*'s "Aboven*ne* In þ^{e} sup*er*eor*e* place" (**T**, l. 232) is a considerable antedating for this sense.

I will discuss the more complicated of the non-alchemical words' unrecorded forms here. "Abstrace" is a fairly complex case; the *MED* does not include this form, and the definition for *abstract* in *MED* ('an abridgment or summary of a book or document', the only sense) does not seem quite right for *MoA*'s description as a "compendeose Abstrace of Alkamy" (**T**, l. 1). However, *MoA*'s "Abstrace" does seem to refer to the treatise's compactness, although it is neither an abridgement nor a summary, but the complete work.

"Ent*er*ecyens" is a particularly challenging case. Based on its form, it could be from Latin or French. The Latin copy of *Speculum alchemiae* in TCC MS R.14.44 does not provide help (see Section 6.2.1 for the similarities between **T** and this Latin copy), nor do other similar Latin copies. In R.14.44 (f. 117r), the corresponding word is "intervallo", from *intervallum*, 'an intervening space, distance; an interval of time' (Simpson ed. 2000: 323, s.v. *intervallum*). The spelling in **T** of "ent*er*" with <en> might also indicate French as the source language:

(134) I schall wrytte vnto you pleynly with ouȝt þe **enterecyens** of Any myste (**T**, ll. 25–26)

In its context, however, and assuming a meaning similar to the Latin source text, the word means something like 'distance'. The passage would then mean that the intent is to write 'plainly, without the distance caused by any mist'. The precise meaning of this word thus remains a mystery until further research can uncover it. Another challenging word in *MoA* is "occultatyffed":

(135) þey p*ro*vede þ^{e} same In exp*er*yense Ande p*ro*vede yt **occultatyffed** (**T**, ll. 13–14)

This word is probably an adjective complementing "yt". It is probably related to the verb *occulten* (*MED*, sense 1: 'to keep (knowledge) secret, conceal'); this would make sense, as the "þey" in the passage in (135) refers to the old alchemists who concealed the truth in 'a veil of despair'. "Occultatyffed" is most likely directly influenced by Latin. In the corresponding Latin passage in TCC MS R.14.44, the word used is "occvltata" (f. 117r), which is a past participle of the verb *occulto* 'hide, conceal'. I therefore consider it probable for "occultatyffed" to mean 'hidden, concealed'.

The status of "sup*er*uenyens" is ambiguous in a different way. This word occurs only once:

(136) dyu*er*se Accident*es* **sup*er*uenyens** t*ra*nsforme dyu*er*se bodyes (**T**, l. 68)

In Latin, *superveniens* is the present active participle of *supervenio* 'arrive, come up (esp. unexpectedly)'. Here, however, MS R.14.44 (f. 118v) has "accidencia diu*er*sa **superueniencia**", 'diverse circumstances/happenings coming up' (cf. Simpson 2000: 587, s.v. *supervenio*), with "superueniencia" as a verbal adjective modifying the nominative neuter plural "accidencia".[355] In any case, based on the Latin, the passage in **T** could be translated 'diverse accidents, coming up unexpectedly, transform diverse substances'; this refers to the formation of metals in the earth.

Finally, "termente" is an unrecorded form – perhaps simply a rare spelling – of the verb *terminen* (cf. *MED* forms *termened* and *iterminet*). Concerning the other witnesses in Group 1, **C** spells this <t*er*mende>, but **A** has <terment>, as does even **Gb**. This might indicate that the scribes of **A** and **G** did not quite understand the meaning of this word, and in any case this is more evidence for the possible relationship between **TAGb**.

I will now briefly comment on the particularities of the specialised alchemical terminology in Table 6.8. Category (1), unrecorded forms, is perhaps the most interesting of the three categories: **T** provides new forms especially for some alchemical nouns. Of the unrecorded specialised terms, six – "Adurent", "Adusteble", "conbusteble", "fixio*u*n", "fusyoun", and "Inseraciouns" – are recorded in the *OED*, but do not appear in the *MED*, although related words such as the verb *aduren*, the adjective *adustif*, or the noun *combustioun* are recorded in the *MED.* However, I consider it significant that the particular morphological forms in **T** do not appear in the *MED.* This is notable especially in the case of "fixion" and "fusyoun", as they are central alchemical processes. These nouns are not in the *MED* although the verb *fixen* (*MED*, sense 2) is, as is the past participle / adjective *fix(e* (subsense 1c); likewise, the adjective *fusible* (*MED*, sense 1). These two terms are a fascinating example of new Latin-derived alchemical terminology appearing in the earliest witnesses of *MoA*. It would seem to suggest that these terms were borrowed into alchemical English in the 15th century (*MoA* is without doubt not the first text to use these borrowings). This is once more an argument in favour of bringing more early alchemical texts to light by editing them, as the adoption of technical

[355] I would like to thank Veli-Matti Rissanen for his help with this Latin passage.

alchemical terminology into English looks rather different if one goes only by the items and dates recorded in the *MED* and *OED*.

"Adusteble" is related to other similar terms (*MED* s.v. *adustif* sense 1, *adust* (ppl.) sense 1, *adusten* sense 1a, *adustioun* sense 1a), but this particular form is distinct in meaning from e.g. the adjective *adustif* 'burning, scorching, able to burn up or destroy with heat' (*MED*, sense 1): in "Adusteble", the key concept is that whatever substance is referred to with this adjective is *capable* of being burnt, not that it is burning in itself. "Adurent", then, is related to the verb *aduren* (*MED*, sense 1; there is only one quotation); there appear to be no other related forms in the *MED*. As mentioned above, "conbusteble", as an adjective, does not appear in *MED*, although the noun *combustioun* does (sense 1a, 1b). As for "Inseraciouns", the verb *inseren* ('to implant or embed', *MED* subsense 1a) is not related; according to the *OED*, *inceration* is from the Latin *incerare* ('to spread wax on').

These six alchemical terms which are unrecorded in the *MED* also belong to category (3), since they antedate the current *OED* first citations quite considerably. In the case of *adurent*, "Adurent" in **T** antedates the 1626 citation by about 130–140 years, assuming that **T** was copied in the last quarter of the 15th century (see Section 4.1.2). For *adustible*, "Adusteble" antedates the 1611 citation by about 120–130 years. For *combustible*, **T** antedates the *OED* citation from 1529 by about 40–50 years. For *fixion* and *fusion*, the *OED* citations are from 1555, so **T** antedates them by about 60–70 years. Finally, for *inceration*, **T** antedates the 1612 citation by about 120–130 years. These are sometimes thus rather notable antedatings.

The other alchemical terms belonging to category (1) do not appear in any of the dictionaries. These terms are "cou*er*nacle" and "magnasetes". For "co*uer*nacle", the closest equivalent is *MED* s.v. *covercle* (n.), which states that "ME coveracle is a blend of covercle & covacle". *Covernacle* seems to be related to *coveracle*. "Magnasetes" seems to be close in meaning to magnesia (cf. *MED* s.v. *magnesia*, sense 1; cf. also the ME form *magnetia* in *OED* s.v. *magnesia*). In other words, both of these terms seem to be variants of already existing terms, but they are certainly unrecorded forms.

"Clensyng", "terrestryall", and "t*ra*nsformac*iou*n" are examples of unrecorded senses for specialised terminology in category (2). As for "clensyng", neither the *MED* nor the *OED* cite specifically alchemical senses for this word (medical senses are given). Finally, "terrestryall" (or the spelling "terrestriall") does not, I think, quite fit the *MED* sense of 'earthly' (s.v. *terrestrial*, sense 1); I argue that the now obsolete *OED* sense 3, 'of the nature or character of earth, esp. as being dry and solid or pulverulent; possessing earth-like properties or qualities' is what is intended in *MoA*. The first *OED* citation for this sense is from 1594, so *MoA* antedates the *OED* by about a century.

Finally, "t*ra*nsformac*iou*n" does not appear in an alchemical context in either the *OED* or the *MED*. In the *MED*, it is defined (sense 1) as "A supernatural alteration in semblance or form; metamorphosis". In the *OED*, too, the term *transformation* is defined without reference to alchemy.[356] However, in **T**, "t*ra*nsformac*iou*n" (l. 101) certainly seems to refer to a specifically alchemical change, perhaps even transmutation. Importantly, it cannot refer to the *MED* sense of *supernatural* alteration, since alchemy in *MoA* is seen as imitating the natural processes of the world. Therefore this would appear to be a new sense for the noun, unrecorded in the *MED* or *OED*. *Transformen* as a verb has alchemical meanings, however (*MED*, sense 1f: "to transmute (elements); also, affect the properties of (a mineral)".

As Grund (2013: 440) remarks, new editions of alchemical writings provide antedatings and previously unrecorded senses or forms, bringing "substantial new information about how translators and scribes invented new vocabulary and shaped the English language". As the examples in this subsection show, this is true of *MoA*, a rather short text which nonetheless provides rich material for antedatings. All but one of the terms in Table 6.8 are loanwords from Latin, French, or both/either. Taavitsainen (2001: 194) remarks that in medical texts, "borrowing took place earlier than generally acknowledged"; the antedatings occurring in *MoA* point to this being true for alchemical texts too.

6.3.2.4 Summary

Through most of Section 6.3.2, I have focused on Chapter III of *MoA*, as that chapter is the longest in the treatise and appears in all four translations. I divided my discussion into alchemical substances and alchemical processes, selecting the most important terms related to both those categories from Chapter III. In addition to painting a general picture of the lexis used of alchemical substances and processes in the four translations, I examined the etymologies of the terms. Terms borrowed from Latin or the mixed category of Latin-French were the most common. The final subsection dealt with the whole of *MoA*, uncovering antedatings and unrecorded forms and senses in **T**. In the next section, the final part of this chapter, I will draw

[356] The closest sense to alchemical is subsense 3d, "*Chemistry* change of chemical composition, as by replacement of one constituent of a compound by another". However, this meaning is obviously not applicable to alchemy, as the scientific worldview is completely different; also, the only *OED* attestation of this particular meaning is from 1857.

together the analysis in this chapter and answer the question of the Latinate terminology in more detail, using the findings from the present section as evidence.

6.3.3 Overall tendencies

In this final section, I draw together the discussion in this chapter and reflect on how different the four translations of *MoA* actually are. Overall, my analysis in this chapter points towards the fact that the translations certainly reflect the almost 200-year time span of the witnesses and their different source texts. The *work* is still the same, but the four *versions* – translations – are very much distinct. However, although they are not the same on the level of text, they use rather similar translation styles overall: for instance, as the terminological analysis above showed, all of the translations seem to draw from a common pool of alchemical terminology.

As Pahta (1998: 66) notes of medical works, the plentiful evidence of multiple translations seems to suggest that the translators did not know that other translations existed, "which seems to be the case in other fields of translation as well". If *MoA* is any indication, this is certainly the case for alchemical translation. The multiple translations of *MoA* seem to reflect a lack of knowledge about previous translations rather than a desire to improve on them.

This is unsurprising in the case of the manuscript translations, Groups 1 and 2: manuscript survival and transmission in this case must have been so small-scale and random that it is no wonder that those manuscripts were not broadly known to later translators. Group 4 is a possible exception to translation being motivated by lack of knowledge, as discussed above in Section 6.2.4: since the translator had access to printed books such as *Theatrum Chemicum*, they might also have known of **Oli**. Ageing might also be a possible reason for new translations: 17th-century translators would have considered the ME translations rather archaic in terms of language. In my view the most likely scenario is that the later translators simply had no idea of the earlier manuscript copies, as manuscript survival is erratic, and the likelihood of the later translators having come across the manuscripts in Groups 1 and 2 is minuscule. However, it is not impossible, as the two manuscript copies in MS **G** show: this manuscript from the mid-to-late 16th century includes two different translations of *MoA* (belonging to Groups 2 and 1).

The language choices in Group 1 present a mixture of native and borrowed terms. Latin(-French)-derived terms are used especially for specialised vocabulary such as alchemical processes: for instance, "decocc*iou*n" (**T**, l. 79), "fixio*u*n" (**T**, l. 159), and "p*ro*jecc*iou*n" (**T**, l. 359). The Latin planets' names are sometimes used as terms for the metals: "Sol, luna, Iubit*er*, sat*urn*u*s*, ven*us*, mars". However, Germanic terms are

also used for the planets. Germanic and Latin-derived alchemy-related terms coexist within the same sentences:

(137) made of M*er*curij terrestryall & stynkynge (**T**, l. 80)

In the example above, Group 1 describes mercury as both *terrestrial* – a Latin-derived term meaning 'possessing earth-like properties or qualities' (*OED2*, s.v. *terrestrial*, subsense †3, and cf. *MED*, s.v. *terrestrial,* sense 1) – and *stinking*, a very down-to-earth Germanic term indeed.

The translation style of Group 2 is fairly similar to that of Group 1. The translation employs a combination of native English and Latin(-French) terminology, using the borrowed terminology especially for alchemical processes. Examples of this are "transmutac*i*on" (**Ga**, l. 52) and "ignic*i*on" (**Ga**, l. 33; this is "fyrynge" in Group 1; **T**, l. 81). However, for instance "Sun" and "Moon" are used for gold and silver instead of Sol and Luna, which are used in Group 1. As in Group 1, the combination of native English and borrowed terms for alchemical terminology is fluid: "yearthlie combustibilnes" (**Ga**, l. 34) in the description of lead ("Saturne") in Chapter II is a good example of this. Sometimes Group 2 goes for a more Germanic translation choice: for instance, where the other Groups have Latin-derived equivalents, Group 2 has the Germanic *lordship*:

(138) in grenes the soule **hath Lordship** (**Ga**, ll. 206–207)

(139) þ^{e} soule **hathe þ^{e} domynac*iou*n** In þ*a*t gren*n*ese (**T**, l. 242)

(140) in that greene his soule **beareth dominion** (**Oli**, p. 13)

(141) in that greennes the soul **prædominates** (**S2**, ll. 246)

This passage, explaining the importance of the colour green in the journey towards the Stone/Elixir, is a good example of the different translation strategies: although Groups 1, 3, and 4 all include loanwords in this case, none of the Groups has exactly the same lexeme here.

Group 3 has surprisingly little overt French influence considering that its immediate source text was French. Sometimes the translator from French to English even uses a more Latinate term although a French-influenced one would be available: for instance, in Chapter III, where the French 1557 edition uses "orpiment" and "arcenic citrin" (p. 15), Group 3 (both **Oli** and **S1**) use "auripigment" (**S1**, l. 155) and "Citrine Arsenicum" (**Oli**, p. 6), although at least the French-derived *orpiment* was in use from the late 14th century on (*OED3*, s.v. *orpiment*).

However, Group 3 also uses native English terminology where one might expect borrowings, such as "**cleaue** vnto them, or is **ioyned** with them" (**Oli**, p. 4) (see Table

6.6a). One reason for this seems to be that in such passages, the French translation also uses 'simpler' terms, such as in this case, "mettre ou mesler" (1557: 12), 'put together or mingled/mixed'. Group 3 may thus be influenced by its source text's style, but this does not result in Group 3 being more 'French'. The translation style of Group 3 thus does not reflect its immediate source text as much as might be expected because the influence is covert. A collation of **Oli** with the 1557 *Miroir* would reveal the extent of the covert French influence, but as I have not found a machine-readable version of the French edition, such a collation was not possible for the present study.

Group 4, conversely, has a great deal of influence from the Latin of its source text, even in words that might be considered unusual. Some more uncommon Latin-derived words used by the **S2** translator include "genus" (l. 17), "Terrestrity" (l. 54), "similitude" (l. 76), "Calidity" (l. 130), "plusquamperfects" (l. 158), "inspissated" (l. 165), "magistery" [magisterium] (l. 182), "Calor" (l. 200), and "Coronated" (l. 257). A further exploration of **S2**'s diction, collating it with its source text, would be highly interesting with regard to Latinate vocabulary in the 17th century.

Despite the Latinate diction, **S2** does not always use the same translation style. Whereas the examples above show instances where the translator chose to translate by staying close to the Latin form and thus using 'inkhorn' diction ('excessive' loanwords from Latin; cf. Moessner 2017: 181–182), there are also many cases where the translator chooses to anglicise: for instance, the processes that change the colour of the material being worked upon are referred to with words of Germanic origin in Chapter VI:

(142) after putrefaction it **growes Red** (**S2**, ll. 239–240)

(143) Post vero putrefactionem **rubescit** (*Theatrum Chemicum* 1613: 416)

Here, the translator does not include the word 'true' ("vero"), but notably, instead of conveying the Latin in a form such as "it rubesces" (cf. *OED* s.v. *rubescent* adj.), the translator has chosen a simpler route. This is a rare example among the profligate use of Latin-influenced terminology in **S2**, however. This Latinate tendency may reflect the general developments of scientific writing as well as the general fashion for Latinate diction in the 17th century, or it may merely be a quirk of the scribe/translator.

The Latinate diction of **S2** can sometimes be classified as code-switching. Out of the four translations, Group 4 is certainly the one to employ the most code-switching as a means to convey *MoA* (mostly) in English. One reason for this is probably that the target audience of **S2** was more likely erudite scholars than unlearned craftspeople. The clear instances of code-switching in Group 4 are mostly brief code-switches such as in the following:

(144) the Red Elixir makes yellow all mettals **in infinitum** & Transmutes yesame into fine gold and ye white Elixir whitenes **in infinitum** andbrings all mettals into perfect whitines (**S2**, ll. 262–265)

The expression "in infinitum", 'infinitely', is also repeated twice in *Theatrum Chemicum* (1613: 416). Another single-word switch, although perhaps more interesting since it is an adverb, is in a Chapter VII passage telling the reader to nourish the substance first with a gentle fire and then increasing the fire:

(145) Augmenting the fire always ~~Every~~ \for/ three Days till the ['they'] are joyned **inseparabiliter** and this is a worck ofthree days (**S2**, ll. 291)

Here, the scribe could presumably have also phrased it 'inseparably' (cf. *OED1* s.v. *inseparably*: the word is attested from the late 15th century on). However, *Theatrum Chemicum* has "inseparabiliter", so this appears to be a case of the translator of **S2** leaning on their source text.

There is also some code-switching in Group 2, specifically, code-switching for terminology. One of these, from Chapter IV, was discussed above; the other appears in the final section of text, not part of *MoA* proper, which is added to the end of **Ga**:

(146) m*ercury* of kynde the w*hi*ch is y^e^ purest matt*e*r of the earth and yt is called Sperma & aqua viscosa, of the w*hi*ch water, quicke silver is gendred of and all mettalls (**Ga**, ll. 246–249; underlining in the original manuscript)

Group 1 may have two code-switches: the noun "enterecyens" (**T**, l. 25) and the present participle (?) "superuenyens" (**T**, l. 68). However, since the *MED* contains examples of similar forms classed as borrowings, as discussed in Section 6.3.2.3, these two words remain an example of the ambiguous border of code-switch and borrowing. This ambiguity reflects the overall interplay of code-switching and translation, which can be considered to be "on the same continuum of multilingual practices" (Kolehmainen and Skaffari 2016: 126). Both code-switching and translation are part of contact-induced language change (see Skaffari & Mäkilähde 2014: 262). All in all, however, code-switching is not much used in the four translations of *MoA* as an alternative strategy to translation for conveying the source text.

The above discussion has encapsulated how *MoA* was transmitted into English in four distinct ways through the centuries. In the following, I will continue the terminological focus and analyse the word formation strategies used as well as the overall trends for changes in the lexicon of *MoA* in the four translations. I will first turn to the word formation strategies. The following brief discussion draws from work on early English medical texts by Juhani Norri (2004). Of course, the usual

caveats regarding comparisons between medical and alchemical texts apply. However, Norri's categorisation is fruitful in the case of *MoA*. Norri proposes the following sources of new medical terms in the late 15th to mid-16th centuries (2004: 111): "(1) adopting a foreign word, (2) modifying the meaning of a non-medical word, and (3) coining a new term".

On the basis of the lexical evidence I presented in Section 6.3.2, I have determined that the first two of these strategies can also be found in the alchemical context of *MoA*. The most common strategy seems to be (1), i.e. loanwords. As I showed in my analysis of the terminology for alchemical substances and processes in Chapter III of *MoA*, loanwords are a significant part of the alchemical terminology used in all four translations.[357] However, Norri's category (2), modifying the meaning of a non-alchemical word, is also used when it comes to 'native' Germanic-based words in the translations – e.g. *stone* – as well as French and Latin-French words that had come into English with more general meanings, such as *matter*. It should be noted that these semantic expansions had already happened early on, and are not an innovation by the translators of *MoA*. As for Norri's category (3), at least in Chapter III of *MoA*, it is not sure whether the unrecorded forms in Section 6.3.2.3 are terms specifically coined by the Group 1 translator for the purpose of transferring alchemical discourse from Latin (or French) into English.

The purpose of this chapter has been to discover how *MoA* reflects the processes of the vernacularisation of science through translation. A major way in which I examined vernacularisation in *MoA* was to analyse the alchemical terminology. So, to reiterate the research question underlying Section 6.3: how Latin-derived *is* the specialised terminology in the four translations, and is there a change over time? I will now delineate the overall trends in *MoA*'s lexicon in the four translations and the changes therein, referring back to the division between *substances* and *processes* I used in Section 6.3.2. The evidence for this is of course primarily from Chapter III of *MoA*, which, as argued earlier, forms a major portion of *MoA* and is thus an extract based upon which one can make arguments. As in the previous sections, this evidence is supplemented by examples from other chapters of *MoA* when needed.

The specialised terminology in the four translations is lexically rich. There are many kinds of different alchemical terms used for both substances (Table 6.3) and processes (Table 6.5). The vast majority of terms come from either Latin or French, or from the mixed category of Latin-French. In other words, *MoA* shows that alchemical terminology was being vernacularised with the help of loanwords from

357 As my approach is qualitative, I cannot provide exact proportions; that would require a different approach to the material.

languages that already had terminology for the concepts. Perhaps largely due to Chaucer's *Canon's Yeoman's Tale* and its plethora of alchemical terminology (see Colette & DiMarco 2005 for Chaucer's potential sources), many of the basic loanwords for alchemical *substances* appearing in Chapter III of *MoA* are already recorded from the 14th century – thus, early in the vernacularisation process. For alchemical *processes*, the alchemical senses of the words seem to appear later, in the 15th century – when *MoA* was first translated. My examination of the first attestations of the terms appearing in Chapter III showed that many of the core concepts in alchemical terminology entered English already quite early in the vernacularisation process, in the 15th century, or even earlier.

There is no radical change in the alchemical specialised terminology from the late-15th-century Group 1 to the late-17th-century Group 4, although other linguistic aspects of course show that language change has occurred. Much of this lack of change is likely influenced by the fact that all translations are of the same work, and the Latin exemplar for even Group 4 was much the same as the earliest printed edition – which must have been similar to the possibly 15th-century manuscript that was its exemplar. Despite this evidence for relatively *little* change over time in alchemical specialised terminology for *MoA*, the 17th-century translations (Groups 3 and 4) do evidence some changes. The use of the term 'mundification', for instance, used in Groups 2, 3, and 4, but not in 1, suggests that that term did not acquire a specifically alchemical meaning until at least the 16th century. So, the later translations of *MoA* do provide instances of change in lexicon to some degree. **S2**, i.e. Group 4, is the latest of the manuscripts and thus, of course, one might consider it to be furthest developed when it comes to the development of scientific language. However, **S2** may be an exceptional case, as – even apart from the specialised terminology – it uses Latinate vocabulary far more than the other Groups.

In any case, the question I asked at the start of this section can be answered: although there are also specialised terms of Germanic and French origin, the technical vocabulary in *MoA* is predominantly of Latin origin, or from the mixed category of Latin-French. When translating alchemical material to English, alchemical technical vocabulary thus relied on the Latin(-French) terms that had already been in use. The mixed category of Latin-French seems to be the most common source for *MoA*, based on Chapter III; this is similar to what Norri (2004: 113) found for medical material. As my analysis has suggested, the technical vocabulary borrowed from Latin(-French) mainly consists of specific terms for specific processes or substances, and as such, it is probable that the borrowings were motivated by the translators' desire for precision.

Overall, my analysis has shown that the translators and scribes involved with the four translations of *MoA* use various strategies to transform *Speculum alchemiae* into English: borrowing from Latin or French (or with influence from both, as the category of Latin-French shows); semantic expansion of native words; and even code-switching to a small extent. Even the 15th-century copies in Group 1 exhibit plenty of Latin-influenced terminology, so there is not any clear-cut and radical change over time. Notably, the antedatings and unrecorded forms in Section 6.3.2.3 reveal that Group 1 of *MoA* (in the form of **T**) has attestations of some alchemical terms thought to have entered English decades later. The antedatings show that there is still much to discover about the history of English vocabulary, and thus it is useful for linguists to edit and study alchemical writings and other little-edited domains to a far greater degree than has so far been done. Indeed, in the following, final chapter of this study, I move on to a discussion of how my analysis and terminological focus have gone hand in hand with my preparation of an edition of *MoA*.

Strategies for transforming alchemy into the vernacular thus vary through the Middle English and Early Modern English versions of *MoA*, even though there are also similarities. These similarities probably stem a great deal from the common source texts, although the case of Groups 3 and 4, united by the ultimate source text in *De Alchemia*, show that the translators made their own choices and the source text did not always have an overt effect. The differences are explained by diachronic changes in the language of science as well as the translation strategies used and the audience intended by the translator. It should be noted that although Chapter III is the longest in *MoA*, focusing my analysis on it may of course have skewed the results to some extent. However, despite this cautionary note, the analysis in this chapter has shown that although the four translations use similar resources for vernacularising *MoA*, they act as distinct vessels of vernacularisation for this single alchemical work.

7 Editing *The Mirror of Alchemy*

The analysis in the previous chapters has depended on a close familiarity with *MoA*'s witnesses, and this familiarity is contingent upon the editorial work I have engaged in. The present chapter is thus devoted to the editorial concerns which underpin my whole study, and it forms a bridge from the analysis in Part I to the edition in Part II. The edition included in this study comes in the form of a best-text edition of Group 1, with **T** as the base text; this is supplemented with documentary transcriptions of the other Groups. One of my overall research questions concerns what method of editing works best for *MoA*, an alchemical work in multiple versions and witnesses. In this chapter, I will give answers to that question, explaining why and how I have come to this approach, and why it is a sensible approach for editing *MoA*.

In what follows, I will discuss, first, the editorial theories and methodologies informing my approach to editing *MoA* (Section 7.1). Documentary editing forms the backbone for my editorial views, and thus I briefly discuss documentary concerns first; next, I approach best-text editing. In Section 7.2, I move on to the specific challenges of *MoA* as a work and its manuscripts with regard to editing. These challenges have already come across in the previous chapters, but now, I will discuss them focusing on the editorial issues that they pose. Finally, in Section 7.3, I will show how I have chosen to resolve those issues. I delve deeper into those solutions and give my reasoning for why this study of *MoA* includes both a best-text edition and documentary transcriptions. My more precise editorial principles are part of the edition itself, but this chapter provides the reasoning and theory behind my chosen editorial methods.

7.1 Editorial theory

Shillingsburg (1986: 2) defines scholarly editing as "editorial efforts designed to make available for scholarly use works not ordinarily available or available only in corrupt or inadequate forms". In other words, scholarly editing is an endeavour to make accessible – for scholarly/academic purposes – textual material that has not

previously been so. The history of scholarly editing spans centuries, and especially the past 200 years have provided a plethora of scholarly writing on the subject of editing.[358] It is thus not prudent for the present study to summarise all the strands of editorial theory and the various methodologies that have been developed over time. My interest in editing *MoA* is linguistic and historical; the editorial approaches relevant to this study are ones that I consider to be the most useful for showing *MoA* in this light. Therefore, I will clarify my own editorial stance before focusing on the relevant methodologies in Sections 7.1.1 and 7.1.2.

An edition always has an audience, and that intended audience – or audiences – is one of the cornerstones for how an editor will approach the material they are editing. An editor always has some purpose for editing in the way they have chosen, and that purpose will often include an audience (because what is an edition without someone to read it?). The audience for the present edition is primarily scholarly, and I have prepared the edition with particularly linguists and historians (of science) in mind.

My main editorial purpose is to bring to light all the manuscript copies of *MoA*, hitherto unedited, in order to add to the so far small number of edited alchemical manuscript texts and thus to further the study of early science (cf. Grund 2013: 442). Editing alchemical texts is important for the historical study of alchemy, since more accessible primary sources can bring new insights into our knowledge about alchemical practice and the development of this early science. Editing vernacular alchemical texts is also important for historical linguistics: in this case, the historical study of the English language (cf. Grund 2013). The present study has already shown that *MoA* can be used to examine key aspects of the vernacularisation of science in England.

Given that these concerns are important to me as an editor, my intended audience consists of historical linguists whose focus is on the original language of the manuscript texts, and of historians or other people interested in the development of alchemy. These audiences have somewhat different needs, and my editorial approach seeks to balance those needs. Linguists need an edited text that is as faithful to the *language* of the original historical witness (in this case, the manuscript copy) as possible. Documentary editing, in which the editor intervenes with the original as little as possible, and in which the single original document is of prime importance, is thus the best option when editing a text suitable for the accurate study of language. For antedatings, for instance, a documentary approach is essential: standardising or

[358] See e.g. Greetham ([1992] 1994: 295–346, i.e. Chapter 8) for a history of Western textual criticism and scholarly editing.

eclectivising spellings can obscure unusual and interesting word forms. Historians of science, however, are usually not as concerned with the particular linguistic forms of a text. Their interest lies more in the *content* of the edited text; and for that purpose, a documentary edition with all the witnesses may include too much linguistic detail and not enough contextualisation. For historians of science, an eclectic (or 'direct') edition where the text is drawn from multiple copies might be a more usable resource for examining the content of a work.[359]

However, there are ways of editing that can reconcile these two needs without veering into eclecticism. This is especially important since I disagree with the notion of tampering with historical witnesses as eclectic editions may do if they contain variants from different manuscripts or even editorial 'corrections' to scribal language. This kind of editorial interference is often motivated by the pursuit of authorial intent: making assumptions about what a long-dead author would have intended, and changing the historical source material to conform to this assumption. Indeed, eclectic editing is an especially common method for literary texts – for which it makes more sense, since literary texts often have a known author who had some creative vision in mind when writing. The situation is different for anonymous practical texts, which were motivated more by sharing specific information content rather than the precise linguistic form of that content.

Documentary and eclectic editing are not the only options, however. I consider best-text editing to be a very reasonable option for reconciling the needs of linguists and historians. In a best-text edition, one witness is chosen to represent the 'best' copy of the work or version being edited (I discuss various ways of defining 'best' in Section 7.1.2). Although variants from other witnesses may be indicated in the textual apparatus, the edition still shows a historically accurate representation of one witness, and also has the space to give plenty of historical and linguistic context for full understanding of the work.

Authorial intent, essential for eclectic editing, is not a relevant notion for a documentary/best-text edition, as these kinds of editions are more concerned with what the individual textual witnesses have to say rather than concentrating on seeking an ideal form of the work. In any case, I do not think I could construct authorial intention for *MoA*, as the anonymous author of *Speculum alchemiae* is unknown. Even though *MoA* is a *work*, eclectic editing of it would not further my

[359] It has been an important editorial method throughout the history of scholarly editing (see e.g. Moffat & McCarren 1998: 36–40), but has also attracted criticism. Eclectic editions can be useful for e.g. students of literary history approaching a medieval work for the first time, but are not as useful for linguists wishing to approach the language use of a past time.

goal of producing an edition that can be used for linguistic research. Thus, a best-text edition is a happy medium. I discuss my editorial principles and solutions further in Section 7.3; in the following subsections, I present the theoretical background for those principles and solutions, introducing the two editorial methodologies I employ for *MoA*: documentary and best-text editing. I discuss documentary editing first, as in my overall methodology, documentary editing provides the springboard for preparing the best-text edition.

7.1.1 Documentary editing

Although the edition in Part II is not a documentary edition as such, the documentary approach has vastly influenced my underlying editorial rationale, and as such the basic philosophy behind documentary editing needs to be discussed. Documentary editing is an editorial methodology in which each editorial text has a single source text in one document, whether that document is handwritten, printed, or recorded in some other fashion (Kline & Holbrook Perdue 2008: 87). *Text* is defined as order of words and punctuation in a single document; *source text* here means the same as the medievalist term *exemplar*, i.e. the text the scribe used to copy from; and *document* "consists of the physical material, paper and ink, bearing the configuration of signs that represent a text" (Shillingsburg 1986: 51; see also my discussion in Section 1.3).

In other words, as the very term may suggest, a documentary edition always focuses on a single document or historical textual artefact. Documentary editing concentrates on the artefact and 'preserving' it. The edited text reflects the features of its single source and does not include insertions from elsewhere. Editorial intervention, such as emendations of errors, is kept to a minimum or eschewed altogether. This is in contrast to e.g. traditional critical editing, in which emendations can stem from several witnesses, or even no witness at all in the case of conjectural emendation (cf. Wettlaufer 2013: 3).

The term *documentary editing* became common in the 1970s, although editions with such methodology had been created already much earlier (Kline & Holbrook Perdue 2008: 2).[360] Historians had a major part to play in the development of this methodology (Kline & Holbrook Perdue 2008: 5), with the need for accurate historical documents. It should be noted, however, that e.g. silent expansions of manuscript abbreviations are not as much of an issue for historians as for historical linguists. Kline and Holbrook Perdue (2008: 1–31) provide a historiographical

[360] Marttila (2014: 79) mentions Frederic Madden's 19th-century diplomatic editions of Middle English texts as examples of this history. See below for the term *diplomatic*.

introduction to documentary editing in their *Guide to Documentary Editing* (cf. also Marttila 2014: 77–80). As Kline and Holbrook Perdue (2008: 141) note, the creator of a documentary edition should be familiar with earlier editorial traditions in order to be able to create an authoritative documentary edition. I will not go into the origins of documentary editing here, nor into the long and multifarious history of textual editing (particularly of English texts) in general; for instance, the articles in Fraistat and Flanders (eds. 2013) provide a good overview, and Blake (1998) examines the history of Middle English editing.

The goals of documentary editing do not include divining authorial intent or choosing what readings 'best' suit a historical text. According to disparaging viewpoints, documentary editing is not as worthy a scholarly contribution as critical editing. Documentary editing has sometimes been seen as simple transcription, not involving editorial decisions, since the aim is to replicate the original as closely as possible (see e.g. Robinson 2013: 127). For instance, Greetham ([1992] 1994: 350) thinks of "diplomatic transcriptions" as non-critical. I do not agree with this stance, as even transcription involves many editorial decisions and as such is the result of critical thought and interpretation. Transcription here means the transmission of a (e.g. scribal) text, usually from manuscript to text in a computer file. A 'mere' transcription would not include any of the apparatus, such as contextual notes etc., that a full documentary edition might (and, I think, should) include (see also Marttila 2014: 48–52). A documentary edition always has a transcription as its basis – indeed, like any edition – but the documentary edition is the result of analysis and editorial presentation (Marttila 2014: 81).

Instead of focusing on the author and their intention, the analysis of a documentary edition often focuses on textual transmission and e.g. the historical context and/or the material production context of the document(s) (Marttila 2014: 82). As Kline and Holbrook Perdue put it (2008: 144), "the editor of unprinted sources must make one agonizing decision after another while considering how to standardize details of inscription whose nuances might serve the purpose of some researcher." As my best-text approach involves documentary decisions of this kind, I will describe some of those difficult decisions in Section 7.3. The following, from Kline and Holbrook Perdue (2008: 3), expresses my philosophy on documentary editing, which can also be expanded to encompass transcription:

> The documentary editor's goal is not to supply the words or phrases of a vanished archetype but rather to preserve the nuances of a source that has survived the ravages of time. Documentary editing, although noncritical in terms of classical textual scholarship, is hardly an *un*critical endeavor. It demands as much intelligence, insight, and hard work as its critical counterpart, combined

> with a passionate determination to preserve for modern readers the nuances of evidence. (Kline & Holbrook Perdue 2008: 3)

Documentary editing not being *un*critical is a crucial point. In my approach to *MoA*, I look at the text from a documentary standpoint, as a linguistic witness of a past time, even when I am editing one of the Groups according to best-text principles (see Section 7.1.2). Throughout, the work required is decidedly text-critical even though my editorial philosophy does not involve emendation of the text.

Relatedly, documentary editing has sometimes been considered untheoretical, and indeed, documentary editing has received less theoretical consideration than many other editorial methods (Marttila 2014: 80). However, Ville Marttila (2014: 80–88) provides a thorough look at the theoretical side of documentary editing. As regards the theory: There are various levels of faithfulness to the source text even in documentary editing. Kline and Holbrook Perdue (2008: esp. ch. 5) divide them as follows:

1) photographic and typographic facsimiles,
2) editorial texts requiring symbols or annotation,
3) diplomatic transcriptions,
4) inclusive texts and expanded transcriptions, and
5) clear text.

These approaches are listed according to the level of fidelity to the source, which I consider a useful scale. A facsimile edition (approach 1) reproduces the original either as photographs or with typography that "attempts to duplicate exactly the appearance of the original source text as far as possible within the limits of modern typesetting technology" (Kline & Holbrook Perdue 2008: 147). At the other end of the scale, clear texts (approach 5) "contain neither critical symbols nor footnote numbers to indicate that an emendation has been made or that some detail has been omitted" (Kline & Holbrook Perdue 2008: 173); instead, the editorial changes are noted at the end of the edition. Marttila (2014: 86) considers approaches 2, 3, and 4 to be most conducive to linguistic research. Editorial texts with symbols or special annotation (approach 2), as Marttila notes (2014: 86), are not really a separate level of fidelity to the source but refer to editions "that use a variety of textual notes and editorial symbols to represent" elements appearing in the edited material.

Approach 3, diplomatic transcription, has a long history especially in the editing of medieval legal documents – which is where the word diplomatic comes from (Latin *diploma* 'charter'). Diplomatic transcriptions tend to be very faithful to the original text, transcribing letter for letter, word for word, symbol for symbol, etc.;

but there is latitude for emendations even within this category (Marttila 2014: 87). However, diplomatic transcriptions should operate on the *graphemic* level, or the level of meaningful semantic unit in written language – that is, distinguishing all the different letters, but not letter-forms; an editorial distinction between long and short <s> would be transcription on a *graphetic* level (ibid.).

Approach 4, or inclusive text / expanded transcription, stands between the clear text and diplomatic transcriptions: for instance, abbreviations may be expanded, but they are indicated to the reader. This approach can also be called *semi-diplomatic*. This is the approach that the best-text edition in Part II belongs to: I will detail my approach to inclusive text in Section 7.3. The transcriptions that are part of my edition also belong to approach 4, although they have far less editorial apparatus than the best-text edition.

The benefits of documentary editing are especially relevant for linguists. Indeed, Marttila (2014) argues that documentary editions are essentially the only useful kind for historical linguistics (see also Grund 2006b). In this Marttila agrees with Lass (2004), who notes that historical linguists need reliable witnesses of the language of the past, and documentary editions are the most useful for that purpose, since they aim to represent the original text as accurately as possible. Not all linguistic research needs the same level of detail, of course – for many studies, normalised spelling is needed. But for instance, research into the possible pronunciations of the past requires non-normalised orthography. Editions omitting aspects of the original text such as original punctuation, as well as editors providing their own emendations and insertions, can in effect create a historical fallacy. Although such editions may be useful for some research purposes, they are not a source of historical language use. As has become clear in the present study, medieval textuality is fluid and medieval texts reflect that (cf. Marttila 2014: 66–69). Thus, in my view, an edition seeking to show historical language use should also reflect the fluidity and variation.

Parallel editing is one way to represent multiple witnesses of a work (see e.g. Griffin 2013, with two recensions): parallel editions present full documentary renditions of multiple witnesses side by side (Marttila 2014: 94). However, this approach was not a possibility for *MoA* because of the four translations being different enough to make exact comparisons between them challenging (as described in Chapters 5 and 6); and in any case, a printed parallel edition of four different versions, with seven manuscript witnesses, would be too cumbersome to be of actual use to a reader. A digital edition might be more feasible for such an approach: indeed, currently, documentary editing is much connected with digital editing (as in Marttila 2014; cf. Pierazzo 2014). Digital editing offers excellent possibilities for the documentary approach, as it is easier to present multiple versions and there is no limit to how much text a digital edition can incorporate (see the editions by Newman

2005; Honkapohja 2013; Wiggins et al. 2013; Marttila 2014; see also the *Catalogue of Digital Editions*).[361] The transcriptions which are appended to the best-text edition are not intended as a parallel edition, nor even a proper documentary edition, as they do not include the full editorial apparatus an edition would require. However, the transcriptions form the kernel which the best-text edition has been built around, and they are, in essence, a chrysalis of what will eventually form a parallel documentary edition.

7.1.2 Best-text editing

In this section, I will outline the methodology of best-text editing to lay the groundwork for the edition in Part II. First, a reiteration of the definition of *best-text edition* is needed, as the term has meant rather different things over time and can in fact encompass varying editorial philosophies. Hanna (1987: 87) considers there to be "minimal problems" with *defining* best-text editing: "Such an edition chooses one copy of the work as qualitatively superior to all others and follows that copy's readings with greater or less pertinacity." However, this definition is not very specific either: "greater or less" can be interpreted in many ways.

The focus on one copy of the work is key to best-text editing. One copy is chosen to be the base text of the edition. This is reiterated in the following definition for best-text editing used by Kelemen (2009):

> An editorial approach that (using various criteria) chooses one *document* as the least corrupted, and reproduces its *text* as closely as possible. (Kelemen 2009: 567)

In Kelemen's definition, the document to be chosen is "the least corrupted", although corruption is a contentious term, as it has been used in textual scholarship to defend editorial intervention (Marttila 2014: 60); in addition, a document reproducing its text "as closely as possible" implies that the editor has views on what is the most original form of the text or work. Marttila (2014: 61) also views best-text editions as being connected to authors when he defines best-text editions as being based "on a single manuscript deemed by the editor to be as close as possible to the authorial original". However, I do not think seeking an authorial original needs to be a goal for a best-text editor, especially in situations where authorial intent is not relevant –

[361] Although a digital edition was not feasible within the present study, I am planning a digital documentary approach to the witnesses of *MoA*.

such as with *MoA*, an anonymous alchemical work. Other criteria can be much more important. I "accept the loss of the original composition" (Moffat & McCarren 1998: 31), and consider the linguistic and alchemical-historical evidence of the surviving witnesses to be of primary importance.

Indeed, there are many different rationales for even choosing the base text of a best-text edition: 'best' can refer to language, chronology, completeness, prestige related to production circumstances, and so forth. In other words, the base text that is chosen may be the 'best' because it is the oldest extant copy; because it is the most complete copy of a work, the others being fragmented; because it is a decorated copy donated to royalty; or many other reasons. In my view, the editor should always explicitly articulate their reasoning for choosing their base text. I will do this in Section 7.3.2.

Hanna (1987: 90) notes that some proponents of best-text editing seem to confuse the concept of a 'best text' with that of a 'perfect text'. I agree that it is important to separate these two concepts: the 'best text' for a particular edition, in my view, does not indicate that that text is 'correct' or that its readings are in all possible instances better than in other witnesses. It is simply the best text for the job, not the immaculate witness (there can, I think, be no such thing in historical study). Textual criticism of the material being edited is always necessary even if a 'critical' or eclectic edition is not desirable. I agree strongly with Tavormina's stance (2019: cxii): "The base text should thus be seen as *a* 'best text', in terms of presenting its uroscopic content, though not necessarily a perfect text or *the* 'best text'." In other words, I consider **T** to be *a* best text concerning the alchemical and other content of *MoA*, and I am not claiming it is the most 'original' or significant of the witnesses.

Best-text editing is usually categorised as critical editing, and emendation of at least obvious errors is usually assumed to be part of the editorial rationale. As Greetham ([1992] 1994: 353) remarks: "The critical edition will therefore contain emendations". As already discussed, I do not agree that emendations are an essential part of a best-text edition; however, commenting on the errors is (cf. Moffat & McCarren 1998: 32). Indeed, one of the criticisms of best-text editing is that if it is intended as an authentic representation of a single witness, it should not correct "even the most obvious blunders" (Moffat & McCarren 1998: 33). This is where combining a more documentary approach with best-text editing can prove useful.

The history of best-text editing is swathed in the search for authorial intent. Greetham ([1992] 1994: 325) summarises the origins of present-day best-text editing in Joseph Bédier's (1864–1938) work; Bédier suggested "that once having established – by linguistic, historical, codicological or other grounds – that a particular manuscript best represented the author's wishes, this manuscript (or "best-text") should thereafter be followed religiously." Here, of course "the author's

wishes" is a critical point: Bédier was interested in authorial intention. Greetham ([1992] 1994: 325) criticises Bédier's position, suggesting that even as Bédier rejected an editor's ability to divine an author's preferences for individual word choices, he thought it possible for an editor to find the best manuscript based on authorial intent. Greetham appears to be very critical of best-text editing on the whole.

Indeed, best-text editions are not unproblematic, especially if the editor seeks the perfect text (for criticisms of the best-text approach, see Moffat & McCarren 1998: 32–33). Allen (2013: 294) mentions a major criticism of Bédier's best-text approach: even though the approach seeks to reject stemmatics (or the establishment of a single chain of transmission), finding the 'best text' in fact requires "a process of recension, and [is] either derived from a putative stemma or from subjective assessment of the authorial *usus scribendi*". By this Allen means that in order to decide which witness is the 'best' (depending on the criteria used, see above), the editor must have already performed editorial work and have made decisions regarding which witness might be the most 'authentic' or closest to the author. This is indeed a valid concern, since a best-text edition where the base text is picked at random from whichever witness is the most readily available is not as useful a scholarly contribution as an edition where the base text is chosen with care. An editor should acquire sufficient knowledge about the relevant witnesses of the work/text being edited. However, Allen's criticism relates to the concept of 'best text' in which the 'best' text is the 'original' or authorial text: "The attempt to isolate the 'original' form teeters precariously on modern cultural assumptions of literary merit" (Allen 2013: 294). In other words, many of the issues with best-text editing are in fact mitigated if the rationale for choosing a 'best' text is not related to concerns of authorial intent, but is based on e.g. historical circumstances or – in the case of *MoA* – after transcription and initial analysis of the textual relationships of the copies. It should be noted, however, that Allen (2013) generally seems to consider authorial intent more important than the present study does.

Best-text editions have been seen as better suited to non-literary rather than literary texts, although this depends entirely on the purpose of the edition: a literary text intended for e.g. linguistic study would be well suited to a best-text edition. Hanna (1987: 88–89) posits two theoretical arguments for the necessity of best-text editions. The first of these involves the editor's intended present-day audience being a kind of stand-in for the 'original', medieval audience. According to this view, the modern reader, with a best-text edition replicating the reading experience of one single manuscript copy, is likened to a medieval reader experiencing the text through the mediation of only one manuscript copy (1987: 88). The argument against this, of

course – noted by Hanna – is that this assumes that the medieval reader only had access to one copy of the text. This may not always have been the case.

Hanna's other theoretical argument (1987: 89), which he calls "conservative", is related to preserving the original, historical texts: the reader should not be presented with "a modern construct" such as in an eclectic edition. I think this argument holds water better than the argument for a medieval audience – even though Hanna himself does not appear to agree, as his article is about the issues of best-text editing. Hanna argues, echoing Allen (1984: 99), that 'asserting' a single manuscript such as in a best-text edition is "the ultimately eclectic editorial act" (Hanna 1987: 89), since the single manuscript represents "all the decisions of a single mind" and an edition relying on such a manuscript accepts those decisions uncritically. I disagree profoundly with this notion, as it is hardly eclectic for an editor to only choose a single point of departure for an edition – especially if, as it should be in a good best-text edition, the choice of base text is the result of a careful process of selection. A best-text edition, especially one without emendation, can present an authentic historical witness much like a documentary edition does, and any textual apparatus comparing the base text to other witnesses only adds to it. An eclectic edition where the reading text is a conglomeration of various sources, especially if the selection of variants is not thoroughly transparent to the reader, is far more misleading in terms of historical accuracy.

For the purposes of the present edition, I define *best-text edition* as an edition using one individual manuscript copy as the source for the edition, and representing it as accurately and faithfully as possible. Variants from other manuscript copies can be displayed in the critical apparatus of the edition, and e.g. scribal errors can be indicated in the apparatus, but the text of the edition itself should reflect the actual manuscript reality, including deletions and corrections, etc. This is the approach that I take in the present study; my best-text edition is also influenced by documentary editing. I will discuss my reasoning for why a best-text edition using this approach is the best option for editing *MoA* further in Section 7.3.

7.2 Editorial issues and possibilities in *MoA*

I will now move from the theoretical and general level of the previous section to a practical and specific level: I will discuss the editorial issues and possibilities that *MoA* in particular poses. In the present section, I will first unravel some of the editorial history of alchemical writings in order to contextualise the features of *MoA* relevant for an editor, and next I give an overview of those particular features of *MoA* that have influenced my own editorial choices and approaches. Some of these

features have already been mentioned in the previous chapters, but I will examine them now in an editorial light.

7.2.1 Editing alchemical and early scientific writings

> "Making these writings accessible, in the fullest sense of the word, to all students of later medieval England is the responsibility of and indeed the greatest challenge to their editors." (Keiser 1998a: 122)

Keiser, in the quotation above, is concerned with Middle English scientific writings in general. Indeed, many of the challenges involved in editing *MoA* stem from features common to early scientific texts, although alchemical texts of course have their specific editorial needs. The paucity of edited works compared to the extant manuscript material is an issue with regard to alchemical material in particular. However, despite the *relative* lack of scholarly work, there is by no means a vacuum of knowledge in the field of early scientific editing. Indeed, there is material to compare and contrast one's own editorial principles and framework with. Alchemical poetry has received slightly more editorial attention than alchemical prose, with five editions of ME alchemical poems (listed in Grund 2013: 431: fn. 14). One of these is Reidy's edition (1975) of Thomas Norton's *Ordinal of Alchemy*, a critical edition using one manuscript as a base text but inserting missing text from a closely related manuscript (Reidy 1975: xxi). Timmermann (2013; one of the editions referred to by Grund) conducted a rigorous examination of alchemical poetry, and also edited several poems as well as some short prose texts.

There are fewer editions of ME alchemical prose texts than of poetry. Grund (2013: 431–432, fn. 15) lists only four. In order of date of publication, these are Frederick J. Furnivall's *The Book of Quinte Essence* (1866, repr. 1965); Willy L. Braekman's *The Waters of St Giles* (1988); Marguerite A. Halversen's *The Consideration of Quintessence* (1998, unpublished doctoral dissertation), and Beata Wojtalik's *Tamyrtone* (2010, unpublished master's thesis). Only one of these (Wojtalik 2010) is from the 21st century. Furnivall's edition ([1866] 1965) is mainly edited from a single 15th-century manuscript.[362] Braekman's edition (1988) is very short; it is a critical edition that mostly follows the text in one manuscript, but inserts 'better' readings from other manuscripts. I have not been able to access the two

[362] There are only two manuscript witnesses of *The Book of Quinte Essence*. Furnivall's edition uses a 16th/17th-century manuscript to elucidate some readings, but the readings in the primary manuscript are not corrected.

unpublished editions. To my knowledge, no scholarly editions of Middle English alchemical texts have been published since 2013.

In addition, there are some modern editions of Early Modern English alchemical writings. Linden (1992), of course, has edited all the works in **Oli**, presenting "a text that is accurate and reliable" (1992: xlvii). In other words, Linden has a documentary approach, and used one copy to edit from (ibid.). He also generally preserves the original orthography and some typographical features (e.g. capitalisation and use of italics). However, he has "corrected obvious typographical errors and introduced a very few emendations where context and sense appear to dictate the need to do so" (ibid.), using the source texts in *Miroir* (1557) and *De Alchemia* (1541) to justify these emendations. Linden has also modernised/regularised some variation such as u/v, i/j, and has changed <y^{e}> and <y^{t}> to <the> and <that>. Using the categories for documentary editions listed in Section 7.1.1, Linden's edition mainly has a clear text approach (category 5), although he does indicate emendations with asterisks in the text. Although I have opted to include corrections for clear errors in *MoA* only in the textual apparatus, not within the text, I consider Linden's emendations to be very reasonable, as they mainly do correct errors arising from the typesetting process (e.g. replacing <d> for erroneous <b>). However, in my editorial view, the modernisation of spelling that Linden engages in makes his edition a less reliable linguistic witness.

Another edition of Early Modern English alchemical writings is the *Chymistry of Isaac Newton* project, a digital documentary edition collecting all of Newton's writings on alchemy, including texts he copied from other sources (Newman 2005). This edition includes both diplomatic and normalised transcriptions, in which the diplomatic transcriptions represent all aspects of the original (often complex) manuscript page, and the normalised transcriptions expand abbreviations and make the text more readable by e.g. omitting the frequent authorial deletions. However, even the normalised transcriptions do not emend Newton's spelling or make other emendations.

An edition which has similar principles to my own is Grund's (2011b) edition of an untitled 16th-century alchemical prose treatise by Humfrey Lock. Grund's edition is a best-text edition of one of the manuscript witnesses; he indicates major variation from the other witnesses in the textual apparatus, focusing on the variation between two manuscripts, as there are many witnesses of the treatise (2011b: 127). Grund does not emend readings in the base text even in the case of clear errors (2011b: 126). As will become clear in Section 7.3.1 and the Editorial Principles to my edition, Grund's editorial choices correspond in many ways to the choices that I have made, although there are also differences.

If more alchemical works were to be edited – and I hope they will be – there would be more direct comparisons with regard to the practicalities of editing an

alchemical work like *MoA*, and it would mean more fruit for comparison with each editorial choice. Since alchemical editions with similar editorial philosophies to my own are not plentiful, I have needed to make decisions that can in turn perhaps form editorial precedents for future editions. I have examined a wide variety of editions and prepared the edition of *MoA* based on aspects relevant for this particular scientific work. A notable difference compared to the earlier editions is my decision to include both ME and EModE materials within the same edition, as *MoA*'s witnesses encompass both and I consider it important to represent the longer-term transmission of the work. My editorial work thus acts as another example of how to edit early scientific material. In my view, sidestepping the artificial boundary between Middle and Early Modern English, for instance, should be a given in editions where there is material from a longer time period. However, this is still not often done.

The lack of previous editions is not the only challenge with regard to editing alchemical texts. As has been mentioned in Section 1.2 and expanded upon in Section 3.2.1 (see also Norja 2019), the first step and first challenge in the editorial process is finding the material to be edited, which is not always straightforward. In the case of *MoA*, I documented this process in Section 4.1. Additions, deletions, and rearrangements are all part of the textual transmission process of alchemical and other early scientific writing. In addition, understanding the cultural and scientific contexts of the texts (Mooney 1998: 127) is as important for alchemy as it is for astrology. Mooney also mentions the importance of considering the audience of the edition (1998: 130) – this is also true for alchemical texts, as the audience in part determines the depth of explanation of scientific concepts. Explicating the cultural and scientific context of *MoA* is one of the primary functions of the explanatory notes in the best-text edition and was a key focus in Chapter 2 of this study.

7.2.2 Editorial possibilities of *MoA*

In this subsection, I move from the more general level of features that an editor of any alchemical text will have to consider to issues that I have had to take into account concerning editing *MoA*. These issues all stem from the kind of work that *MoA* is and the kinds of witnesses that it is extant in. One of the major features of *MoA* is that it is a translation. When editing a translation, Keiser (1998a: 112) advocates for finding the source of the English text if possible. I have done this as far as possible in Section 6.2. The source could also be used to test readings in the ME version (Keiser 1998a: 115; see also Machan 1988). While neither the best-text edition nor the transcriptions of *MoA* employ emendation, I used *Speculum alchemiae* as well as *Miroir d'alquimie* in Chapters 5 and 6 to compare to certain sections of *MoA*.

Keiser cautions against being too confident in one's capabilities to understand a translator's intention when a source text is available (1998a: 116): "the editor must not overlook the possibility that the translator misread the source or relied upon a different text than that on which a modern edition of the source is based". However, this problem seems mitigated in the present study, as I acknowledge that I have not been able to find the source texts for the more ambiguous cases of Groups 1 and 2. Since scribes/translators could also act as compilers, adapting the source and adding information of their own to the translated text (Murray Jones 1989: 88), their role as active agents in the translation process should not be discounted (cf. Group 2).

The issue of translators acting as compilers relates to another issue with regard to editing *MoA*, textual fluidity. There are four versions/translations of *MoA* and choosing what to edit in the first place can be a difficult choice; however, a related issue is what to do with sections inserted into some copies that are not part of the work as a whole. This is not a huge issue with *MoA*, as only two of seven manuscript copies (**GaS1**) include insertions into the text of *MoA* and provide more challenges with regard to textual boundaries. However, textual fluidity is still an issue, especially with **S1**, in which the scribe has only copied the first three chapters of *MoA*, and has inserted portions of other text within even that span. In the case of **Ga**, which has a smaller portion of added text at the end of Chapter VII, there is also the question of what to include in *MoA* and what to count as being part of another work. Omission of larger portions of text is an issue for one witness of *MoA*: **C**, in which pages are physically missing from the manuscript. However, these issues of omission and addition are editorial challenges that the transcriptions appended to the best-text edition can alleviate, as all copies are available to the reader. In addition, in *MoA*'s case it is fortunate that in both the cases of **C** and **S1**, another witness of the same translation exists: **T** and **Oli**, respectively.

Another matter to take into account is the connection of manuscript and print, a continuity which is stressed by Hunter (2009: 7), like many others. In the case of *MoA*, two of the translations are intrinsically tied to print: Groups 3 and 4. In Group 3, **S1** is a partial copy from **Oli**, and in Group 4, **S2** is a translation from *Theatrum Chemicum*. *MoA* thus shows the indisputable importance of print in the distribution of the work, and I have paid attention to that aspect in this study.

The print/manuscript connection is made possible in the first place by the textual history of *MoA* stretching over as broad a period as it does. However, this diachronic view presents editorial challenges of its own. As the manuscript copies date from the 15th to the 17th centuries, I have to expand my editorial methods to accommodate material from both the medieval and early modern periods. The linguistic difference is not extreme, as the earliest copies of *MoA* are from the *late* 15th century and thus closer to the English used in the early modern period than e.g. Chaucer's English.

However, the witnesses of *MoA* still provide evidence of language change as well as changes in manuscript production and copying practices. An example of the convergence of both these things is the use of abbreviations. While the earlier copies of *MoA* (**ACT**) use abbreviations common to medieval English manuscripts, the later copies (**GaGbS1S2**) have far fewer abbreviations in general. The best-text edition of **T** (with variation from the other Group 1 witnesses indicated) also shows this challenge, as one of the 16th-century copies, **Gb**, is included in Group 1. Editing only a medieval copy of *MoA* might be seen as erasing the work's early modern continuity. However, the inclusion of separate transcriptions of all the other Groups in part mitigates this issue.

Representing the corrections and annotations common to early scientific texts, and other features of the original manuscripts – abbreviations and their expansions, special alchemical symbols (mainly a concern for **S1**, however, i.e. not for the best-text edition), deletions and additions, marginalia, and other such features – is part of the difficulty of editing *MoA* in particular. This is of course an issue far from unique to alchemical material: indeed, it is to at least some extent true of all medieval and early modern manuscripts. Below, I will discuss how to represent these features accurately, providing a reliable record of the original historical document, but in a way that does not get overwhelmed by detail.

One issue of editing *MoA* is the challenge of fully understanding what is being said in all the witnesses. However, compared to alchemical texts which abound with metaphors and *seek* to obfuscate their meaning from the uninitiated, *MoA* is fairly straightforward. The metaphors that appear are standard alchemical fare, and although one of the main editorial challenges is figuring out what alchemical processes are referred to, the treatise is not as impenetrable as it may seem at first glance. My commentary to the best-text edition elucidates those metaphors and thus presents a solution to the problem of *MoA* being difficult to understand.

7.3 Solutions for editing *MoA*

> "The gist of the matter is to decide what is to be done, to state this clearly, and then to do it." (Denholm-Young 1954: 84)

In this section, I go deeper into the reasoning behind my editorial choices. Denholm-Young's advice, quoted above, is sound, even though his editorial approach is in favour of extensive and unmarked editorial intervention. Conversely, my approach includes both documentary and best-text approaches, neither of which involve unmarked editorial intervention. Indeed, the boundary between documentary and

best-text edition in the present edition is not as stark as in some other best-text approaches. In what follows, I turn to the practical side of the edition in Part II and describe my own framework for editing *MoA*. In my editorial philosophy, editing is always a subjective task. Subjectivity in this case is not a bad thing, however, as it is an inevitable part of the critical work of an editor. In what follows, I will discuss the benefits of a best-text edition springing from a documentary approach for *MoA*, and describe the overall structure and principles of Part II's best-text edition of *MoA*.

7.3.1 Editorial aims

> "In fact the heart of the edition is not its text but the judgements that underlie the text." (Love 1992: 349)

The above quotation on editing scribally published early modern material is also relevant for my editorial concerns. I do not emend mistakes in *MoA*, but I have made many an editorial judgement during the editorial process. This is related to the important concept of "textual responsibility" (Lass 2004: 39), concerning the responsibility that someone editing historical material assumes when they begin the editorial project. I have considered textual responsibility a great deal, as one of my great editorial concerns is to faithfully represent *MoA* as a historical witness.[363]

An editor in the present day has the weight of previous editorial theories and previous editorial practices behind them, but also the support of that theory and practice. Making a medieval text accessible for a present-day audience is its own kind of vernacularisation, bringing past knowledge to the present. In this section, I outline my editorial principles on the more general level of editorial philosophy, and describe the practices I use in Part II. The Preface in Part II presents my more specific editorial principles. I focus especially on how documentary editing has influenced my approach to best-text editing. Every edition is unique; indeed, I have not used any previous edition of alchemical material as my sole model, although Grund (2011b) is very close to my own editorial views.

I could not have encapsulated the whole textual history of *MoA* in a single eclectic edition, as the different translations are too different to enable collation between the Groups. I do not aim to establish an authoritative text in the best-text edition: my aim is rather to present a representative example of one version. To study

[363] Cf. the STRATAS project at the University of Helsinki, led by Terttu Nevalainen, which – amongst other things – seeks to chart the reliability of editions for linguistic research (e.g. Sairio et al. 2018; see STRATAS 2016–2019).

the linguistic history of science, we need editions that present the text as it was originally written down by an individual scribe. To that end, my best-text edition does not include emendations nor does it mix readings from different copies of *MoA*.

Relatedly, I prefer to use the terms *variant/variation* as opposed to e.g. *error/corruption* (cf. Marttila 2014: 68), as my study is in general aligned with a variationist view of language history (also espoused in e.g. Nevalainen 2012). A notable thing is the fact that scribes also at times corrected their own errors; Wakelin (2013) considers these scribal corrections important, and notes that they should not be ignored by editors. I agree with his views, and my editorial principles include indicating all the layers of scribal activity, corrections and all (even the sometimes incorrect 'corrections' of later annotators).

Although the present edition is not digital and thus cannot directly enable e.g. using the material in corpus linguistic research, my approach – a documentary take on the best-text edition – ensures that the *MoA* written down in **T** and presented in the best-text edition is a valid source for future research in historical linguistics. Enabling linguistic research is indeed one of my core principles (cf. the discussion on the reliability of editions for linguistic research in Bailey 2004). As Marttila (2014: 69) says: "What thus remains as the task of scholarly editing is the provision of useful and analytically powerful representations of historical textual objects for the purposes of textual criticism and other kinds of literary, linguistic and historical research." Although Marttila advocates for digital editions, in this printed edition I have provided as accurate and useful a representation of the historical textual object that is **T** as possible.

Indeed, a term that encapsulates what I have done throughout this study (especially in Chapter 5) and what the edition in Part II embodies is the principle of *rhizomorphism* or a *rhizomatic* view on editing (Marttila 2014: 68). As Sargent (2013: 509) defines it, "A rhizomorphic historical edition would not attempt to trace all forms of the text back genetically to an idealized Urtext but would seek rather to demonstrate the relations of the surviving manuscripts to each other in a textual network". The textual network of the witnesses of *MoA* is far more important than any purported Urtext. This is especially true since the existence of four different translations of *MoA*, at different times, makes it clear that there *was* no single Urtext for these witnesses of the same work.

My stance on editorial interference in the best-text edition is similar to documentary methodology: I aim to present the authentic historical witness as closely as possible, clearly indicating any changes I have made to the text, and inserting as little of my own interpretation as possible. Editing of any sort is, of course, interpretation; however, I aim to at least be open about the ways in which I have interpreted and thus presented *MoA*. My editorial principles, summarised in

Section 7.3.2 and detailed in Part II, show that I have made some modifications to the text in both the best-text edition of **T** and the documentary transcriptions of the other Groups. The most visible of these modifications is the expansion of abbreviations, which inevitably involves editorial interpretation concerning the expansion. However, I have always indicated when I have intruded into the original text. The expansion of abbreviations is potentially problematic, as the reader cannot be sure based on the expansion which abbreviation symbol the scribe used. However, I have considered it more important in this case for the best-text edition and the transcriptions to be accessible for a wider audience, including those unfamiliar with medieval abbreviation systems. A future digital edition of the witnesses of *MoA* could solve this issue, as in a digital edition it is possible to include both the abbreviation symbol and the expansion.

In the context of the present edition, the transcriptions which supplement the best-text edition are indeed just that, transcriptions. However, they are also a result of my editorial work and benefit from the contextual notes in the best-text edition. The transcriptions themselves, too, also involve plenty of editorial decisions in transmitting the text from the unique manuscript copies to the uniform nature of words in the same font, in similar word processing documents.

Hunter (2009: 2), in his introductory book on editing early modern texts, calls for "an exposition of [the editorial principles'] underlying rationale"; he would like editors to reflect more on their editorial principles and to be critical of them. I agree with him on the importance of editorial principles. They should be the cornerstone of an edition. The following thus includes self-reflexion on my editorial aims, before (in Section 7.3.2) describing the principles that I have employed in editing *MoA*. The edition in Part II has the following **aims**:

- To present the text of an early version of *MoA* (represented by **T**) as an example of a medieval alchemical work.
- To produce a faithful representation of the manuscript texts being edited, faithful especially to the original linguistic and orthographic forms, so that linguists can use them in their research.
- To seek best practices for editing *MoA*.

Space is a concern in printed editions. Since *MoA* is a fairly short treatise, it is possible for me to include all four translations in the present study. Were the treatise considerably longer, I would have to choose which translation to pick as the one to be fully edited. Even if *MoA* were far longer, of course, a digital edition would still be possible, as digital editions are not confined by page limits, and it is not a problem to reproduce multiple versions of the same text.

Since a central argument of this study is that there are indeed four different translations, it seems essential to produce the texts of all four translations in the printed version of this study, so that readers can evaluate my own observations. My editorial approach stems from close reading and analysis of *MoA,* and has developed during the course of preparing this study. My specific editorial practices are dependent on the specific features of *MoA*; however, my edition offers one model for editing alchemical texts that may also be applicable to other works. I argue that there are great editorial benefits for *MoA* to appear in a best-text edition springing from a documentary approach; I discuss this further in the next section.

7.3.2 The best-text edition

My process for creating the best-text edition started, as all editions must, by gathering together the material to be edited. I described this not entirely simple process in Section 4.1.1. I transcribed all the manuscript copies of *MoA* very soon in the editorial process, as I could only unravel their textual relationships through detailed examination of the manuscript text. My initial analysis already showed the major divisions into Groups, although I could only uncover the full textual connections through collation of related copies. My analysis revealed the division into four Groups, and that these Groups represent different translations of *MoA*. Armed with this knowledge, I could finally choose a base text for the best-text edition. I prepared the best-text edition in Part II, building a textual apparatus from the other copies in Group 1 and preparing the Commentary and Glossary. My editorial work has happened side by side with the research for this study; the editorial work has affected my analysis as well as the incorporation of necessary background (e.g. Chapter 2), and my analysis has shown which aspects of the edition needed more attention.

I had to transcribe all the manuscript witnesses, engage in close reading of them, and analyse their textual relationships before I could decide which Group to choose for the best-text edition in the first place, and which copy from Group 1 was my ‘best’ text. I knew fairly early on that Group 1 was a good candidate for the best-text edition. The major reason for this is that the Group 1 translation is the only one to include Middle English witnesses. Since there is a lack of editions specifically for Middle English alchemical texts, I consider editing the medieval witnesses to be of fundamental importance, as *MoA* in Group 1 shows some features of early scientific writing relevant for possible future research.

Another factor that cemented my choice later in the editing process is that the translation of *Speculum alchemiae* witnessed in Group 1 is not directly related to the translation that eventually became part of the printed tradition and thus influenced

Groups 3 and 4. In other words, the translation in Group 1 has never been edited before. It is a translation that represents a different tradition of *Speculum alchemiae* than that which ended up being printed, and yet the fact that there are five surviving English witnesses of this translation suggests that it was circulated to some extent in its time.[364] The translation has the 'preamble' and list of chapters, and is thus also unique in terms of textual structure. There is as yet no scholarly edition – or indeed, any edition – of the version of *MoA* found in Group 1. The version found in Group 3, as **Oli**, has been edited by Linden (1992); and although the versions found in Groups 2 and 4 are distinct, both Groups consist of only one copy and thus the comparison of textual variants cannot be done as it can for Group 1. However, the other Groups are represented in the transcriptions that are part of the edition. Regarding Group 3, the other group with more than one copy: I wanted to highlight the manuscript copy in **S1** by including it in the transcriptions even though it is fragmentary.

The case of Group 1 involved much editorial decision-making when it came to selecting the 'best text' of the four manuscript witnesses. My reasoning for choosing **T** as the base text for Group 1 is based on criteria of chronology and completeness. **T** is one of the oldest witnesses, being from the 15th century, and textually it appears to be the most complete of the Group 1 witnesses, as my analysis in Section 5.1.2 shows: it has a rubric, prologue, preamble, list of chapters, all seven chapters, and an explicit. Greetham ([1992] 1994: 362) cautions that the oldest text does not necessarily have more authority than newer ones; however, in the case of alchemical material, having specifically Middle English manuscript evidence is in fact of great scholarly interest, and thus one of the two medieval witnesses, **T** or **C**, was my primary focus (cf. Grund 2013).

T's completeness is relevant, as **C**, which is also dated to the 15th century, has sections missing due to mutilation of the manuscript, and thus would not be a sensible choice as base text. Calling **T** 'complete' does not mean I am arguing for its being more 'original' or 'correct'; as there are so few witnesses of *MoA*, there is not enough evidence to support **T**'s claims as to authenticity. However, it is undeniable that **T** is the longest of the copies in Group 1, and thus is well suited for collating the other copies against. The following quotation is related to documentary editing; however, it also relates to my reasoning for choosing the base text for the best-text edition:

[364] As mentioned previously, the fifth witness, now UvA MS PH319, was not available as material for my study.

> By choosing one version over another, editors do not deny readers access to significant differences among versions of a document. The source text is simply the one that serves as the best working basis for the edition and most closely meets the needs of the edition's audience. (Kline & Holbrook Perdue 2008: 90)

T is "the best working basis" for my best-text edition of Group 1, and the one that presents the most complete version of *MoA* to the edition's audience, that is, meets their needs with regard to receiving more knowledge of the work's content. Thus, in the interest of it being the oldest complete copy of the Group 1 translation of *MoA*, I elected **T** as the base text. However, I also indicate major variants (differences in syntax and meaning) from the other manuscript copies (**ACGb**) in the textual apparatus because they give the reader access to all the variation that is analysed in Section 5.1. As I had access to only three witnesses in addition to **T**, it was possible to include them all in the textual apparatus. I have discussed the most significant of the major variation in Group 1 in Section 5.1.2. Minor variation is so ubiquitous, of course, that I have not included it.

Greetham ([1992] 1994: 347) divides scholarly editing into critical and non-critical editing. He defines a critical edition as one in which an authoritative text is established using the tools of textual criticism, with multiple witnesses collated and compared. Using Greetham's definitions, the best-text edition in Part II is non-critical, since I 'merely' reproduce one copy of the text and do not emend it, as I use methodology from documentary/diplomatic editing (cf. Greetham [1992] 1994: 350, where "diplomatic transcript" is given as a non-critical editing option). According to Greetham ([1992] 1994: 353), "The critical edition will therefore contain emendations, and these emendations will involve one level or other of editorial conjecture."

I disagree with the notion of transcriptions, and by extension, documentary and non-intrusive editorial methods being non-critical. Greetham states ([1992] 1994: 351) that "non-critical editions by definition do not involve any criticism of the text", but this depends on how one defines that criticism. In my view, the textual work in this study's previous chapters – especially examining textual relationships through collation and determining the different Groups – is certainly textual criticism, even if my editorial philosophy does not see emendations and establishment of an ideal text as a good option for *MoA*. In addition, the textual apparatus indicating variation with the other Group 1 copies in the best-text edition is the result of critical work.

Editorial practices

In what follows, I outline my editorial practices for the best-text edition on a broader level; the precise choices appear in the Editorial Principles in Part II. My approach, as has become clear, is informed by documentary editing. I have been influenced by Lass's (2004) general principle of preserving as much of the original as possible when transferring it from one format (manuscript) to another (PDF or printed page). My primary concern is linguistic accuracy, and my focus is on the text: so, for instance, I do not note damage which is visible on the page but which does not obscure the text. However, despite my focus on the linguistic content, I also indicate visual features such as rubrication, since they can have relevance for the interpretation of the text. My aim with the best-text edition in Part II is to provide researchers, especially linguists, with new historical textual material, but also to allow a more general reader access to *MoA*.

The text of the edition is from one manuscript source only, **T**, although the major variants from the other Group 1 copies appear in the textual apparatus. My edition is a semi-diplomatic one with inclusive text: I have expanded abbreviations but indicated my expansion with italics (Greetham [1992] 1994: 368). This interpretation has the chance for pitfalls, of course: sometimes my expansions may not be correct. However, I have interpreted the context of *MoA* as best I can. The transcriptions that follow the edition conform to the same general editorial principles as the best-text edition.

The textual apparatus also includes my indications of errors in the base text of **T**. By error, I mean misspelled words, misunderstandings, or missed items due to e.g. eyeskip. It should be noted, though, that I do not *correct* any of these errors, as my conception of a best-text edition does not involve editorial interference to such a degree. I indicate clear errors to the reader but leave the scribal text on the page, errors and all. This is different from Hanna's conception of a best-text edition (1987: 88), in which he appears to assume that best-text editions will always "trim" the obvious errors from the text. My choice is due to my historical linguistic editorial focus, even within the framework of a best-text edition. Nor does authorial intent feature in my editorial concerns. A slight exception to the matter of emendation is formed by instances in which the precise grapheme in the manuscript is obscured, for instance by a blotch of ink, but it is relatively clear what it is. I have marked such cases in the textual apparatus. When it comes to later additions and marginalia, I have also indicated them in the textual apparatus, and commented further upon them when necessary.

I have retained original orthography in all cases.[365] I retain thorn and yogh, since they are a feature that eventually fell into disuse – and their use is one indicator of the transition from ME to EModE – and thus it is relevant for orthographical research to retain them where they appear. However, one manuscript copy, **A**, forms a challenge in this case, as the scribe does not in any way distinguish between <þ> and <y>, even though <y> is clearly used to indicate the sound /θ/ where an exemplar must have had <þ>. Since there is no distinction in the letter-forms used, I have opted to transcribe them all as <y>, since transcribing them as <þ> might create an artificially 'old-fashioned' orthography for **A**.

I also retain manuscript punctuation both in the best-text edition and the transcriptions. I have also aimed to preserve manuscript capitalisation, although that is a challenging task since one has to divide the multifarious letter-sizes in the manuscript into the binary division of majuscule/minuscule. A major challenge in this regard was the transcription of **S2**. **S2**'s scribe uses capitalisation in a rather erratic fashion (cf. Osselton 1984: 127–128). The capitalisation may sometimes simply reflect the scribe's tendency to write certain graphemes in their 'capital' form word-initially (e.g. <C>, <E>). In addition, **S2**'s scribal hand is especially difficult to fit into the binary of majuscule/minuscule, so my transcription inevitably also reflects editorial choices due to the difficulty of deciding when a grapheme is majuscule or minuscule. There are many instances where either option might make sense, and it is not easy to distinguish the scribe's majuscules, as they are usually merely larger versions of the minuscules. The transcription of **S2** reflects these editorial choices: ultimately, it is possible that I have not accurately reflected the scribal practices concerning capitalisation.

Scribal word-division is another challenging topic. In many of the copies of MoA, it is occasionally difficult to distinguish a word-dividing space from space between letters not meant to be significant. My own biases as a scholar from the present day are of course obvious, and although I have tried to avoid them, it is difficult to avoid the influence of present-day conventions of word-division. However, so far as feasible, I have retained the original word-division. Even that is simplified, since obviously hand-written texts have far more variation when it comes to spaces between words; but in an edition, a simple distinction of space/no space is the sensible option (cf. Marttila 2014: 440). Manuscript lineation is a far less ambiguous matter, and I have in all cases maintained the original lineation.

365 In my view, normalising lemmas should only be done when there is also the original, un-normalised text to be consulted alongside the normalised.

Keiser (1998a: 119) recommends preparing a critical apparatus to enable comprehension of the text by readers unfamiliar with the early science. Indeed, I consider such an apparatus indispensable. The Commentary to the edition elucidates difficult passages, especially ones related to alchemical theory and practice. In addition, of course, Section 2.1 of this study provides the reader with necessary background information on alchemy. The Glossary to this edition includes special alchemical terminology (including terms examined in Section 6.3) and other terms I have considered difficult for the average reader of ME. However, a challenge with regard to the glossary is that not all alchemical terms can be found in the *OED* or *MED* (as seen with the antedatings etc. in Section 6.3.2.3). The challenges of linguistic interpretation are thus greater with a field where the editor may not always be sure of what a given word even means. However, previous alchemical editions have been of great use to me when preparing the glossary (particularly Reidy 1975; Grund 2011b).

As mentioned, even though the best-text edition only comprises Group 1, I have included transcriptions from Groups 2, 3, and 4 in order to present textual support for the arguments in Chapters 5 and 6. I have not included transcriptions of the other Group 1 manuscripts, as the major variants are presented in the best-text edition for **T**; this is partially due to the constraints of print, as it is not feasible to print in essence the same text four times. However, for contextualising *MoA*, I consider it of primary importance to provide texts for all four translations of *MoA*.

In the case of Group 3, the choice of which witness to transcribe was fairly simple: there are two witnesses, one partial manuscript copy (**S1**) and one printed edition (**Oli**). As **Oli** has already been edited (Linden 1992), I chose the partial manuscript copy to represent Group 3 in my transcriptions, since even though it is not the most complete (far from it), it is the only *manuscript* evidence for this particular translation. It should be noted that this choice is not due to any wish to continue the artificial divide between manuscript and print. I have elected to include the inserted text within the transcription of **S1**, as cutting the excerpt within *MoA*'s second chapter would be imposing an ahistorical, artificial boundary. However, I have chosen to end the text of **S1**'s *MoA* with the end of the text bearing a resemblance to **Oli**, **S1**'s exemplar, i.e. Chapter III, rather than continuing onwards through the murky boundaries of which text is which, and what ends where.

As such, my approach for a best-text edition is the following: the edition uses one (carefully selected) text as the base text. If there is more than one manuscript witness, I collate those copies and indicate major variants in the textual apparatus. This best-text edition is complemented by transcriptions of representatives of the other Groups: **Ga** for Group 2, **S1** for Group 3, and **S2** for Group 4. The entire work

is thus available and the reader need not rely on merely the excerpts provided in Chapters 5 and 6.

This chapter has shown that the processes of editing and analysing a historical work often go hand in hand: my editorial work on *MoA* feeds on the work done analysing the textual relationships, and for instance the terminological analysis in Chapter 6 is indebted to my work on the edition's glossary. My choices for editing *MoA*, an alchemical work with several witnesses, reflect my editorial philosophy, in which linguistic accuracy is given priority. For a linguistically oriented yet reader-friendly edition of *MoA*, I consider the best editorial option to be a best-text edition of Group 1 combined with transcriptions of the other Groups.

8 Conclusions

As Nummedal (2007: 10) has said: "In a nutshell, if Isaac Newton took alchemy seriously, so must we". My scrutiny of *MoA* has certainly done so. A central aim of this study has been to explore *MoA*'s witnesses as documents, texts, and versions, to enable understanding of the best-text edition of a previously unedited version of the treatise. The best-text edition of Group 1, as well as transcriptions of the three other translations, is included in the following pages of this study: Part II.

I view editing as being one more stage in textual transmission, with the editor in a similar role as the scribes of past times. In effect, my aim as an editor is to continue the transmission chain of *MoA*. The chain begins before *MoA* was even translated into English: scribes transmitted *Speculum alchemiae* by copying the work, and eventually people translated it from Latin into English several times (as Chapter 6 demonstrated). The printed edition from 1597 diverged this chain from manuscript into print. Stanton Linden (1992) continued the transmission chain of one of the versions of this work, transmitting an early printed version into a modern edition with a contextualising introduction. In the present edition, I am creating yet another link in the transmission chain. By transmitting a historical text from manuscript to printed or digital form, I am performing scribal work of my own: transcription can be seen as parallel to the act of copying. Of course, my editorial work goes beyond transcription to the interpretation and annotation characteristic of scholarly editing.

The previous chapters have given a multifaceted understanding of *MoA* on the multiple levels of work, version, text, and document. Chapters 2 and 3 acted as background for the study, giving the historical and textual context for understanding *MoA*. Chapter 4 presented an overview of the manuscripts – i.e. the document level – anchoring *MoA* in its material context and laying the ground for the analysis in Chapters 5 and 6, which lean partially on the materiality of the manuscripts. Alchemical manuscripts are not very thoroughly researched, and so Chapter 4 presented a more detailed look at many of the manuscripts of *MoA* than has previously been available. Throughout the study, but particularly in Chapter 4, my emphasis on the continuity of medieval and early modern builds bridges across oft-separated disciplines.

In Chapter 5, I answered my first research question: (1) How do the witnesses of *MoA* differ from each other, and what are their textual relationships? This analysis involved a close look at the textual histories and content of each witness, and revealed that the witnesses of *MoA* can be clearly divided into four textual groups. These Groups are 1) a manuscript translation with a prologue (MSS **ACGbT**); 2) a divergent manuscript translation without a prologue (**Ga**); 3) a manuscript copied from the 1597 printed edition (**S1**), and the printed edition itself (**Oli**); and 4) a manuscript translation from *Theatrum Chemicum* (**S2**). Close reading formed the basis for this analysis; in addition, I collated and compared the texts with each other and with other relevant witnesses. This chapter, thus, divided the texts of the documents into four Groups that represent four different versions of the work. These Groups differ somewhat in regard to structure and information content, but can certainly be considered the same work. I discovered that although the four Groups are distinct, the witnesses of *MoA* also show a great deal of textual fidelity, particularly in Group 1.

Chapter 6 further refined the Group divisions, examining them from a different point of view: that of translation and vernacularisation. My goal was to answer my second research question: (2) How does *MoA* reflect the processes of the vernacularisation of science through translation? In order to achieve this, I first compared the general tendencies of *MoA*'s translation history to the vernacularisation timeline of scientific writing that has been established by earlier studies, and how *MoA* compares to features of scholastic treatises. Next, I described the four versions/translations, using the discussion in Chapter 5 as a springboard for examining their specific features as translations. Finally, I analysed the translations in terms of their length and what that indicates, in addition to deep analysis of their lexis. I found that the differences in *MoA*'s word count depend on inclusion or exclusion of certain information content, as well as prose style. With regard to lexis, I analysed Chapter III of *MoA*, focusing specifically on the Latinate influence on alchemical special terminology. I used dictionary-based methods to give a picture of the lexis used of alchemical substances and processes in Chapter III. The translators and scribes of *MoA* used varying means such as borrowing or extending the semantic reach of a word to achieve their goals of transmitting *Speculum alchemiae* into English. The strategies for vernacularising a Latin text vary throughout the versions of *MoA*, although there are also similarities: all Groups have plenty of loanwords for specifically alchemical concepts. A central part of Chapter 6 also involved investigating **T** (the base text for the edition) in order to uncover antedatings and forms previously unrecorded in dictionaries. Even a short alchemical treatise can thus expand our knowledge of Middle English lexis.

Finally, in Chapter 7, I answered my third research question: (3) What method of editing is best for an alchemical work in multiple witnesses such as *MoA*? I explored the benefits of documentary and best-text editing for early scientific writings, particularly with regard to which editorial approach might best suit *MoA*. This chapter forms the basis for the best-text edition following in Part II: I established the base text (**T**) for the best-text edition after a careful selection process, basing my decisions on previous editorial work and my editorial philosophy. I chose a best-text edition as the best way to represent the textual variation of *MoA*'s Group 1, but my approach is influenced by the fidelity to the source common in documentary editing. This study has thus explored *MoA* from multiple angles, enabling understanding of the edited work. The explanatory notes in the best-text edition further clarify specific passages and procedures.

In the chapters above, I have traced *MoA*'s transmission history and uncovered the connections between the textual witnesses. However, *MoA* is fertile ground for a number of other approaches and studies. There are many linguistic studies that could be carried out. Linguistic approaches for which *MoA* might be an especially illuminating case study include studying features of early scientific writing such as the use of metatext and scientific discourse patterns. The more that is known about early English alchemical texts, the more can be said about who used them. Possible approaches for further research could thus be taken from research done on medieval medical discourse communities.

A helpful contribution to linguistic study, enabling e.g. corpus research on *MoA*, would be a documentary digital edition of *MoA*. Indeed, I am planning such an edition, open-source and encoded in TEI-XML for compatibility with corpus software: it will encompass all the witnesses of *MoA*, and will present the full transmission history of the work.

Research on medieval and early modern alchemical discourse communities from the linguistic point of view would be a much-needed step in order to reach conclusions about the full extent and processes of vernacularisation in the field of alchemy. Being able to study alchemical discourse communities and communities of practice in England on a broader scale, however, would require plenty more smaller-scale studies on particular alchemists or the transmission of alchemical texts; it is impossible to generalise without having mapped out the specific. Further editions of alchemical texts are also needed. However, this study has produced its own contribution; I have traced the transmission of one alchemical work in order to form one piece of the complex puzzle of English-language alchemy. The witnesses of *MoA* present a micro-level, diachronic example of the vernacularisation of alchemy in England. As the edition in Part II demonstrates, the witnesses of *MoA* thus showcase about two centuries of alchemy in the vernacular.

PART II – THE EDITION

Preface to the edition

This best-text edition of *The Mirror of Alchemy* (*MoA*) uses Cambridge, Trinity College MS O.5.31, ff. 17v–21v (**T**), as its base text. The reasons for this choice were discussed in Section 7.3.2, but I will summarise them here. Firstly, **T** contains the entire text of MoA, from incipit to explicit; it is also the longest of any of the manuscripts in Group 1, as it contains more metatext and some sections that are not present in all the manuscripts. Secondly, **T** is one of the two oldest, i.e. 15th-century, manuscripts of *MoA*. **C**, the other 15th-century manuscript, could not be chosen as the best text due to its extensive lacunae. Thirdly, **T** belongs to Group 1, which is a version of *MoA* that has not been previously edited, as it is distinct from e.g. Group 3, of which there is an edition (Linden 1992). I have collated **T** with the other manuscripts from Group 1 (**CAGb**); the textual apparatus in this edition is formed of Group 1.[366] As noted in Section 5.5, and throughout Chapter 6, Groups 2, 3, and 4 are different enough from Group 1 that a line-by-line collation would not provide meaningfully comparable results.

The textual apparatus at the bottom of the page in the edition shows the *major variants* (affecting the syntax or meaning) from **CAGb**. *Minor* variants (punctuation and orthographical variation, i.e. variants not affecting the meaning of the text) have

[366] As in Part I of this study, the final extant manuscript copy in this Group, University of Amsterdam MS PH319, was inaccessible for research until this study and edition were nearing the submission stage, and it could not be used when collating **T**. As such, MS PH319 does not form part of the textual apparatus in this edition.

not been included due to the fact that as early English texts, all the Group 1 manuscripts have differing orthography, and if minor variation were included, almost every word would be flagged. In the apparatus, the manuscripts are always listed in a certain order: **C**, **A**, then **Gb**. The reason for this is the manuscript relations discussed in Section 5.1: **C** is textually most closely related to **T**, forming a subgroup, and **AGb** form another subgroup. In the case of major variants where two or three manuscripts share a major reading, the orthographical form given is that of the first manuscript in the list. Regarding **A**'s orthography: as there is no graphemic distinction between <þ> and <y> in the **A** scribe's hand (that is, as well as indicating /j/ and/i/, <y> can indicate the sound /θ/ or /ð/ especially in word-initial position), I have transcribed them both as <y>, in order to avoid editorial intervention in ambiguous cases (cf. Benskin 1982).

The format of my textual apparatus mainly corresponds to the usual format used by e.g. the Early English Text Society (EETS; cf. e.g. Tavormina 2019). The passages are identified by line number, after which the lemma in the base text **T** appears, followed by a closing square bracket. A lemma can also be an editorial note indicating e.g. visual features or marginalia (cf. Grund 2011b: 127). Major variants from the other three manuscripts, **CAGb**, are given when they occur. Additional editorial notes which are not part of the manuscript text are given in italic typeface. The abbreviation "*om.*" is used when a given passage is missing/omitted from the other manuscripts.

A note on the **T** scribe's particular behaviours and quirks is in order. The orthography of the scribe is somewhat idiosyncratic; I have included even common words in the Glossary if their orthography is potentially confusing. In addition, the scribe tends to obscure morphological boundaries by writing indefinite articles together with nouns or adjectives, such as "Agrev*us*" ('a tedious' l. 125), "Amasse" ('a mass', l. 154), or "Achelde" ('a child', l. 193). Especially misleading examples of this tendency are cross-referenced in the Glossary under both "A" and the second letter. If in doubt, the reader should check words from the glossary without the initial <A>, as this scribal tendency is common in **T**. Conversely, the scribe sometimes writes as separate words that present-day practices write as one (e.g. "be hoveth" 'behooves', l. 65, or "In medyatly", l. 220). I have not normalised word boundaries even in these cases, since even though this is a best-text edition, I wish to retain the features of the manuscript text in the spirit of a 'semi-diplomatic' documentary edition, with as little editorial interference as possible (discussed in Section 7.3). My editorial principles for this edition are detailed below.

Editorial principles

In the following, I will delineate my editorial principles for this best-text edition. My broader editorial views and philosophy were outlined in Section 7.3, and for the best-text edition specifically, in Section 7.3.3; the editorial principles here are a practical application of what was discussed in those sections. The editorial principles for the transcriptions of the other Groups follow the same general principles. My general principles can be summarised in the following points:

- Textual accuracy
- Original orthography, punctuation, underlining, capitalisation retained
- Abbreviations expanded in italics
- Rubrication indicated
- Manuscript superscripts which are not abbreviations left in superscript
- Deletions and marginalia transcribed and marked.

My main concern is with accurate representation of the scribal text – that is, in this best-text edition I wish to impose as little editorial interpretation as possible, while still presenting a readable text. Thus, the original MS line breaks are retained. I follow the orthography of the base text **T**, and do not correct even obvious errors (although I remark upon them in the Commentary). I retain original word boundaries even when they do not conform to present-day standards, e.g. when an article is written together with its headword, as discussed above. The word boundaries in **T** are usually quite clear, and so I consider it reasonable to follow the original scribal practices in this case. To do otherwise would easily lead to a 'slippery slope' where I should by analogy also standardise other word boundaries to conform to present-day practices – and that would not be consistent with my overarching editorial principle to interfere as little as possible with the original scribal text.

Further, I retain the original punctuation (mostly consisting of puncti <.> and virgulae </>) and the original capitalisation. However, there are issues regarding capitalisation, and here some editorial interpretation has been unavoidable. Many capital letters have unique forms (e.g. <M> or <T>), but in the anglicana script used by the scribe, the capitalisation of <A> is a fraught question. The scribe tends to write word-initial <A> as larger than word-medial <A>, leading to the question: should one consider this a majuscule? When transmitting a manuscript text into the binary majuscule or minuscule framework of print or digital media using fonts, one is sometimes in the position of slotting a square peg into one of two round holes. In the present edition, I have chosen to represent these larger word-initial <A>/<a>s as

the majuscule A, imposing a standard solution to an editorial problem which presents endless grey areas.

One case in which I have exercised considerable editorial judgement is in the treatment of abbreviations. In the interest of providing a readable text, I have expanded abbreviations in this best-text edition as well as in the transcriptions of the other Groups. Expansions are marked in *italics*, thus showing the reader that this is an editorial intrusion; however, the expansions are of course my interpretation of the Middle English text, and are not to be considered the scribe's genuine output. Most of the abbreviations are fairly standard, and their expansion is not problematic: the hook abbreviation used in words such as <v*er*tuosly> always indicates *er* in the scribal hand.

A particularly complex case concerning abbreviations is the macron (a curving line with a dot underneath it) in words such as <t^{a}nsformacõn>. This could be expanded either as <t*ra*nsformac*i*on> or <t*ra*nsformac*iou*n>. I have chosen to expand this abbreviation as <*iou*n> in all cases, with the <u>. The scribe does not write out <ioun> unabbreviated; however, given that they do write words such as <substaunce> (l. 162), and <countenaunce> (f. 22r, after *MoA* ends) and <gou*er*naunce> (f. 24r) elsewhere in the manuscript, adding the <u> to <ioun> seems reasonable.

The scribe frequently uses an identical macron (with a dot) even for words where one would not necessarily expect an abbreviation such as <vppon>; and indeed, the scribe sometimes spells that word without the abbreviation, with a flourish at the end which I have interpreted as otiose. In cases where the scribe uses this abbreviation mark, I have expanded the word endings: <vppon*e*>. My choice may be seen as overinterpretation, but as this edition cannot represent the precise forms of the original manuscript, I have rather erred on the side of conservatism in interpreting the scribe's abbreviation practices. As mentioned, I interpret ambiguous word-final strokes or a single line above a word (instead of the macron with a dot below it) as otiose, such as e.g. in the third-person pronoun *hym*; however, sometimes the scribe adds the macron with a dot, and in those cases I have expanded the word with an abbreviation. These are cases where the need for historical accuracy of the witness and readability of the edition come into potential conflict; however, my choices are consistent.

The scribe sometimes has letters in superscript even when they do not seem to signify an abbreviation. The most frequent example of this by far is the definite article <þ^{e}>. In these cases, I have retained the superscript, as it is an intrinsic part of the **T** scribe's scribal behaviour. As for other features of the text: struck-out words are transcribed if they are legible, and indicated like ~~this~~. Underlining is indicated <u>like this</u>. I indicate words which have been inserted interlinearly with a caret (^)

underneath with the conventional editorial marks \like this/ between the relevant words. The scribe adds a double hyphen to words continuing to the next line; I mark this with the equals sign <=>. Although in this preface I use angular brackets to indicate the precise orthography of the original text, in the edition itself, angular brackets around a letter indicate an uncertain reading (due to smudged ink, for instance): for instance, <<w>erke> (l. 192).

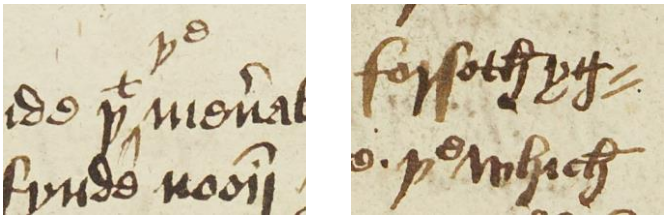


Figure I. Insertion with caret and superscript <e>; double hyphen at line end. Cambridge, Trinity College MS O.5.31, f. 20v (caret), f. 19v (hyphen). Images: Trinity College, reproduced with permission. © The Master and Fellows of Trinity College, Cambridge.

The scribe uses linefillers every time the text does not fill up the entire line; these linefillers are fairly plain, consisting of a tiny flourish and then a straight stroke stretching to the end of the line. I have not marked these linefillers in the edition, as they are not relevant to the text itself.[367]

MS **T** has some later annotations, including corrections and insertions as well as marginal comments. I have indicated these annotations in the textual apparatus, even ones that strike out text, as they are later additions (editorial interventions of their own) and not in the original scribal hand. These later interventions, indeed, sometimes make the text more logical. However, I have chosen to show in the edition the manuscript text as the original scribe wrote it, with the interventions in 16th- and 17th-century hands indicated in the apparatus and noted in the Commentary.

[367] They occur at ll. 3, 29, 43, 45–52, 63, 90, 199, 228, 256, 259, and 295 (the final line).

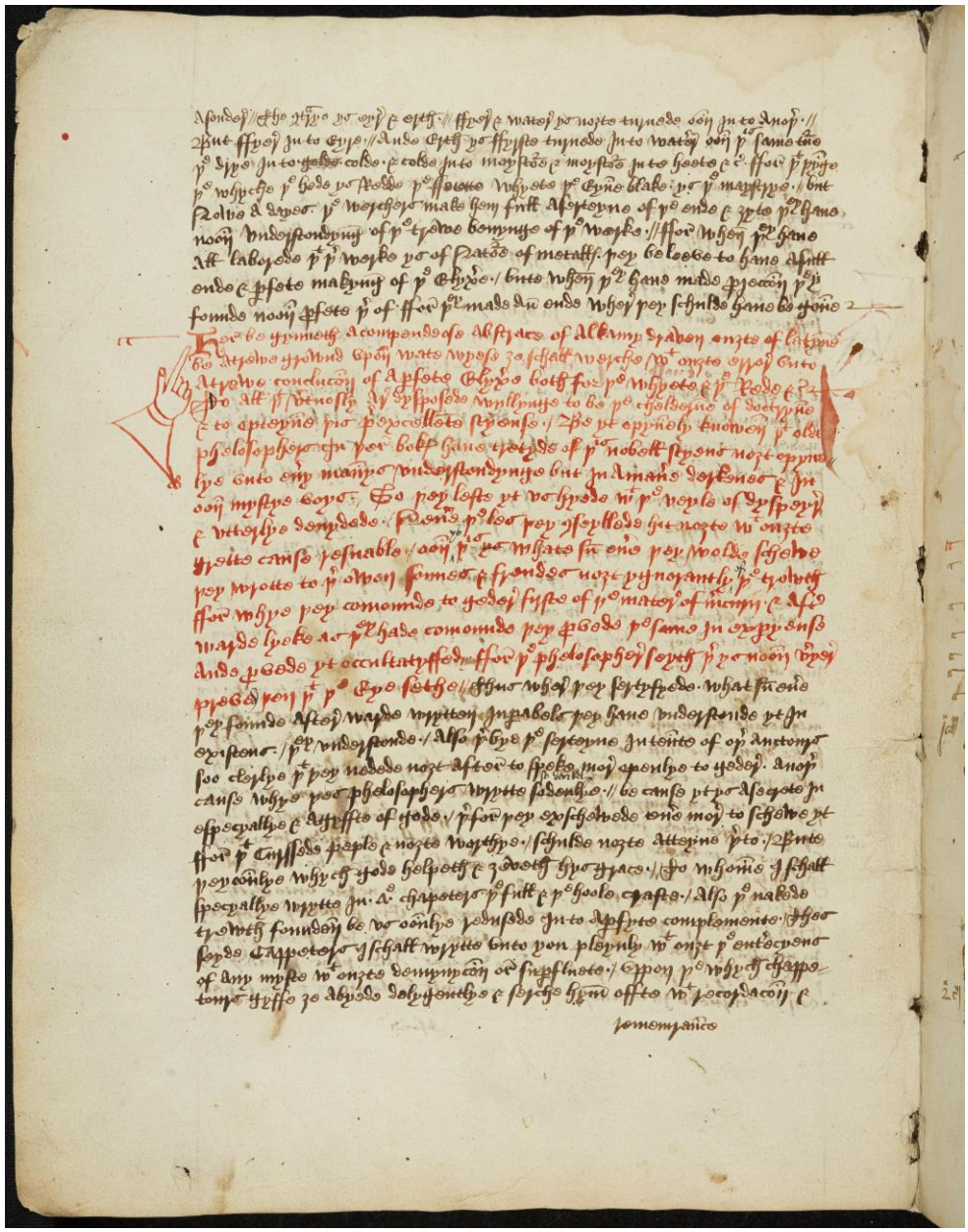


Figure II. The beginning of *MoA* in **T**. Cambridge, Trinity College MS O.5.31, f. 17v. Image: Trinity College, reproduced with permission. © The Master and Fellows of Trinity College, Cambridge.

The Text

f. 17v

Her be gynneth A compendeose Abstrace of Alkamy draven ouȝte of latyn*n*e[368]
be Atrewe grownd vpon*e* wate wyese ȝe schall werche w*ith* ouȝte error*e* vnto[369]
Atrewe conclu*c*io*u*n of A p*er*fete Elyx*er*e both for þ^e^ whyete & þ^e^ Rede & c[370]
To All þ*a*t v*er*tuosly Ar*e* dysposede wyllynge to be þ^e^ chelder*n*ne of doctry*n*ne[371]
& to opteyn*n*e þis p*re*excellen*t*e scyense . / Be yt opy*n*nely knowen*e* þ*a*t olde
phelosophers In þer bok*es* haue tretyde of þ^is^ nobell scyens noȝt opyne=
lye vnto eu*er*y ma*n*nys vnderstondynge but In Aman*er*e derkenes & In[372]
oon*ne* mystye voys ./ So þey lefte yt vs hyede w*ith* þ^e^ veyle of dyspeyr*e*
& vtterlye deuydede . / Neu*er*e þ^e^ les þey *con*seyllede hit noȝte w*ith* ouȝte[373]
grette cause resnable / oon*ne* þ^is^ ys whate su*m* eu*er*e þey wolde schewe[374]
þey wrotte to þ*er* owen sonnes & frendes noȝt ygnorantly þ^e^ trowth[375]
ffor whye þey comounde to geder*e* firste of þ^e^ mater*e* of m*er*curij . & Aft*er*
warde lyeke as þ^ey^ hade comounde þey p*ro*vede þ^e^ same In exp*er*yense
Ande p*ro*vede yt occultatyffed . ffor þ^e^ phelosopher*e* seyth þ*er* ys noon*ne* v*er*yer*e*

[368] **1 AGb** *have the title* Liber Multipharie *before the start of the text*. *In left margin*] *In scribal hand, rubricated nota pointing here, and a large rubricated maniculum pointing at <H>* Her] *<H> larger and decorated; the text following rubricated*

[369] **2** be Atrewe grownd] be \a/ trew grou*n*nde **C**, *om.* **AGb** vpon*e*] on **C** ȝe] ȝo **C** vnto] to **C**

[370] **3** Atrewe] trewe **C** for þ^e^ whyete & þ^e^ Rede] for whyȝt & þ^e^ rede **C**, for þ^e^ whyete & for þ^e^ Rede **A**, of the white and of the Redd **Gb**

[371] **4** To] *Black line drawn through* <T> *as a highlight*.

[372] **7** vnto] to **C** In Amanere derkenes] in a maner of derkenes **AGb**

[373] **9** deuydede] \to be/d deuyded **A** *(*<to be> *inserted in another hand)*
Neuere þ^e^ les] Neþer les **C**

[374] **10** oonne þ^is^ ys *] Interlinear insertion of* <ys> *by the 16th-c. annotator after* <oonne>*, and original* <ys> *struck out; see Commentary*. On is þis **C**, on this is **Gb** *(error for "one")*

[375] **11** ygnorantly þ^e^ trowth] *Interlinear insertion* <of> *by the 16th-c. annotator after* <ygnorantly>*; see Commentary*.

preve þen þ*at* þ^e^ Eye sethe // Thus where þey sertyfyede . what su*m* eu*er*e[376]
þ^ey^ founde After*e* warde wrytten Inp*ar*abels þey haue vnderstonde yt In
existens . / þ^ey^ vnderstonde . / Also þ*er*bye þ^e^ serteyne In te*n*nte of oþ*er* Auctours[377]
soo clerlye þ*at* þey nedede no3t After to speke mor*e* openlye to gedere. Anoþ*er*
cause whye þes phelosophers wrytte sodenlye . // be cause yt ys Asecrete In[378]
especyallye & Agyffte of gode . / þ*er*for þey exschewede eu*er*e mor*e* to schewe yt[379]
ffor þ*at* Curssede peple & no3te worthye . / schulde no3te Atteyne þ*er*to . / Bute[380]
þey oon*ne*lye whych gode helpeth & 3eveth hys grace . / To who*m*me I schall
specyallye wrytte In . 7^e^ . chapeters. þ^e^ full & þ^e^ hoole crafte . / Also þ^e^ nakede[381]
trewth foundene be vs oon*ne*lye redusede Into Ap*er*fyte complemente./ Thes
seyde Cappeters I schall wrytte vnto you pleynly w*ith* ou3t þ^e^ ent*er*ecyens[382]
of Any myste w*ith* ou3te demynyc*iou*n or sup*er*fluete . / vppon þ^e^ whych chappe=[383]
tours gyffe 3e Abyede delygentlye & serche hym offte w*ith* recordac*iou*n &[384]
remembraunce of oon*ne* wyese stodye & 3e schall fynde þ*er* In þ^e^ full entente of our*e* f. 18r
Maystrye &c[385]
Nowe for As moche as dyu*er*se men hath laborede dyu*er*slye be sublimac*iou*n.
deste*nciou*ns[386]
dystellac*iou*ns. fyxyo*u*ns. Calcinac*iou*ns. soluc*iou*ns. Coagulac*iou*ns. Inserac*iou*ns./
Ande be oþ*er*[387]
soffystycall tryffelys Infenytlye As yt Aperes be here bok*es* . // Ande þ^e^ very
*con*cluc*iou*n[388]
þey þ*at* hath wrought be þ^es^ weys Afor rehersede . As firste vppon . 4^to^ . sperytt*es* .
&[389]

376 **15** preve] <d> *inserted at the end of the word by the 16th-c. annotator; see Commentary.*
sethe //] *Rubrication ends after the virgulae; see Commentary.*
377 **17** oþ*er*] þ^e^ **AGb**
378 **19** sodenlye] *Struck out by the later annotator, with the interlinear addition* <so darkely>; *see Commentary*.
379 **20** þ*er*for] *om.* **C**
380 **21** ffor þ*at*] ffor **AGb**
381 **23** þ^e^] *om*. **C**
382 **25** vnto] on to **C** ent*er*ecyens] enter sciens **Gb**
383 **26** vppon þ^e^ which] on Wyche **C**
384 **27** recordacioun &] *Catchword in the lower margin:* rememraunce
385 **29** &c] *om*. **C**
386 **30** *In left margin*] *nota sign in the main scribe's hand pointing at* <*N*>
Nowe] <*N*> *larger and more decorative* hath] haue **CGb**
sublimac*iou*n] sublimac*i*ons **AGb** deste*nciou*ns] descenc*iou*ns **CAGb**
387 **31** Inserac*iou*ns] Inspirac*i*ons **Gb**
388 **32** here] their **Gb**
389 **33** hath] haue **CGb** Afor] *om*. **C**

Affter vppon*e* þ^{e} . 7^{a} . mettall*es*. Also vppon*e* salt*es*. Alumys. borauc*es*. Attramen*tes*. Also[390]

vppon*e* All man*er*e of kend*es* of markecaset*es*. magnaset*es*. tut*es*. & vppon*e* many oþ*er* myn*er*all*es*[391]

thyng*es*. Also vppon*e* veg\e/table þyng. As vppon*e* plant*es*. herbes. trees. Also vppon*e*[392]

best*es* many or Infenyttlye þey haue come bute such A knowlech þ*a*t All our*e* ma=[393]

ystrye ys termente & fulfyllede w*ith* oon*ne* thyng . s . w*ith* oon*ne* ston*e* & w*ith* oon*ne* wey[394]

. s. w*ith* boyllynge & w*ith* oon*ne* vessell . Therfore befor All oþ*er* wryttyng*es* grou*n*de[395]

þ^{e} sadlye vppon*ne* þ^{es} . 7^{a} . Cappeters folowyng her*e* In order þ^{e} whych *con*teyneth[396]

the transforma*cioun* of . 7^{a} . myn*er*all bodyes . ~~gi~~ . Ande gyffe þ*o*u serch þ^{e} begyn=[397]

nyng þ^{e} medell & þ^{e} e*n*nde of hem*e* offten*e* In þyn herte þ*o*u schall fynde such[398]

sottelte þ*a*t w*ith* þ^{e} grace of gode þyn dessese schall be t*ur*nede vnto grete *con*forte[399]

her*e* ffoloweth þ^{e} Capeto*ur*s In ord*er*[400]

The ffirste whate ys Alkemye & whye yt was Ordeynede[401]

The . 2^{a} . þ^{e} whych ar*e* þ^{e} naturall*es* & p*r*incipall*es* wher of þ^{e} . 7^{a} . mettall*es* Ar*e*[402] engenderde .

The . 3^{e} . ouȝte of þ^{e} whych metall þ^{e} mater of þ^{e} Elyx*er* ys ratheste to be chose

The . 4th . how þ^{e} wyrchyng schall be do*n*ne vpon*e* þ^{e} maystrye[403]

390 **34** þ^{e}] *om*. **C**

391 **35** of] *om*. **C** magnaset*es*] magnsijs **C**
myn*er*all*es*] myn*er*all **AGb**

392 **36** veg\e/table] *see Commentary.* þyng] thyng*es* **CAGb**
vppon*e*] on **C** herbes. trees] herbes & trees **C**

393 **37** many or Infenyttlye] *om*. **A, Gb** bute] to **CAGb**
In the right margin, in a 17th-c. hand] Bacon of Alchyny . | Speculu*m* . printed *See Commentary.*

394 **38** s] 6 **Gb**

395 **39** s] 6 **Gb** wryttyng*es*] wryttyng **C**

396 **40** þ^{es}] þ^{e} þ^{es} **C** *con*teyneth] schewyth **AGb**

397 **41** the transforma*cioun*] y^{e} full & y^{e} hole crafte y*e* transforma*c*ion **AGb**

398 **42** medell &] myddelor **C** of hem*e*] *om*. **AGb**
herte] mynde **AGb** schall] schalt **CAGb**

399 **43** *After this line, lacuna in **C**.*

400 **44** her*e* ffoloweth þ^{e} Capeto*ur*s In ord*er*] *Rubricated in **T**.* Sequnt*ur* capitula **A**, Sequit*ur* Capitula **Gb**

401 **45** The] <T> *rubricated*

402 **46** þ^{e} whych] whyche **AGb**

403 **49** maystrye] m*ercur*y **Gb** *(uncertain expansion)*

The . 5th . of þe vessell & þe furnese. howe & where of þey schall be made
The . 6a . of All þe colours Accidentall & essenciall
The . 7a . of projeccioun Ande wher vppone yt may beste be wroughte
As for þe ffirste chapitur . s . what ys Alkemy yt be hovede you to consedere þe wordes[404]
of . hermes . þe phelosophere seynge oonne þis wyese . Alkemye ys Abodelye substaunce
made of oonne & be oonne perfytlye Ioynyng to geder precyous þynges // Be connynge
& worchynge & turneth hem be naturall commyxcioun Into Abettere kende. Anoþer defeny=
cioun ys þis Alkemye ys Ascyence þat techeth to transfromme All manere of bodyes Into ech[405]
oþer be hys proper medesynne as yt schewethe opynlye In þe phelosophers bokes Thenne for
A playne vnderstondyng her of knowe þat Alkemye ys Ascyense & hath hys name of
A phelosophere þat hyȝte Alkemus. Ande yt techeth for to make amedesyne callede el=[406]
elyxere þe which elyxere ȝyffe yt be caste vppone Inperfyte bodyes he turneth heme fullye & makes hem perfyte . þis ys þe auctours Intente. her I haue declarede þe[407] firste chapyture full clerlye &c[408]
Thenne for þe declacioun of þe . 2u . chapiture . s . þe whych Are þe naturall principles &c[409]
hyt be hoveth you to knowe þat myneralles In mynes be noȝt els bute Mercurij & sulphour f. 18v
of þe which . 2u . All myneralles bodyes be genderde . wher of þer be many kendes As
I schall rehers her after vnderstonde þat nature Intendeth All weye & purposeth to make golde & syluere . but þat dyuerse Accidentes superuenyens transforme dyuerse bodyes

404 **53** *In the left margin*] *In main scribe's hand*: Iu cam i.e. primum capitulum As for þe ffirste chapitur . s .] *om*. **AGb** be hovede] behovythe **AGb**
405 **57** þis] yat **AGb**
406 **60** yt] he **AGb** el=] *error*
407 **62** hem] them **Gb**
408 **63** &c] *om.* **Gb**
409 **64** *In left margin*] *In main scribe's hand:* 2u cm *i.e. secundum capitulum* Thenne for þe declacioun of þe . 2u . chapiture . s . þe] *om*. **AGb**

þ[e] which Ar*e* þes Accident*es* . // Trewlye þ[e] clennes & vnclennes of hem . 2[u] . \ myn*er*all[410]
bodyes Ar*e* dyu*er*sly genderde . so*m*me clene & so*m*me vncle*n*ne As yt Appereth In many Aphelosophers bok*es* . // Thes Ar*e* þ[e] bodyes myn*er*all þ*a*t I speke of . Sol[411] . luna . Iubit*er* . sat*ur*n*us* . ven*us* . mars . // Golde . sylu*er*e . Ty*n*ne . lede . Co*per*e . Iry*n*ne[412] .
Sol ys Abodye pure & p*er*fyte genderde of M*er*c*urij* . pure fixe & clere & of sulpho*ur* clene fixe clere rede & yt hath noon*ne* defaute . luna ys Abodye clene all moste *per*fyte made of M*er*curij All moste fixe pur*e* clere & of cle*n*ne sulpho*ur* all moste fixe clere & whyete & laketh Aletyll fixio*u*n . color & wheyght her*e* by he ys defferent from golde . Iubiter*e* . ys Abodye All moste clene In*per*fyte genderde of M*er*curij pure In*par*te & fixe clere & of sulpho*ur* In*par*te clene clere & whyete & wa*n*nteth[413]
Aletyll decocc*iou*n oþ*er* degestyo*u*n. Sat*ur*ne ys Abodye vncle*n*ne In*per*fyte made of M*er*curij terrestryall & stynkynge In*par*te vnclene noȝt fixe & of rede sulphor*e* In*par*tye grete & wa*n*nteth fixio*u*n puryte & fyrynge . Also yt hath myche of vn cle*n*ne erth & Adusteble /. ven*us* . ys Abodye vnclene In*per*fyte genderde of M*er*c*urij*.
noȝt clene . noþ*er* fixe terrestryall brynnynge noȝte clere & of sych rede sulpho*ur*[414] & ~~*con*~~bustebl *con*busteble & wanteth fixio*u*n puryte & weyghte . & hath mych[415] of vncle*n*ne colour*e* & of t*er*rest*ri*all brynnynge . / Mars . ys Abodye vnclene In*per*fyte genderde of vnclene M*er*curij fixe In*par*te terrestryall Adure*n*t whyete noȝt cler*e* & of syche su\l/pho*ur* myche fixe terrest*ri*all Adure*n*te . & wa*n*nteth fusyo*u*n puryte &[416] weyghte & hath mych of vnclene sulpho*ur* fixe & of terrest*ri*all byrnynge . her*e*

410 **69** 2[u]] for **A** *(later addition)*, **Gb**
411 **71** bodyes myn*er*all] myn*er*all*es* **A**, myn*er*all **Gb**
Sol] Soll . Ingenderth golde & is Masculyn*e* **AGb**
412 **72** luna] Luna ingenderthe sylu*er* & is fememynyne **AGb**
Iubit*er*] Iubiter . tyne & is femyn*e* **A**, Iupiter tyn*ne* and is femynyne **Gb**
sat*ur*n*us*] Sat*ur*nus lede & is Masculyn*e* **AGb** ven*us*] Venus . coper & is femyn*e* **A**, Venus Copp*er* and is femynyne **Gb** mars] Mars . Irne & is Masculyn*e* **AGb** Golde . sylu*er*e . Ty*n*ne . lede . Co*per*e . Iry*n*ne] *om*. **AGb**
413 **78** In*par*te clene] ***C**'s lacuna ends starting with these words.*
414 **83** noþ*er*] nor **C**, neither **Gb**
415 **84** ~~conbustebl~~ conbusteble] *See explanatory note*.
416 **87** su\l/phour] <l> *inserted above line with a single caret by the main scribe*

I haue schewede þ^e^ natur*e* & þ^e^ gen*er*ac*iou*n of þes bodyes men*er*all both of *per*fyte[417]
& vn*per*fyte bodyes whos knowleche ys full necessarye to ben hade &c[418]
Nowe schall declare þ^e^ wordes þ*a*t Ar*e* reherssede In þ^e^ . 3^d^ . c*apitulu*m . s . ou3te of[419]
þ^e^ whiche metall*es* þ^e^ matere of þ^e^ Elyx*er*e .&c. ffor As myche As þ^e^ gen*er*ac*iou*n[420] of bodyes men*er*all ys schewede both of *per*fyte & In*per*fyte be þ^is^ premysses[421]
Ther fore to þ^e^ In*per*fyte matere to be choesse for oure *per*fyte lete vs Applye
Ande for Ap*r*incypall grou*n*de of þ^is^ chapyto*ur* noote wele þ^is^ resou*n*e / Sythen*ne* opy*n*ne knowleche ys hade be þ^is^ C*apitulu*m rehersede þ*a*t All bodyes Ar*e* made *per*fyte
& corrupte thorowgh M*er*curij & sulpho*ur* be þ^e^ enchesou*n*e of here clennes & vn=[422]
clennes supposynge Also þ*a*t noon*ne* erthly þynge may be knyte noþ*er* Ioynede[423] essencyally vnto bodyes noþ*er* make Inprescyo*u*n In hem bute yt be made of[424]
þ^e^ same bodye . I mene of þ^e^ same natur*e* . // hyte Appereth þ*er* bye þ*a*t noon*ne* fore*n*ne þynge*s* or potencyall to make Any newe t*ra*nsformac*iou*n . A resou*n*e ys[425] þys . Arystotell seyth þ*a*t . 2^u^ . *con*t*ra*ryes naturall may no3t be to gedere In oon*ne* bodye þen yt foloweth After be Argumente þ*a*t eu*er*y Inp*re*ssyo*u*n schulde[426] be made of þynge*s* hauynge oon*ne* natur*e* why seyth no3t þ^e^ phelosophere þ*a*t[427] f. 19r
Aman*ne* genderth Aman*n*e . Alyon*ne* genderth Alyon*ne* . thus nato*ur* Ioyeth natur*e*[428]

417 **89** I haue schewede þ^e^] *lacuna in **C** begins after these words*
þes] *om*. **AGb**
418 **90** &c] *om.* **Gb**
419 **91** *In left margin*] <3^u^ c^m^> *and nota sign* Nowe] <N> *larger and decorated* Nowe schall declare þ^e^ wordes þ*a*t Ar*e* reherssede In þ^e^ . 3^d^ . c*apitulu*m . s .] *om*. **AGb**
420 **92** .&c.] is ratheste to be chose & c **AGb**
421 **93** premysses] p*ro*mysses **Gb**
422 **97** here] her **Gb** *(should be "their")*
423 **98** þ*a*t noon*ne*] *lacuna in **C** ends starting with these words*
noþ*er*] nor **C**, neither **Gb**
424 **99** Inprescyo*u*n] inp*re*ssions **C**
425 **101** þynge*s*] *Interlinear note starting above this word in a 16^th^-c. secretary hand:* w*hi*ch hathe not taken their originall of the<m> ij <is> able or sufficient to make them or of them *(see Commentary)*
426 **103** be] y^e^ **AGb** schulde] *Catchwords in bottom margin:* be made
427 **104** þ*a*t] *om*. **AGb**
428 **105** genderth] gendride **C**

& skyth ys *contra*rye . Where for it ys grete m*er*veyll þ*a*t ony dyscrete p*er*sou*n*e wyll[429]
grou*n*de hys labo*ur* & hys entente vppon*ne* Anye best*es* oþ*er* vppon*ne* vegytatyues[430]
þ^{e} whiche þey Ar*e* full fer*e* þ*er* from*me* þ^{e} effecte of þys noble scyence . syth þ*er* be[431]
þyng*es* mor*e* ner*e* . Thyn*n*ke verylye þ*a*t phelosophers ordeynede þys scyense
& wrotte yt In sych st*ra*nge termes no3t be cause yt schulde be take Afftere lett*er*[432]
bute Affter þ^{e} ffegur*e* & lekenes . wherfore þ^{e} trowthe ys . þ*a*t All bodyes Ar*e*
made of M*er*curij & sulpho*ur* . & þ*a*t noon*ne* þyng may Ioynede noþ*er* knyte to them[433]
noþ*er* chau*n*ge hem but gyffe yt haue hys . Orygynall & beynge of hem . soo hyt[434]
be hoveth you to Resseyve both . M*er*curij & sulpho*ur* for þ^{e} substau*n*s of þ^{e} mat*er*
of our*e* ston*ne* . no3te. M*er*curij. be hym selfe . noþ*er* sulpho*ur* be hym selfe. but both[435]
to geder*e* . ffor be þ^{e} dyu*er*se *con*myxc*iou*n of hem . 2^{u}. dyu*er*se bodyes & men*er*all[436]
Ar*e* genderde . her*e* 3e may clerly vnderstou*n*de þ*a*t our*e* mater*e* schall be made
of men*er*all / As of. M*er*curij & sulpho*ur* . / Bute ou3te of what thyng þ^{is} M*er*curij[437]
& sulpho*ur* schall be choese moste ner*e*. / hyt schall be schewede clerlye be . 6^{u} .[438]
*con*clusyou*n*s folowyng. // The firste *con*clusyou*n* ys our*e* mater*e* schall no3t be[439]
made of vygetatyuys as of plant*es* of herbes or trees noþ*er* of noon*ne* thynge þ*a*t
spryngeth ou3t of hem*e* hauyng lyv<e>. þ^{is} ys þ^{e} resou*n*e our*e* mater moste be mad[440]
of . M*er*curij. & sulpho*ur* as yt ys seyde Afore . then*ne* 3yffe yt schulde be made of
vegytatyues . whe moste ned*es* drawe ou3t of hem both . M*er*curij. & sulpho*ur* . be[441]

[429] **106** & skyth] *Insertion above the line (with a single caret below the line) by the 16th-c. hand, between <&> and <skyth>:* a & skyth ys *contra*rye] skyth h\i/s *deleted by later 15th-c. annotator in* ***C****,* eschevythe his *inserted instead; om.* **AGb**
[430] **107** oþ*er*] either **Gb**
[431] **108** þ^{e}] *om*. **C** þey] *om*. **C** scyence] *lacuna in* ***C*** *begins after this word*
[432] **110** lett*er*] þ^{e} lett*er* **AGb**
[433] **112** may Ioynede] may be Ioyned **AGb** noþ*er*] neither **Gb**
[434] **113** noþ*er*] neither **Gb** gyffe] *om*. **AGb**
[435] **115** noþ*er*] neither **Gb**
[436] **116** dyu*er*se] *om*. **AGb**
[437] **118** men*er*all] myn*er*all*es* **AGb** thyng] thyng*es* **AGb**
[438] **119** ner*e*] *lacuna in* ***C*** *ends starting with this word*
[439] **120** In left margin] I^{u} con^{u}
[440] **122** lyv<e>] *The 16th-c. hand has written* <ff> *on top of* <e>*; see Commentary.*
[441] **124** ned*es*] nede **C** drawe] drawne **C** be] thorowghe **C**

125 longe decoct*iou*n . þ^is wher Agrev*us* labo*ur* & veyne . syth nato*ur* hath ȝevyne vnto vs[442]
suffycyentlye both . M*er*curij & sulpho*ur* . The . 2^u . *con*clucio*u*n ys our*e* matere schall noȝte[443]
be made of best*es* noþ*er* of sych thyng*es* as growth ouȝte of best*es*. as man*n*ys blode[444]
here . vryne . grete Eegg*es* . of hennes . wher vpon*ne* many folys haue laborede . neþ*er*[445]
of noon*ne* þynge þ*a*t growthe ouȝt of best*es* I pr*e*ve þ^is be þ^e same resou*n*e . The . 3^d. *con*clucio*u*n[446]
130 ys our*e* mater schall noȝte be made of þ^e medell men*er*all*es* . s. Magnesijs. Marckeset*es*[447]
tutijs . Att*ra*ment*es*. Alu*m*mys . borac*es*. noþ*er* of noon*ne* man*er*e of salt*es* . The . 4^th. *con*closyon[448]
ys our*e* ston*e* schall noȝte be made of comyn*n*e . M*er*curij & sulpho*ur* for ȝyff yt schulde be[449]
soo whe muste need*es* medell hem both to geder Affter Adewe p*ro*porsyo*u*n . which[450]
p*ro*porsyo*u*n passeth man*n*ys wyȝte . þ*er*fore lette vs noȝt dele w*ith* hem . ffor þ*er* be
135 bodyes þat hath both . M*er*curij & sulpho*ur* dewlye p*ro*porsyou*n*ede to gedere w*ith* In hem
kepe þ^is secrete . The . 5.^th *con*clucyo*u*n . ys þ^is our*e* matere schall noȝte be made of[451]
golde noþ*er* of sylu*er*e . I p*re*ue yt þ*us* . ȝyffe yt schuld be made of golde oþ*er* of sylu*er*e[452]
whe muste need*es* resolue hem Into watere þ^e whiche ys clepede . M*er*curij . After*e*[453]

442 **125** hath] has **C**, *om*. **AGb** vnto] to **C**, vnto to **A** *(error)* vs] *om*. **AGb**
443 **126** *In the left margin*] 2^u con^u
444 **127** noþ*er*] ner **C**, nether **Gb**
445 **128** neþ*er*] nore **C**
446 **129** *In the left margin*] 3^u *con*^u þynge] yyng*es* **AGb**
447 **130** s] 6 **Gb**
448 **131** noþ*er*] nor **C**, neither **Gb** salt*es*] *Added below the line following this word in the 16^th-c. hand:* &c
449 **132** *In the left margin*] 4^u con^u
450 **133** Adewe] dewe **AGb**
451 **136** *In the left margin*] 5^u *con*^u 5.^th] 6^u **C**
452 **137** noþ*er*] nor **C**, neither **Gb** oþ*er*] or **C**, either **Gb**
453 **138** þ^e] *om*. **C** clepede] caled **Gb**

þ^e phelosophers but þey Ar*e* soo stronglye made be nato*ur* soo clen*n*e p*er*fyte & so[454]
stronglye degeste be nato*ur*all heete þ*a*t vnneth whe may werche In hem[455] f. 19v
w*ith* our*e* fyer*e* Artyfyceall & thouwthe þ*a*t whe doo . þey whyll torn*n*e Ageyn*n*e
As þey wher*e* at þ^e begynny*n*ge . wherfore. lete vs exclude þ^e recete
of þe^m too . ffor Ap*ri*ncipall grounde of þ^is conclusyo*u*n . þ*o*u schalte vnder*e*
stonde. ȝyff golde or syluer*e* wher*e* mor*e* þe^n p*er*fyȝte . As In double p*ro*porc*iou*n
or*e* threffold p*ro*porc*iou*n or*e* An . C . folde . or An . M^l . folde p*ro*porc*iou*n . þe^n
þey[456]
schulde Acorde vnto our*e* p*ur*pose . but þey Arnoȝte mor*e* þe^n p*er*fyȝte . I preve[457]
yt be þ^e defenyc*iou*ns of hem . þ^e golde ys \a/ p*er*fyȝte bodye masculyne . made[458]
of clenneste . M*er*curij . & of rede sulpho*ur* w*ith* ouȝte enye sup*er*fluyte or domini=
c*iou*n . I sey noȝte mor*e* þe^n p*er*fyȝte . / The mon*n*e ys Abodye Almoste p*er*fyȝte fe=
minine made of clene . M*er*curij. & of clene sulpho*ur* & whyete as yt ys schewede
In
þ^e secunde chapyt*er* . her*e* bye yt ys clerlye p*re*vede þ*a*t our*e* mater*e* schall noȝte be
made[459]
of golde noþ*er* of syluer*e*. / The . 6.^th conclusyo*u*n Affermatyffe ys þ^is. our*e* mater
schall be[460]
chose ouȝte of suche Abodye men*er*all. þ*a*t hath w*ith* In hym both . M*er*curij. &
sulpho*ur* . clen*n*e[461]
pur*e* clene clere whyete & suche sulpho*ur* w*ith* oþ*er* rede gaderde to gedere Into
Amasse[462]
equaly p*ro*porssyo*u*n . noȝte hauyng Afull p*er*fectyo*u*n be grette degestyon of
naturall[463]
heette . / Bute lette þ^is mater*e* or*e* þ^is bodye be such As Natur*e* hath but letell
wrouȝghte vpon*n*e. // Then*n*e may whe w*ith* our*e* Avyse labo*ur*e & trewe
delygence.[464]

454 **139** þ^e] *om*. **C** & so] *Catchword in bottom margin:* stronglye
455 **140** be] thorowght **C** vnneth] vnnethes **C**
456 **145** An . C.] *om*. **Gb** or An . M^l . folde p*ro*porc*iou*n] *om*. **AGb**
þe^n] *om*. **C**
457 **146** vnto] to **C**
458 **147** a] *interlinear insertion by main scribe*, *om*. **C**
459 **151** her*e*] he **C**
460 **152** *In left margin*] 6^u *con*^u noþ*er*] nore **C**, neither **Gb**
461 **153** & sulpho*ur*] *om*. **C**
462 **154** clene] *om*. **CAGb** oþ*er* rede] white other redd **Gb** *(**A** has a later addition here:* whyght*)*
463 **155** p*ro*porssyo*u*n] p*ro*porciond **C** be] þorow **C**
464 **157** vpon*n*e] on **C** Avyse] wyse **C**, *om*. **AGb**

contenue þ*er* vpon*ne* & w*ith* our*e* fyer*e* Artyfecyall com*m*e vnto þ[e] Inwarde clensy*n*ge[465]

decocc*iou*n. sep*ar*ac*iou*n. & fixio*u*n of hym . // Be þ[e] whiche labur*e* þ[is] mater*e* schall[466]

be made A. M[l] . folde . 1 . 1000 . folde mor*e* p*er*fyte & strengere þe[n] bodyes[467]

þ[e] which Ar*e* stronglye degeste be naturall heete. // her*e* I haue schewede[468]

the clerlye & trewlye þ[e] mater*e* & þ[e] substaunce of þ[is] ston*ne* vpon*ne* þ[e] which

mater*e* All þ[e] Intente of phelosophers ys grundede & As þ*o*u may vndere[469]

stou*n*de ȝyffe þy wytte be noȝte dull þ[is] ys þ[e] declarac*iou*n of þ[e] . 3.[d] chapit*er* &c[470]

Nowe folowth þ[e] . 4[th]. C*apitulu*m. In order*e*. s . how þ[e] wyrchyng schall be doon*ne*[471]

vpon þ[e] maystrye . The declarac*iou*n ys þ*us* for As moche As Ar*e* *con*streynede be þ[is] reso*u*n[472]

Aforseyde to make Inp*er*fyȝte bodyes p*er*fyȝte w*ith* Abodye þ*a*t ys mor*e* þe[n] p*er*fyȝte.

As In double p*ro*porc*iou*n & c. / hyte be hoveth vs w*ith* our*e* wyrchyng & our*e* Artefecyall

labor*e* to make þ[e] mater*e* of our*e* ston*ne* mor*e* þe[n] p*er*fyȝte . þ*a*t yt myghte be Averye

medesyn*n*e & Areducer*e* vnto All vnclene bodyes. // ȝyffe ȝe knowe noȝt howe[473]

ȝe schall make þ[e] mat*er* of our*e* ston*ne* mor*e* þe[n] p*er*fyȝte wate ys þ[e] cause forsoth yg=[474]

noraun*n*ce . / whye see ȝe noȝte In menerys þat be þ[e] *con*tenuall heete. þ[e] which[475]

ys In þ[e] hyll of men*er*all . þ*a*t þ[e] grosnesse of þ[e] water*e* ys so mych degeste . soden*ne*[476]

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465 **158** contenue] *con*tinued **C** vpon*ne*] on **C** vnto] to **C**

466 **159** þ[e]] *om.* **C**

467 **160** M[l] . folde . 1] *om.* **AGb** 1 . 1000 . folde] *om.* **C**

468 **161** þ[e]] *om.* **C** be] þrought **C**

469 **163** phelosophers] phelosophere **C** þou] yo[u] **Gb**

470 **164** &c] *om.* **CAGb**

471 **165** *In left margin*] 4[u] c*apitulu*m *and horizontal stroke* Nowe] *<N> larger and decorative* Nowe folowth þ[e] . 4[th]. C*apitulu*m. In ordere] 4 capitulum Multipharie *in red ink, title* **A**, The 4 Chapter **Gb** s] *om.* **AGb**

472 **166** As] *Interlinear addition after this (with a single caret indicating it below the line) by 16[th]-c. hand*: we As moche As Are] As myche as \we/ Are <we> *as later interlinear addition* **C**, as myche as we are **AGb**
resoun] resouns **C**

473 **170** ȝe] they **Gb**

474 **171** p*er*fyȝte] *om.* **Gb** wate] wate[r] **A** *(<r> may be a later insertion)*

475 **172** ȝe] they **Gb** þ[e]] *om.* **C**

476 **173** men*er*all] myn*er*all*es* **C**

& made soo thycke . þ*a*t w*ith con*tenuall of tym*m*e hyt ys made . M*er*curij . Also of þ[e][477]
fatenesse of þ[e] erth . be þ[e] same man*er*e of hete ys genderde sulpho*ur* of þ[e] which[478]
M*er*curij. & sulpho*ur* . dyu*er*se bodyes Ar*e* dyu*er*sly genderde after þ[e] clennesse & vn= f. 20r
clennesse of hem*e*. too . be þ[e] same heete ofte *con*tenued // Then*ne* syth yt ys soo[479]
þ*a*t natur*e* wyrcheth vpon*ne* men*er*all bodyes . & maketh hem p*er*fy3te be heete oon*ne*lye[480]
Ande Also gode of nato*ur*e hath menysterde vnto vs Alenyall wey of decocc*io*u*n*[481]
þ[e] whiche ys A *con*tenuall heete . wat causeth you þan*ne* to labour*e* for to make[482]
Inp*er*fy3te bodyes p*er*fy3te be oþ*er* Infenyte weys . Malencolye & fantastycall[483]
whoo be vnto you All þ*a*t wyll ou*er* come nature & make bodyes mor*e* þe[n] p*er*fy3te w*ith* lewde menys founde of your made hed*es* full of malencolye & wode=[484]
nes. // Therfor*e* folowe natur*e*. & I despeyr*e* no3t þ*er* of . Seyth no3t þ[e][485]
phelosophers þ*a*t . M*er*curij . & fyer*e* suffecyth to þ[e] . & Also heete fullfelleth[486]
All thyng . In A noþ*er* place Also seyth . seth seth & seyth Ageyn*ne* but[487]
loth no3t þ[e] . In Anoþ*er* place seys lete your*e* fyer*e* be sooffte & esye[488]
evynlye brynny*n*ge be hys dayes . & lette . yt no3t be to gret noþ*er* to[489]
letyll . ffor þe[n] grete harme schall folowe . / In Anoþ*er* place knowe you[490]
þ*a*t All þ[e] maystrye ys doon*ne* w*ith* oon*ne* thynge & w*ith* oon*ne* vessell . As yt ys seyd[491]
Afore . // In Anoþ*er* place breke hym An*n* . 100 . tymes . / A noþ*er* seyth yt ys[492]

477 **174** *con*tenuall] *con*tynuau*n*ce **C**
478 **175** which] *Catchwords in bottom right corner*: M*er*c*urij* & sulph*ur*
479 **177** too] 2 **AGb** be] throught **C** *con*tenued] cotynued **A**
480 **178** vpon*ne*] on **C** be] þorowe **C**
481 **179** gode] goode **C** hath menysterde] werkythe \and/ hath mynysterd **A**, worketh hath mynistred **Gb** vnto] to **C**
482 **180** þ[e] whiche] whyche **C** ys] *om*. **C**
483 **181** oþ*er*] odor*e* **C**
484 **183** w*ith* lewde menys] w*hi*ch lewde men **Gb**
485 **184** Seyth] syth **Gb**
486 **185** phelosophers] phelesopher*e* **C**
487 **186** seth seth] *these words deleted by another hand, not by the original scribe; see Commentary.* Also seyth . seth seth & seyth] \also/ seythe / Seth Seth & sethe **C**, also saythe seyth*e* seyth*e* & seyth*e* **A**, also sayth sayth and sayth **Gb**
488 **187** In Anoþ*er* place seys] In An oder*e* place / *seys om.* **C**, In a nother saythe **AGb**
489 **188** noþ*er*] uþ*er* **C**
490 **189** In Anoþ*er* place knowe you] *om*. **AGb**
491 **190** þ*a*t All þ[e] maystrye] þat All mastry **C**, Also he saythe y[e] mastery **AGb**
492 **191** As yt ys seyd Afore] *om.* **AGb** 100] C **C** seyth] tyme **C**

brokene w*ith* fyer*e* . In Anoþ*er* place þis <w>erke ys lyckenede mych vnto þ^e[493]
creac*iou*n of man*ne* . ffor As Achelde ys ffyrste norysshede w*ith* lyeȝte mett*es* &
dryn*n*ckes & After warde w*ith* grette met*es* & drynck*es* be comfortede . Ryȝght[494]
soo þ^is maystrye & þ^is werke nedeth ffyrste esye ~~fy^e^re~~ fyer*e* & Afterwarde[495]
grettere & gretter fyer*e*. / vnderstonde thowgh þey speke of fyer*e* . & howe eu*er*e[496]
þey speke þ*er* of . / I sey trewlye þ*a*t your fyer*e* schall be Incresede bute letell[497]
& eselye vnto þ^e ende of þ^e decocc*iou*n her*e* In I haue towchede þ^e man*er*e of[498]
þ^e wyrchyng w*ith* Nakede hand*es* & bare . & c.[499]
Nowe þ^e . 5.^th^ C*apitulu*m. schall trete of þ^e fessell & þ^e ffurnesse . howe & were of
þ^ey scha<ll>[500]
be made. As for þ^e furnesse syth whe p*ur*pose to folowe nature In All our*e* de=
cocc*iou*ns . / whe muste haue A recurse vnto þ^e men*er*all plac*es* . where As þ^e[501]
mettall*es* Ar*e* genderde ./ whe see þat In þ^e depenesse or In þ^e bottome of þ^e
hyll men*er*all . there ys An equall heete durynnge . whos nato*ur*e ys All wey to[502]
Ascen*n*de & In þ^e Ascen*n*s he dryeth ou*er* All & *con*gellethe þ^e water*e* þ*a*t ys hyde
In[503]
þ^e wombe & þ^e veynys of þ^e erth In to M*er*curij. Also of þ^e erthe made hote ou*er*
all[504]
renneth ouȝte sulpho*ur*. & where so eu*er*e þ^e wapour*e* of þ^is sulpho*ur* genderth In þ^e
vey[505]

493 **192** werke] *final stroke of <w> slightly obscured by a smudge* lyckenede mych vnto] myche lykennyde to **C**

494 **194** w*ith* grette met*es* & drynck*es* be comfortede] comfortede w*ith* gret met*es* & drynk*es* **C**

495 **192–195** brokene w*ith* fyer*e* . . . nedeth ffyrste *om.* **AGb**
soo þ^is maystrye & þ^is werke nedeth ffyrste] it muste be norysshed fyrste w*ith* **AGb**
195 ~~fy^e^re~~] *deletion by main scribe; see Commentary.*

496 **196** vnderstonde . . . howe eu*er*e] vnderstond howe so eu*er* **AGb**

497 **197** þ*er* of] of fyer **A**, of fyer **Gb** I sey trewlye þ*a*t] *om.* **AGb** your] y^u^er **A**, there **Gb**

498 **198** þ^e] *om.* **CGb** her*e* In I haue towchede] here haue I touchede **C**, here I haue schowyd **AGb**

499 **199** w*ith* Nakede hand*es* & bare . & c] *om.* **AGb** & c] *om.* **C**

500 **200** *In left margin*] 5^u^ C*apitulu*m *and horizontal stroke* Nowe] *<N> larger and decorated* Nowe þ^e . 5.^th^ C.^m^. schall trete of] 5 c*apitulu*m **A**, *om.* **Gb** *(chapter number in margin)* þ^e fessell & þ^e ffurnesse . howe & were of þ^ey] How & wherof of y^e vessell & y^e ffurnesse **AGb** scha<ll>] <ll> *messy*

501 **202** vnto] to **CAGb**

502 **204** hyll men*er*all] myn*er*all hyll **C**

503 **205** Ascen*n*s] assence **Gb** *(misinterpreted as 'essence')*

504 **206** &] of **AGb**

505 **207** genderth] gendryd **C**

nys of þ^e^ erth of þ^e^ fatenesse of þ^e^ erth meteth w*ith* þ^e^ vapo*ur* of M*er*curij genderd[506]
of þ^e^ thykenes of þ^e^ wate*r*e In þ^e^ veynys of þ^e^ erth . þe^n^ w*ith* þ^e^ heete equalye
durynge In þ^e^ hyll of þ^e^ mene*r*all . dyu*er*se mettell*es* Ar*e* genderde After þ^e^ deu*er*syte[507]
of þ^e^ soule / vnderstonde þ*at* \þ^e^/ mene*r*all hyll ys stonye w*ith* ou3te & stronglye closede of hym[508] f. 20v
selfe þ*at* þ^e^ hete may fynde noon*ne* Issewe ./ ffor yff þ^e^ hete my3te ou3te þ*er* schulde neu*er*e my=
n*er*all bodye be genderde / ther for syth whe p*ur*pose to folowe natur*e* ./ lette vs make suche
Afurnace þ*at* þ^e^ fyere w*ith* In when yt schall Ascende goo no3te ou3te In noon*ne* wyse . soo þ*at*[509]
þ^e^ heete may cause Re<n>verberac*iou*n vpon*ne* þ^e^ wessell þ*at* þ^e^ mater ys In þ^e^ whyche wes=[510]
sell muste be stronglye closede ./ The wessell muste be rounde eyþ*er* of glase or of erth[511]
hauyng som*m*e thycknes of glasse w*ith* A letell necke . whos mveth muste be ryght ston*n*glye[512]
closede w*ith* suche Acou*er*nacle & w*ith* strong lute . / Ande ry3te As þ^e^ heete þ*at* ys In þ^e^ my=
n*er*es towcheth no3te þ^e^ mater of þ^e^ . M*er*curij . & sulpho*ur* forw*ith* be cause þ*at* þ^e^ erth of þ^e[513]
hyll ys be twen*n*e ou*er*all . Nomor*e* schulde your fyer*e* noþ*er* heete towch In medyatly[514]
þ^e^ wessell þ*at* reseyue^th^ yo*ur* matere. therfor þ^is^ wessell w*ith* yo*ur* matere muste be ry3te well

506 **208** þ^e^] *om.* **C**
507 **210** of þ^e^ mene*r*all] *om.* **C** mettell*es*] metall **C**
deu*er*syte] *Catchwords in bottom margin:* of þ^e^ soule
508 **211** soule] soyle **C** \þ^e^/ mene*r*all] þ^e^ *inserted by the original scribe.*
509 **214** Afurnace] A Afurnace **C** *(repetition caused by line break)*
þ*at*] w*ith* **Gb** þ^e^] þ*at* **C**
510 **215** Re<n>verberac*iou*n] reverberac*i*on **CAGb** þ^e^] *om.* **C**
511 **216** The] Thy **C**
512 **217** whos] *om.* **AGb** mveth] movght **C**, moweth **A**, moveth **Gb**
ston*n*glye] strongly **CAGb**
513 **219** forw*ith*] forth w*ith* **C**, ~~for w*hich*~~ **Gb** erth] erre **C**
514 **220** noþ*er*] nor*e* **C**, neither **Gb**

clossede In Anoþ*er* wessell . þ*a*t þ^{e} heete may be þ^{e} mor*e* temp*er*ate ou*er*all yo*ur* wessell &[515]

yo*ur* matter*e* . both Above & be neth . wherfor yt ys seyde In þ^{e} booke þ*a*t ys cleped. lume*n*[516]

luminij . / That our*e* . M*er*curij . ys to be soden*n*e. In Athrefolde wessell . / yt be hoveth . Also[517]

225 þ*a*t ȝe doo Aweye All þ^{e} sup*er*fluyte frome þ^{is} phelosophe*re*. M*er*curij . Inp*re*p*ar*ac*iou*n. wher*e* bye[518]

I seye be þ^{e} helpe of þ^{is} crafte // here haue I schewede you þ^{e} wyrchyng of þ^{e} matter*e*[519]

of yo*ur* ston*ne*. þ^{e} which ȝe haue sowghte . // thorowe þ^{e} whiche werchyng of þ^{is} seyde ston*ne* ys[520]

chaunched ofte w*ith* heet Into dyu*er*se colours . where*f*or lete vs p*ro*sede vnto þ^{e} 6^{m} C^{m}[521]

The . 6.^{m} C*apitulu*m of All colours Accydentall & essenciall . wher*e* of yt ys seyde As many[522]

230 colours . As many Names . In Anoþ*er* place . After þ^{e} dyu*er*se colours þ*a*t Apereth In þ^{e}[523]

wyrchyng . þ^{e} ston*ne* ys dyu*er*slye chaunchede . // After þ^{e} phelosophe*re* In þ^{e} firste decocc*iou*n[524]

þ^{e} which ys callede put*re*fac*ciou*n . our*e* ston*ne* ys made \all/ blacke Aboven*ne* In þ^{e} sup*er*eor*e* place[525]

where*f*or yt ys seyde . when*ne* þ*o*u fyndeste hym*e* blacke . þe^{n} knowe þ*o*u sewerly þ*a*t wyette=[526]

515 **222** þ^{e}] *om.* **C**

516 **223** lume*n*] Lumine **Gb**

517 **224** luminij] luminu*m* **AGb**

518 **225** þ^{e}] *om.* **C** phelosophe*re*] Philosophe*res* **Gb**

519 **226** helpe] helpe*re* **CA**

520 **227** of] & of **AGb**

521 **228** vnto] to **C** where*f*or lete vs p*ro*sede vnto þ^{e} 6^{m} C^{m}] &c **A**, *om.* **Gb**

522 **229** *In left margin*] 6^{m} C^{m} *and a horizontal stroke* The .6.^{m} C.^{m}] . s . **C** *(in the margin:* 6^{m} C^{m}*)*, 6^{m} c*apitulu*m **A**, *om*. **Gb** *(in the margin:* of the Cullers .6.)
All] All the **AGb** As] *om*. **Gb**

523 **230** þ^{e}] *om.* **C**

524 **231** þ^{e} phelosophe*re*] phelesophers **C** *In right margin, in the 16th-c. hand*] no*ta*

525 **232** þ^{e}] *om.* **C** all] *Insertion by the original scribe*
Aboven*ne* In þ^{e} sup*er*eor*e* place] *om*. **C**

526 **233** þe^{n}] *om.* **C** þ*o*u] *om.* **C**

nes ys hyede In þ*a*t blackenes . // þe[n] yt be hoveth þ[e] to drawe ou3te þ[e] whyettnes[527]
of þ*a*t blackenes . // where*f*or oon*ne* phelosophere seyth . when þ*o*u fyndeste hym Nowe[528]
blacke . / knowe þ*o*u þ*a*t yt ys þ[e] keye of þ[e] wercke. // Then*ne* After þ[is] putrefacc*iou*n hyt[529]
be gynneth to wexeth Cetryn*n*e . //wher for yt ys seyde efte yt melteth of yt[530]
congeleth be for þ[e] verye whyettenes . // wherfor yt ys seyde Also he dyssolueth[531]
hym selfe . he quekethe hym selfe . he maketh hym selfe blacke . he makethe[532]
hym selfe whyette . he maketh selfe Rede . / Also Afor þ[e] whyettenes . he ys gren*n*e[533]
wherfor yt ys seyde . Seth hym tyll Agren*n*e colour*e* Apere to þ[e] whych ys þ[e] soule.[534]
Also yt ys seyde þ*a*t þ[e] soule hathe þ[e] domynac*iou*n In þ*a*t gren*n*ese . // Also þ[e] colo*ur* of Apecoke[535]
scheweth Afor þ[e] <ve>ry whyettenes . // wherfor yt ys seyde . knowe þ*a*t All þ[e] colours[536]
þ*a*t may be thoughte to day In þ[e] worlde Appereth Afor þ[e] whyettenes ./ þe[n] soo[537]
foloweth A verye whyettenes . // where yt ys seyde . when þ[e] clen*n*e latou*n*e ys so=
dyne þ*a*t yt schyen*ne* lyeke vnto fysshes eyen*ne* . þe[n] þ[e] p*er*fy3te þ*er* of ys for to Abyede[538]
þe[n] ys þ[e] ston*ne* congelede rounde . / yt ys seyde Also when þ*o*u haste founde A why=
ettenes ou*er*all In þ[e] vessell . // þe[n] be þ*o*u sewer*e* þ*a*t Redenese ys hyede þ*er* In . þe[n][539]
muste þ*o*u seth yt tyll yt be All Rede . But drawe no3te ou3te þ[e] Redenes þ*a*t ys
hyede . // fforþ*er*mor*e* be twen*n*e þ[e] verye whyettenes & þ[e] trewe Redenes þ*er* ys[540]

527 **224** yt] *om.* **C**
528 **235** Nowe] *om.* **AGb**
529 **236** þ*o*u] *om.* **C** hyt] hit hyt **C**
530 **237** wexeth] wex **CAGb** efte yt] also yt dissolveth him self **Gb**
531 **238** wherfor] *om.* **C** dyssolueth] dyssoluys **C**
532 **239** quekethe] quyckneth **Gb**
533 **240** maketh selfe] *interlinear insertion between these words by 16th c. hand:* hym, maketh hym self **CAGb** Also Afor þ[e] whyettenes] Afore why3tnes Also **C**
534 **241** wherfor yt ys seyde] wherefore yt is sayd y[t] the sowle hath the domynac*i*on **Gb**
535 **242** Also þ[e] colo*ur*] þ[e] colo*ur* Also **C**
536 **243** <ve>ry] <ve> *smudged, see Commentary.*
537 **244** to day In þ[e] worlde] *om.* **AGb**
538 **246** vnto] *om.* **C**
539 **248** þe[n] be þ*o*u] Be **C**, then be **Gb**
540 **250** þ[e]] *om.* **C** ys] *Catchwords in bottom margin:* Amane*r*e of grey

f. 21r

Aman*er*e of greye Asshes / wherfor yt ys seyd After þ[e] whyettenes w*ith* Incre=[541]
ssyng of heete of þ[e] fyer*e* þ*o*u schalt come vnto Asshes // where it ys seyde dyspyce[542]
no3te þ[e] Asshes . for gode wyll y3ffe þ[e] to yt leq*ua*facc*iou*n . þe[n] schall Akyng be[543]
crownede w*ith* Arede dyademe thorowe þ[e] power*e* of Almy3ttye gode . here haue I[544]
made An*ne* ende of þ*a*t I p*ro*mysede þ*a*t ys to sey of þ[e] grete maystrye to make þ[e][545]
Elyx*er*e moste excelente both for golde & syluer*e* &c[546]
Nowe fynallye I schall declar*e* þ[e] . 7[m]. C*apitulu*m. & þ[e] laste þ[e] which . C*apitulu*m. ys þ[e] p*er*fec=[547]
c*iou*n & þ[e] fulfyllyng of All þ[e] werke & þ[e] cause of Ioye & gladenes . þ[e] . C*apitulu*m. ys þ[is]
of þ[e] crafte of p*ro*jecc*iou*n & wher vpon*ne* yt may beste be wroughte &c[548]
ffor þ[e] . ~~declac*iou*n.~~ declarac*iou*n of þ[is] . C*apitulu*m. vnderstonde þ*a*t þ[e] whyett Elyx*er*e maketh[549]
whyette Infenytlye . & reduceth All man*er*e bodyes vnto Ap*er*fy3te whyettenes . Also[550]
þ[e] Rede Elyx*er*e reduceth All man*er*e of bodyes In to Ap*er*fy3te Redenes . // It ys[551]
to vnderstonde þ*a*t som*m*e bodyes ys forther*e* frome his p*er*fecc*iou*n þe[n] some . // for*e* though[552]
eu*er*y bodye ys made p*er*fy3te be þ[is] Elyx*er*e . 3yte þos bodyes whyche Are mor*e* ner*e*[553]
of þ[e] kende of þ[e] Elyx*er*e . be soune*r*e reducede & made p*er*fy3tte þe[n] oþ*er* bodyes[554]

[541] **251** wherfor] wher of **C**
[542] **252** vnto] to **C**
[543] **253** wyll y3ffe þ[e] to yt] schall y3ff yt **C**, wyll geue to y[e] **AGb**
[544] **254** Almy3ttye] *om.* **C**
[545] **255** þ[e] grete] grete **C** þ[e]] *om.* **C**
[546] **256** &c] *om*. **CGb**
[547] **257** *In left margin*] 7[m] C[m] *and horizontal stroke* Nowe] <N> *larger and decorated*
[548] **257–259** Nowe ... wroughte &c] 7[u] c*apitulu*m **A**, *om*. **Gb** *(in left margin:* 7*)* **259** &c] *om.* **C**
[549] **260** *In left margin*] *not*a ~~declac*iou*n~~] *deletion by main scribe*
ffor þ[e] . ~~declac*iou*n.~~ declarac*iou*n of þ[is] . C[m]. vnderstonde] Nowe vnd*er*ston*d*e **AGb**
[550] **261** man*er*e] man*er* of **AGb** vnto] to **C**, in to **AGb**
whyettenes] Rednes It is to vnderstond whitenes **Gb**
[551] **262** of] *om*. **C** Ap*er*fy3te] p*er*fyte **C**
[552] **263** to] Also to **C**
[553] **264** þos] þo **C**
[554] **265** oþ*er*] þoo **C**

þ^e whiche Ar*e* forther*e* þ*er*fro . // Then syth whe fynde Abodye Inp*er*fy3te full[555]
nygh his p*er*fecc*iou*n whe Ar*e* excusede be hym from many oþ*er* þ*a*t be forther*e* þ*er*fro
þ^e whiche bodyes Ar*e* nygh here p*er*fecc*iou*n . & þ^e which Ar*e* forther þ*er*fro . // 3yffe þ*o*u be[556]
wyttye & wyse þ*o*u schalte fynde hyt opynly determed In þes . chapeters and[557]
w*ith* ou3te dou3te who so eu*er*e ys so suttellye groundede In þ^is chapyters þ*a*t he can*n*e
fynde þ*er*bye þ^e trewe matere of oure ston*ne* . he sauoryth well . wher vpon*ne* he schall
ratheste make hys p*ro*jecc*iou*n After þ^e p*er*fecc*iou*n . ffor whye þ^e olde ffaders of þ^is
scyen*n*ce þ*a*t founde þ^e trewthe of þ^e matere be her phelosophye schewede opynly[558]
w*ith* here fyn*n*gers Ary3ghte weye // Then*ne* þey seyde Nato*ur*e Ioyeth hys nature[559]
& Nature ou*er*e com*m*eth nature . & nature metyng his nature gladdeth & ys chau*n*ged[560]
vnto Anoþ*er* nature . In Anoþ*er* place yt ys seyde lykenes Ioyeth hys lykenes . ffor[561]
yt ys seyde . lykenes ys cause of frendschepe . wher of trewe phelosopher*e*s[562]
All lefte vs suche Asecrete . knowe þ*a*t þ^e soule enterth sou*n*e hys owyne bodye
& In noon*ne* wyse ys he Ioynede vnto Astraung bodye which ys made oon*ne* þ^is
man*er*e.// ffyrste bodelye þynge*s* Ar*e* made sp*irit*uall . Ande sp*irit*uall þyn*n*ge*s* Ar*e* made
bodelye þynge*s* . Then In þ^e fulfyllyng of þ^e werke All þ^e bodye ys made sp*irit*u=
All & fyxe . / þat ys to seye p*er*fy3te. Elyx*er*e . whyete or*e* Rede // Then syth[563]
þ^is Elyx*er*e ys so ferre wroughte be you*n*d his nature . hyt ys noon*ne* m*er*vell though[564]
yt may no3t be medelde forthe w*ith* . w*ith* Abodye þ*a*t ys molttenne . ffor trewlye yt

555 **266** þ^e] *om.* **C**
556 **268** þ^e whiche] whyche **C** þ^e which] whyche **C** y^e whiche bodyes Ar*e* nygh here p*er*fecc*iou*n . & y^e which Ar*e* forther y*er*fro] *om.* **AGb**
þ*o*u] then \thou/ **Gb**
557 **269** determed] determynyd **AGb**
558 **273** her] her **Gb** *(should be "their")*
559 **274** here] her **Gb** *(should be "their")* þey] the **Gb**
560 **275** &] *om.* **C**
561 **276** vnto] In tyll **C**, into **Gb** Ioyeth hys lykenes] *lacuna in* ***C*** *begins after these words*
562 **277** trewe] the true **Gb**
563 **282** ore] and **Gb** *In right margin, in 16th-c. hand*] no*ta*
564 **283** þ^is Elyx*er*e ys so ferre wroughte] this Elexer so sore is wrought **Gb**

ys ryȝte \a/ grete þyng to caste þ^is^ Elyx*er*e vpon*ne* A . M^l^. M^l^. 1 . 1000000 . p*ar*te*s* or mor*e*. And to[565]
chaung hem forth w*ith* . / wher for I schall ȝyffe þ^e^ Amor*e* secrete . Made be . oon*ne* p*ar*te
of þyn Elyx*er*e w*ith* A bodye þ*at* ys nyghe vnto þ^e^ same kende & put yt All In Avessell
Avessell glassede þ*at* ys conuenyente þ*er* for stronglye closede . þe^n^ put yt In A[566]
phelosophers furnase of fusyo*u*n w*ith* An*ne* esye fyer*e* at þ^e^ begynenyn*g* & so forth Incressyn*g*[567] f. 21v
þ^e^ fyer*e* be þ^e^ space of . 3^m^. dayes vnto þey be Ioynede to geder so þ*at* þey be noȝte[568]
& may noȝte be dep*ar*tede Asundre þ^is^ is Awerke of . 3^m^. dayes . þe^n^ take ageyn &[569]
laste of All . Caste eu*er*y p*ar*te of þys medesyne vpon*ne* Anoþ*er* . M^l^. 1 . 1000 . of eu*er*y[570]
bodye. but rather*e* chese . þos bodyes þ*at* Ar*e* moste ner*e* þ^e^ same kende . thys ys A[571]
werke of oon*ne* . daye or*e* of . oon*ne* . ho*ur* of Amome*n*t or*e* An*ne* halfe finis Auctar*is* de[572]
quo semp*er* est mirab*ilis* &c[573]

565 **285** ryȝte] *om*. **AGb** \a/ grete] a *inserted by main scribe* A . M^l^. M^l^. 1 . 1000000] a 1000000 **A**, .1000000. **Gb**
566 **288** Avessell] *om*. **AGb** glassede] of glase or glassed **AGb** In A] *Catchword in bottom margin:* phelosopher*e*s
567 **289** begynenyn*g*] begynnyng **AGb**
568 **290** to geder] *lacuna in* ***C*** *ends starting with these words* be noȝte] *om.* **C**
569 **291** & may] may **C**, ~~and~~ \nor/ maye **Gb**
570 **292** M^l^. 1 . 1000] M^l^ **C**, 1000 **AGb**
571 **293** rather*e* chese] chese rather **C** þos] þoo **C** kende] *om*. **AGb**
572 **294** of Amome*n*t or*e* An*ne* halfe] or halfe a ho*ur* **AGb**
573 **295** mirab*ilis*] nurabl*is* **Gb** &c] *om*. **C**

Commentary

The line numbers in the following commentary refer to **T** (i.e. the base text of this edition). I have not remarked separately on chapter numbers added by the main scribe in the margins, as they appear in the textual apparatus and are regular. I discussed unrecorded forms and antedatings in Section 6.3.2.3, but I remark upon them in this Commentary for the first occurrence of the word.

1 **Abstrace**: This is a previously unrecorded form of the word *abstract*, appearing neither in the *MED* nor the *OED* (see Section 6.3.2.3).

3 **A p*er*fete Elyx*er*e both for þ^e^ whyete & þ^e^ Rede**: The goal of *MoA* is to show how to make the white and red elixirs, i.e. the agents transmuting metals into silver and gold, respectively.

4 **þ^e^ chelder*nn*e of doctry*nn*e**: This is fairly ambiguous. "Doctry*nn*e" here appears to correspond to *MED* s.v. *doctrine*, subsense 4b: 'knowledge, learning, education, edification': thus, these children of doctrine are metaphorically 'children of knowledge/learning' in the field of alchemy.

7–8 **In Aman*er*e derkenes & In oon*ne* mystye voys**: This appears to be a criticism of earlier alchemical texts intentionally obscuring their meaning; see Section 2.2.2. Cf. Norton's *Ordinal of Alchemy* (Reidy ed. 1975: 6, ll. 62–63): "Thei made theire bokis to many men ful derk, / In Poyses, parabols, & in mathaphoris alle-so".

8–9 **þey lefte yt vs hyede w*ith* þ^e^ veyle of dyspeyr*e* & vtterlye deuydede**: Here, "yt" refers to "þ^is^ nobell scyens" (l. 6), 'this noble branch of knowledge', i.e. alchemy – the science that the old philosophers left to "vs", that is, to later generations. The metaphor of alchemy having been left 'hidden with the veil of despair' appears to refer to the mysteriousness of previous alchemical writings. "Vtterly deuydede" may refer to the multiplicity of approaches to reaching alchemical goals such as the Philosophers' Stone: that is, previous alchemists have left the present generation

divided in their intentions as to how the alchemical processes should be achieved (see Section 2.1).

10 **oon*ne* þ^{is} ys**: The later, 16th-century hand which has annotated *MoA* in **T** (see Appendix 1: Additional Hand 1) has added <ys> in black ink (indicated in the MS with a sublinear caret) as an interlinear insertion between the words <oon*ne*> and <þ^{is}>. The original <ys> has been struck out in black ink by this later annotator. This correction was probably motivated by syntactical concerns. **C**'s scribe has the same word order as the later, 'corrected' one in **T**; **AGb** have the 'odd' word order, and the scribe of **Gb** has possibly not understood that <on> in **A** signifies the numeral.

11 **ygnorantly þ^{e} trowth**: Between <ygnorantly> and <þ^{e}>, the 16th-century annotator has inserted <of>. This interlinear insertion is in black ink, inserted below the line with a single caret marking the spot. The other MSS do not have this addition. This section could be translated (with a slight change in syntax) as 'they wrote the truth to their own sons and friends, not ignorantly'. The addition of <of> is another example of the annotator's corrections (which often reflect a different interpretation of the original text).

14 **occultatyffed**: This form is unrecorded in the *MED* and *OED* (see Section 6.3.2.3). It is probably related to the verb *occulten* (*MED*, sense 1: 'to keep (knowledge) secret, conceal'). In addition, comparisons to Latin manuscript copies of *Speculum alchemiae* suggest that "occultatyffed" may be influenced by the Latin past participle *occul(ta)tus*; e.g. f. 117r of TCC MS R.14.44 has "occvltata" here. The meaning of this word thus seems to be 'hidden, concealed'.

14–15 **þ^{e} phelosophe*r* seyth þ*er* ys noon*ne* v*er*ye*r* preve þen þ*a*t þ^{e} Eye sethe**: Here, "þ^{e} phelosophe*r*" is most likely a reference to Aristotle (see Section 6.1.2). This statement seems to advocate for empiricism, and according to Aristotle "The ultimate source of human knowledge [...] was the senses" (Falk 2020: 115). This phrase includes an addition by the later annotator: <preve> has a <d> inserted at the end of the word in the 16th-century hand, indicating that the annotator has mistakenly considered this noun ('proof') a verb ('prove'). This annotator also seems to have added a clarifying stroke to the right-side lobe of <y> in <Eye>: this addition is clearly visible, as the original word is in red ink and the additional stroke in black ink. The annotator probably considered the original letter to be sufficiently unclear to demand a clarification.

15 **sethe //**: The text is rubricated from the start of the text to the two virgulae here. The red ink ends after the virgulae, midway in the prologue. It could indicate that the original scribe considered the rubricated section (with the incipit and part of the prologue) to form a whole of its own, but this is rather slim evidence.

17 **þ^{e} serteyne In te*n*nte of oþ*er* Auctours**: This 'certain intent of other authors' is of interest concerning the modern editorial conversations on authorial intent. "Auctour" here may refer to a writer, but the more likely sense is that of a source of authoritative information – in particular, an alchemical authority.

19 **sodenlye**: This word has been struck out by the 16th-century annotator, who has inserted <so darkely> above <sodenlye>. It is possible that due to semantic change, this word was particularly confusing to the annotator (see Glossary; it seems to be in the meaning of 'without forethought' here), so the annotator changed it to something that made more sense to them in the context of alchemical authorities being obscure.

25 **ent*er*ecyens**: This is a previously unrecorded word, not appearing in the *MED* or *OED* (see Section 6.3.2.3). The precise meaning of this word is unclear, although based on the context, and on the Latin manuscripts' reading with *intervallum* 'an intervening space, distance' (e.g. TCC MS R.14.44, f. 117r, "intervallo"), it seems to mean 'distance'.

30 **deste*ncioun*s**: This appears to be a misspelling: cf. *MED* s.v. *descencioun* and the variants with <c> in **CAGb**.

31 **Inserac*iou*ns**: This word does not appear in the *MED* and is an antedating for the *OED*; *OED* s.v. †*inceration* (see Section 6.3.2.3).

31 **fyxyo*u*ns**: This is a previously unrecorded form in the *MED* and an antedating for the *OED*; *OED* s.v. †*fixion* (see Section 6.3.2.3).

34 **4to . speryt*te*s**: 'Spirits' here is a rather opaque term (see Glossary); it is not appearent from *MoA* what is referred to here. Chaucer's *Canon's Yeoman's Tale* (ll. 820–824) refers to "The foure spirites and the bodies sevene [...] The firste spirit quyksilver called is, The seconde orpyment, the thridde, ywis, Sal armonyak, and the ferthe brymstoon" (Benson ed. [1987] 2008: 273). It is possible that the four spirits referred to in *MoA* correspond to quicksilver, orpiment, sal armoniac, and sulphur (brimstone).

35 **markecaset*es***: This is probably an error, as <Marckeset*es*> appears on l. 130; cf. Glossary s.v. *Marckesetes*.

35 **magnaset*es***: This appears to be an unusual form for *magnesia*; cf. <Magnesijs> on l. 130. The list of minerals on l. 35 is <markecaset*es*. magnaset*es*. tut*es*. & vppon*e* many oþ*er* myn*er*all*es* thyng*es*>, and on ll. 130–131 is <Magnesijs. Marckeset*es* tutijs . Att*ra*ment*es*. Alu*m*mys . borac*es*. noþ*er* of noon*ne* man*er*e of salt*es*>. Based on the similarity of the first three items, "magnaset*es*" and "Magnesijs" seem to mean the same thing. The form "magnaset*es*" does not occur in the *MED* or *OED* (see Section 6.3.2.3).

36 **veg\e/table**: Whatever original letter was between <g> and <t> has been scribbled out by the main scribe, who has added <e> above the smudged letter, indicating the addition with a single caret.

37 *(Marginal note)* **Bacon of Alchyny . | Speculu*m* . printed**: This note is in the right margin, in a later (probably 17th- century) italic/Secretary hand. This note must be dated post-1597, when **Oli** was published, as this is a clear reference to that printed book. This note may be in the hand of Thomas or Roger Gale (see Section 4.2.3 and Appendix 1). It is unclear why this identification of **T** containing the same work as that in **Oli**, and attributed to Bacon, occurs here, midway through the 'preamble'. It is possible that the list of chapters which follows on ll. 45–52 may have had an effect.

38 **terment**: See Section 6.3.2.3. This is an unrecorded past participle form of the verb *terminen* (cf. *MED* past participle spellings *termened* and *iterminet*). **C** spells this <t*er*mende>, but **A** has <terment>, as does even **Gb**. The scribes of **A** and **G** did not perhaps understand this word.

38 **. s .** This is the Latin abbreviation for *scilicet*, 'that is to say; namely' (*OED*, s.v. *scilicet*, sense 1; 'Used to introduce more detailed information, or to specify a referent'). See also ll. 53, 64, 91, and 165. It is worth noting that **Gb** copies this abbreviation as the numeral 6: this appears to be a consistent mistake (e.g. **T** ll. 38, 39) (unless **A** omits <s>, in which case **Gb** does too, e.g. l. 53). See Section 5.1.2.2 for a discussion of the **Gb** scribe's probable lack of proficiency in Latin.

41 **transformac*iou*n**: This alchemical sense is not recorded in *MED*, and this occurrence antedates the *OED* citations in this sense (see Section 6.3.2.3).

41 **~~gi~~**: A mistaken start, struck out by the main scribe probably already while copying, as <Ande> has been added before <gyffe>.

44 **her*e* ffoloweth þ^e^ Capeto*ur*s In ord*er***: This heading is centred and written in red ink. The letter <T> on the next line (l. 45) is the final use of rubrication in *MoA* in **T**.

44–52 In the left margin, there are *nota* signs by the original scribe, indicating each of the seven chapters. The *nota* on l. 45 is rubricated, the others are in the brown ink that the main text is written in.

46 **þ^e^ naturall*es* & p*r*incipall*es***: Here, "naturall*es*" may refer to Aristotle's contraries (see Section 2.1.3); however, e.g. TCC MS R.14.44 reads "de princepijs naturalibus" here (f. 117v), and so this reading in **T** may simply be an error and should read "þ^e^ naturall p*ri*ncipall*es*".

54 **hermes . þ^e^ phelosophe*r*e**: Hermes Trismegistus, the legendary founder of alchemy; see Section 2.1.1.

54–56 **Abodelye s*ub*sta*un*ce ... Abette*r* kende**: This passage is strikingly similar to the preface of Robert of Chester's translation of the Arabic *Book of the Composition of Alchemy* from 1144 – the first alchemical treatise translated from Arabic into Latin. This passage is translated in Holmyard ([1957] 1990: 106): "Alchymia is a bodily substance compounded of one, or by one, thing, and more precious by conjoining nearness and effect, and with the same natural commixion converting naturally with better policies".

57 **t*ra*nsfro*m*me**: Should be "t*ra*nsfor*m*me"; the scribe has accidentally transposed <o> and <r>.

58 **þ^e^ phelosophers bok*es***: <phelosophers> should here be interpreted as a plural, 'the philosophers' books' instead of the singular, which would (most likely) refer to (pseudo-)Aristotle unless otherwise mentioned. 'Philosopher' may refer to any scientists of the time (cf. the later term *natural philosopher*), but probably means alchemists here (see Section 6.1.2).

60 **A phelosophe*r* þ*a*t hyȝte Alkem*us***: Here, the reference is to the legendary Alkemus/Alchimus/Alchymus, who was sometimes credited as the founder of alchemy; see Section 2.1.1 and especially Thorndike (1934, vol. III: 33); and cf.

Norton's *Ordinal of Alchemy* (Reidy 1975: 18, ll. 469–472): "This science berith hir name bi a kinge | Callid Alchymus with-owte lesynge; | A glorious prince of moost noble mynde, | His noble vertuys holpe him þis arte to fynd".

62 **þ^{is} ys þ^{e} auctou*r*s Intente**: Cf. note for l. 17. Here, the reference may be to the specific author of this treatise. As to what that intent specifically is, *MoA* is not entirely transparent, but it probably refers to teaching how to make the elixir.

64 **declac*iou*n**: An error; this should be "declarac*iou*n".

68 **sup*er*uenyens**: This word resembles the present active participle of the Latin verb *supervenio* 'come, arrive'. In comparison, the Latin form "superueniencia" in MS R.14.44 (f. 118v) is a verbal adjective. See Section 6.3.2.3.

71–72 **Sol . luna . Iubit*er* . sat*urnus* . ven*us* . mars . // Golde . sylu*er*e . Ty*n*ne . lede . C*oper*e . Iry*n*ne**: For a discussion on the variants in **TC** versus **AGb** in this section, see Section 5.1.2.2.

80 **terrestryall**: This sense does not appear in the *MED*, and this occurrence is an antedating for the *OED* in this sense (see Section 6.3.2.3).

82 **Adusteble**: This is a previously unrecorded form and antedating, not appearing in the *MED*; *OED* s.v. *adustible*, "treatable with intense heat" (see Section 6.3.2.3).

84 ~~***con*bustebl**~~ ***con*busteble**: The probable reason why the first attempt has been struck out (by the main scribe, while writing) is that the ink from the other side of the page bleeds over here where the final <e> of the first attempt would be; the paper is thin enough here to almost have a hole. Thus the scribe has decided to rewrite the word entirely. This is a previously unrecorded form, not appearing in the *MED*, and is an antedating for the *OED*, s.v. *combustible* (see Section 6.3.2.3).

86 **Adure*n*t**: This form is not recorded in the *MED* or *OED*. There is only one recorded citation of the verb *aduren* in the *MED*. See Section 6.3.2.3.

87 **su\l/pho*ur***: <l> has been inserted above line with a single caret by the main scribe. It seems the scribe has noticed their error while writing.

87 **fusyo*u*n**: This is a previously unrecorded form in the *MED* and an antedating for the *OED*; *OED* s.v. *fusion* (see Section 6.3.2.3).

100–101 **noon*ne* fore*n*ne þyng*es* or potencyall to make Any newe t*ra*nsformac*iou*n**: Here, <or> would seem to be a mistake, as the likeliest interpretation regarding the meaning of this phrase is 'no foreign things *have* the potential to make a new transformation'.

101 *(Interlinear note)* **w*hi*ch hathe not taken their originall of the<m> ij <is> able or sufficient to make them or of them**: Starting above <þyng*es*> and extending into the right margin, this note is inserted between the lines in a 16th-century secretary hand; a single caret between <potencyall> and <to> indicates where the inserted text should go. The ink is faded and the text is so small that it is difficult to make out even with a magnifying glass. As a whole, with the insertion, this passage would thus read <hyte Appereth þ*er* bye þ*a*t noon*ne* fore*n*ne þyng*es* or potencyall w*hi*ch hathe not taken their originall of the<m> ij <is> able or sufficient to make them or of them to make Any newe t*ra*nsformac*iou*n>. The difficult to decipher words make interpreting this addition challenging; however, it must have been intended as a clarification. In fact, this insertion seems to be influenced by the 1597 printed edition (**Oli**): p. 4 of **Oli** reads "it remaineth cleane inough, that no strange thing which hath not his originall from these two, is able to perfect them, or to make a chaunge and new transmutation of them". It is possible the annotator used **Oli** and **T** side by side.

102 –103 **Arystotell seyth þ*a*t . 2u . *con*t*ra*ryes naturall may noȝt be to geder*e* In oon*ne* bodye**: This is a reference to Aristotle's theories on the primary qualities or contraries that make up all matter (e.g. hot-cold, dry-wet). See Sections 2.1.3 and 5.1.

104 **þe phelosophe*re***: As this is a reference to *the* Philosopher, it most likely means Aristotle (see Sections 2.2.1 and 6.1.2).

105 **Aman*ne* ... genderth Alyon*ne***: These references to nature, in which humans procreate humans and lions procreate lions, are used as an argument for why a mineral substance should be chosen for the Philosophers' Stone. This seems to be an ancient argument; cf. the translation by Taylor (1949: 36) of Berthelot's (1888: 145) edition of a 3rd or 4th-century Greek alchemical text: "for barley engenders barley and the lion, a lion, and gold, gold".

106 **& skyth ys *con*t*ra*rye**: For a discussion of the textual variation here, see Section 5.1.2.1.

110–111 **noȝt be cause yt schulde be take Afftere lettr bute Affter þe ffegure & lekenes**: This seems to be a reference to translation styles (word for word vs. sense by sense; see Section 6.2.1), but refers here to the interpretation of alchemical writings: they should be interpreted figuratively rather than literally.

112 **Ioynede**: The verb tense seems odd here. However, based on comparison with the other MSS, it seems that the scribe has simply mistakenly omitted <be> before this word.

122 **lyv<e>**: The 16th-century annotator has made a correction here, writing <ff> directly on top of the final <e>. It seems a strange correction, but it is possible that the annotator thought that the original scribe's <v> is actually <e>, and thus 'corrected' the word to read "lyeff". *MED* (s.v. *lif* n.) records "live" as a spelling of 'life', so the **T** scribe's spelling here is not unusual.

122 **mad**: I.e. 'made', the past participle of *make* (cf. *MED* s.v *maken* v.1: *mad* is listed as an attested form).

127–128 **mannys blode here . vryne . grete Egges . of hennes**: These are all examples of substances which were historically used as the basis for the Philosophers' Stone. The historical Bacon considered organic substances to be a good starting point; see Section 2.1.3. It is ironic that *MoA*, attributed to Bacon, might consider Bacon one of those "many folys" who have laboured with such organic substances.

131 **saltes**: The 16th-century hand has added <& c> after this word, indicating the addition with a caret below the line. This is an interesting addition, as it seems to imply that the annotator thought the list of 'middle minerals' should include more items. If the annotator had **Oli** at hand (see the note for line 101), this would seem a logical thing to add, as Chapter III of **Oli** includes a longer list of substances such as the "seven spirits" (see Section 5.3.2.1).

132 **comynne . Mercurij & sulphour**: Common mercury and sulphur, i.e. the physical substances, as opposed to the more abstract philosophical mercury and sulphur; see Section 2.1.2.

136 **kepe þis secrete**: Although *MoA* claims in the prologue to explain the concepts of alchemy without resorting to secrecy like previous texts, this exhortation is

nonetheless a reminder of the secretive nature of alchemy. It is unclear whether this refers to the fourth conclusion it follows, or the fifth conclusion coming after it.

138–139 **watere þ^e^ whiche ys clepede . Mercurij . After*e* þ^e^ phelosophers**: This would appear to be a reference to 'philosophical mercury'; see Section 2.1.2.

145 **An . C . folde . or An . M^l^ . folde p*ro*porc*iou*n**: See the discussion for ll. 159–160.

146 **Arnoȝte**: 'are not'. This is another example of the scribe's orthographical habits in which different word classes can be written as one word, such as the indefinite article + noun combination.

147 **þ^e^ golde ys \a/ p*er*fyȝte bodye**: <a> is an interlinear insertion by the main scribe, indicated with a single caret between <ys> and <p*er*fyȝte>; probably inserted while writing.

149–150 **feminine**: The word in this sense, "of things thought to possess female functions or qualities", does not occur in the *MED*, s.v. *feminin(e* (see Section 6.3.2.3).

154 **clene**: This repetition may be caused by eyeskip when copying, or the scribe did not notice they had already copied the word at the end of the previous line. The other MSS do not have this repetition.

158 **clensy*ng*e**: This is a previously unrecorded sense, not appearing in the *MED* or *OED* in an alchemical sense (see Section 6.3.2.3).

159–160 **M^l^ . folde . 1 . 1000 . folde**: **T** differs from the other Group 1 manuscripts in the scribe's treatment of numbers. The scribe copies larger numbers with a curious tautology in *MoA*, as in these lines. Here, the other manuscripts have the numerals only once, in a more ordinary manner: "M^l^ . fold" (**C**, f. 53r), "1000 . folde" (**A**, f. 45r), and ".1000. folde" (**Gb**, f. 122r). If **A** was copied from **T**, this is another case where **A**'s scribe exercised their editorial capacity. The scribe of **T** just repeats the same number, possibly for emphasis or clarification: "A. M^l^. folde . 1 . 1000 . folde" might be read 'a thousand-fold, that is, one thousand fold'. Perhaps the Arabic numerals were seen as more 'scientific'. This tendency of **T**'s occurs throughout *MoA* where larger numbers are mentioned.

160 **bodyes**: The letters in this word are clear to read but without the scribe's usual flow, as if the scribe had gone over them a second time after some damage to the paper.

162 **þ^{e} substaunce of þ^{is} ston*ne***: I.e. the Philosophers' Stone. Linden (1992: 95–108) includes in his edition of **Oli** a commentary on *MoA* from 1739. This 18th-century commentary is not very useful for my editorial purposes otherwise, but here it suggests that the substance should be *native cinnabar*, "a hard, ponderous, metallick, and beautifully red stony Substance" (quoted in Linden 1992: 104).

163 **As þ*o*u may vnder*e* stou*n*de ȝyffe þy wytte be noȝte dull**: The reader is addressed in a disparaging way here. **Gb** has <yo^{u}> here instead of *thou*, which is probably influenced by the thorns in **A** looking identical to the <y>s. However, **Gb** has <thy> where **T** has <þy>.

166 **maystrye**: This is a complicated term (also occurring on ll. 29, 49, 190, 195, 255). Its base meaning is 'craft, skill; mastery, control' (see Glossary); however, "how þ^{e} wyrchyng schall be doon*ne* vpon þ^{e} maystrye" (ll. 165–166) suggests a more concrete use of the word. Grund defines it in this sort of context as "the alchemical opus" (2011b: 324, s.v. *masterie*).

166 **As Are**: The 16th-century annotator has corrected this error of omission by adding <we> between these words, indicated by a single caret below the line.

169–170 **Averye medesyn*n*e**: *MoA* does not refer to medical aspects of alchemy, but the Stone was commonly viewed as a medicine capable of 'healing' metals; see Section 2.1.3.

171–172 **wate ys þ^{e} cause forsoth yg=noraun*n*ce**: This is another instance of referring to the reader ('if you do not know how you shall make the matter of our stone more than perfect, what is the cause? Truly, ignorance') and insulting the reader's intelligence (see also ll. 163–164 and 180–184).

173 **þ^{e} hyll of men*er*all**: A reference to the place(s) inside the earth where metals were thought to be generated, not a literal hill; see Section 2.1.3 on the furnace.

174 ***con*tenuall**: This may be an error; however, the *MED* lists a use of this form as a noun meaning 'continuity' (s.v. *continuel* adj., subsense 4a).

179 **gode of nato*ur*e**: Transmutation was often considered a gift from God (Section 2.1.1); in these lines, it is also God who has given alchemists the skill of decocting substances with a steady heat: 'God, from/through nature, has supplied us with a direct way of decoction'.

183 **lewde menys**: I.e. 'ignorant methods/means'. Here, **Gb** has misunderstood the meaning entirely, writing "w*hi*ch lewde men" (f. 123r) instead of "w*ith* lewde menys" (**A**, f. 45v). Here, **A**'s spelling <menys> for 'means' – that is, the methods used – may be what confused the **G** scribe. As 'lewd men' is a common collocate, it is not perhaps surprising that the **G** scribe should misunderstand it. It is also possible that the abbreviation in **Gb** should be expanded *which*, i.e. that it should be transcribed <w^{ch}> instead of <wth>. The difference between <c> and <t> is not entirely clear here. If this is expanded *which*, the passage would read 'which lewd men found from your mad heads' – which makes more sense.

184–185 **Seyth noȝt þ^{e} phelosophers**: Philosophers most likely refers to alchemists here. These lines (and those that follow) rely on references to previous authorities (see Sections 2.2.1 and 6.1.2). None of these sources are named, merely being labelled as 'in another place'. It has not been possible to locate the sources of any of these maxims.

185 **In A noþ*er* place Also seyth . seth seth & seyth Ageyn*n*e**: This advice refers to the importance of boiling and continuing to boil the substance: 'in another place it also says: boil, boil, and boil again'. A later annotator, probably the 16th-century annotator commenting elsewhere in the text, has struck out <seth seth>. The similarity in orthography of <seyth> and <seth> have been confusing for the annotator of **T** (and the scribe of **Gb**). Indeed, "seyth" could in theory be one of three verbs: *sethen* 'to boil', *seien* 'to say', or *sen* 'to see' (cf. *MED* s.v. these headwords). This deletion shows that the annotator did not understand the meaning of this section: their deletion would suggest that they considered this to mean 'in another place it says and says again'. The words "loth noȝt þ^{e}" mean that the alchemist (addressed in second person singular) ought to continue boiling and not dislike the operation (i.e. possibly get bored of it). For further discussion of the other MSS' variants and this line, see Section 5.1.2.3.

190 **All þ^{e} maystrye ys doon*ne* w*ith* oon*ne* thynge & w*ith* oon*ne* vessell**: One vessel being used to perform the alchemical operations comes across also elsewhere in the treatise. 'One thing' here is more ambiguous; it may simply refer to the substance used. Cf. the similar line in Grund (2011b: 162, f. 302r, ll. 9–11): "our

mastery is made p*er*fecte of on thinge only, one way, by one disposision, w*i*th one deede".

191 **breke hym An*n* . 100 . tymes**: 'Him' here appears to refer to the alchemical substance within the vessel, a substance which must be 'broken', i.e. pulverised or reduced to fragments (see *MED* s.v. *breken*, probably subsense 3a). 100 may or may not refer to a precise number, as it may also mean simply 'many times'. For *he* in coreference to inanimate entities in alchemical texts, see Grund (2011a).

191 **A noþ*er* seyth**: 'Another' here refers to another (unnamed) alchemical authority.

192–198 **þis <w>erke ys lyckenede mych vnto þ^e^ creac*iou*n of man*ne* ... ende of þ^e^ decocc*iou*n**: For a discussion of this metaphor, see Section 5.1.2.1. The last stroke in <w> in "<w>erke" is smudged.

195 ~~**fy^e^r*e***~~ **fyer*e***: The first iteration of 'fire' has been struck out by the main scribe. The scribe seems first to have written <fyr*e*>, added an <e> above the line between the appropriate letters, and then for some reason decided to strike this out and rewrite the word. The deletion is not particularly thorough, as only <fy> and the superscript <e> are fully struck out.

198–199 **her*e* In I haue towchede þ^e^ man*er*e of þ^e^ wyrchyng w*it*h Nakede hand*es* & bare**: The more or less abstract matter of Chapter IV is conceptualised as being touched upon with one's bare hands. This would seem to refer to the chapter having (at least in the writer's opinion) been written in a clear and unambiguous way. Another possible interpretation is that 'working with naked and bare hands' is a separate concept (i.e. 'hands' modifying 'working'). **AGb** omit the phrase <w*it*h Nakede hand*es* & bare>.

206 **þ^e^ wombe & þ^e^ veynys of þ^e^ erth**: These words are used metaphorically here to refer to the depths of the earth; personification like this is a part of alchemical metaphorical language (see Section 2.2.2). See Grund (2011b: 253, note on f. 295v) for another example of 'the veins of the earth'.

210–211 **After þ^e^ deu*er*syte of þ^e^ soule**: See Section 5.1.2.1 for a discussion of the variant in **C**.

211 **\þ^e^/ men*er*all hyll**: The insertion of <þ^e^> has been marked with a single caret below the line; this insertion is by the original scribe. The ink in the insertion is a

little less dark than that in the surrounding text, so it is possible this is a slightly later correction.

215 **Re<n>verberac*ioun***: This is an unusual spelling: <n> may be an error; it might also be <u>, and I have thus marked it as unclear. Reverberation must be what is intended, however. *MED* (s.v. *reverberacioun*) gives an alchemical meaning in subsense 1c, **furnaise of** ~, 'a reverberatory furnace'; however, in this line "Renverberac*ioun*" occurs on its own, not modifying 'furnace'. *OED* s.v. *reverberation*, sense 3, "The heating of a substance in such a way that flames are deflected back on to its surface or passed over it", appears salient here.

217 **mveth**: An unusual spelling for 'mouth' (see Glossary). This spelling is not in the *MED*. For a discussion of the variants here, see Section 5.1.2.3.

217 **stonnglye**: Probably an error; should be <stronnglye>.

218 **cou*er*nacle**: This is a previously unrecorded form, not appearing in the *MED* or *OED* (see Section 6.3.2.3).

221 **reseyueth**: The final <th> may be in superscript for reasons of space, the scribe most likely adding the correct verb form after already having copied the next word.

223–224 **þ^{e} booke þ*a*t ys cleped. lume*n* luminij**: I.e. *The Light of Lights*, a famed alchemical work. For a discussion of this reference, see Section 5.1.2.1.

230 **In Anoþ*er* place**: As in ll. 187–192, this is a reference to an unnamed source text.

231 *(Marginal note)* **no*ta***: Inserted in the right margin in the 16th-century annotator's hand.

232 **made \all/ blacke**: <all> has been inserted by the original scribe, and the insertion is marked with one caret below the line. The addition seems to have been done at the time of writing.

232 **sup*er*eor*e***: This sense is not recorded in the *MED*, and the present occurrence antedates this precise sense in *OED* (see Section 6.3.2.3).

235 **oon*ne* phelosophe*r*e seyth**: As this is 'one philosopher', not '*the* philosopher', this is unlikely to be a reference to Aristotle.

237 **wexeth**: The present tense marker <th> is odd here, and is probably an error. Indeed, the other MSS all have variants with the appropriate infinitive form.

237–238 **melteth of yt congeleth**: Here, sense-wise it would seem that <or> should be intended, but the grapheme is clearly <f>, and the other MSS also have <of>.

240 **maketh selfe Rede**: The absence of 'him' must be an error. The 16th-century annotator has corrected this, inserting <hym> between the lines, indicated with a small caret below the line. The other MSS include 'him' before 'self' here.

243 **<ve>ry**: At the start of this word, the scribe has seemed to originally write something else first, and then erased and written the correction on top of the previous letters.

253 **yȝffe**: This is a transposition, with <ȝyffe> intended. The scribe's spelling for 'give' is <ȝyffe> in l. 286. However, the same spelling <ȝyffe> is also used for 'if', e.g. ll. 61, 137, 170. Note **C**, which has the same transposition as **T** here.

253–254 **þe^{n} schall Akyng be crownede w*ith* Arede dyademe**: A common alchemical metaphor for this stage of the process; see Section 2.2.3.

257–259 **Nowe ... wroughte &c**: For a discussion of this omission in **AGb**, see Section 5.1.2.1.

260 **~~declac*iou*n.~~ declarac*iou*n**: The main scribe has struck out the misspelled word and emphasised the deletion by underlining it (although rather messily). The <ar> of the second attempt is in a slightly darker ink, as if the scribe wished to emphasise the previously missing letters.

274–276 **Nato*u*re Ioyeth hys natur*e* ... chau*n*ged vnto Anoþ*er* natur*e***: This passage echoes a fragmentary record of an early text attributed to Pseudo-Democritus (1st or 2nd century CE) called *Physika kai Mystika*: "The nature, in such a case, is charmed by the nature: in such a case, triumphs over it; in such a case, dominates it" (translation as rendered in Sheppard 1959: 44). See Section 2.1.2.

276 **lykenes Ioyeth hys lykenes**: This appears to be connected to the ancient concept of sympathetic magic: for instance, that obtaining the hair of a certain person enables one to harm them through magic (the part representing the whole) (Frazer [1890] 1998: 28). 'Like calls to like' is still a common proverb. See Section 2.1.2.

278 **þ^{e} soule enterth sou*n*e hys owyne bodye**: This is a rather opaque statement, although it may refer to soul in the sense of a volatile substance; however, this may require a metaphorical interpretation of *soul* and *body*. The concept of 'like calls to like' is continued here, as this passage implies that in order to work, the elixir needs to be projected upon a substance that is as close to it as possible.

282 *(Marginal note)* **no*ta***: Inserted in the right margin in the 16th-century annotator's hand.

285 **ryȝte \a/ grete þyng**: <a> is an interlinear insertion by the main scribe probably while writing, indicated with one caret below the line.

289 **phelosophers furnase of fusyo*u*n**: This likely refers to simply the regular kind of furnace used in alchemical procedures, made of stone, heated from beneath, and with a sealed section so that the heat does not escape (see Figure 2.2 in Section 2.1.4). "Fusyo*u*n" is not recorded in the *MED*; see Section 6.3.2.3.

289 **begynenyn*g***: This spelling is probably just an error, with an additional syllable; the *MED* does not give forms with the extra syllable (see Glossary).

294–295 **finis Auctar*is* de quo semp*er* est mirab*ilis* &c**: See Section 5.1.2.2 for the erroneous variant in **Gb**. The explicit in this form, with "Finis Auctar*is*", appears only in the Group 1 manuscripts. The Latin manuscripts of *Speculum alchemiae* do not have entirely identical explicits, but e.g. CUL MS Ff.4.12 (Appendix 2, no. 1) has the similar "De quo semp*er* mirabilis & laudabilis est deus in eternu*m*" (f. 50v); *De Alchemia* has this same explicit.

Glossary

This glossary is selective, intended for a reader who is already familiar with the basics of Middle English. The glossary entries are all from **T**; variants from the other Group 1 copies are not included. I have included all the technical terminology as well as unusual (generally alchemy-related) uses of words. More common words have also been included if they feature unusual spellings that may be ambiguous to the reader. As mentioned in the Preface to this edition, the **T** scribe often conjoins the indefinite article with its headword: the more ambiguous instances of this tendency are given cross-references in this glossary.

The reference used for this glossary is primarily the *MED*. However, if the *OED* has a more apt definition for a given term or if a term does not appear in the *MED*, I have also included an *OED* reference. Etymologies are not given here, as they can be found in the *MED* and/or *OED*; see also Section 6.3.2.3 of the study in Part I for examination of some of the etymologies. I have also used Reidy's (1975) glossary to his edition of Norton's *Ordinal of Alchemy*, as well as Grund's (2011b) edition of Humfrey Lock's treatise on alchemy, to clarify some specifically alchemical meanings. In cases where these resources do not provide conclusive aid, I have devised a meaning myself based on the context: I indicate this with my initials (**SN**) following such an entry.

The glossary entries are in alphabetical order, with manuscript spellings (from **T**). All the variant spellings are added after the headword in the order that they appear in. The **T** scribe does not use word-initial <u>, so the relevant entries can be found under <v>. Yogh <ȝ> is under <y>, as word-initial yogh is used for the /j/ sound like <y>. Thorn <þ> does not appear word-initially in words requiring glossing, and is thus not a separate entry. I only note the first five instances of a word unless there are different subsenses at work. Grammatical abbreviations used in this glossary:

adj. adjective
adv. adverb
conj. conjunction
ger. gerund
n. noun
ppl. past participle
prep. preposition
pron. pronoun
pr. pl. present participle
v. verb

In the glossary, I do not indicate verb tenses or whether a noun is in singular or plural, as these aspects will be evident to those familiar with Middle English.

A

Abstrace *n.* 1 (uncertain) a compact treatise (cf. *MED* s.v. *abstract n.*: "An abridgment or summary of a book or document") (**SN**)

Abyede *v.* 27 (~ *upon*) to persist in doing sth. (*MED* s.v. *abiden*, subsense 5c)

Accidentall, Accydentall *adj*. 51, 229 not inherent in a thing, induced from without (*MED* s.v. *accidental*, subsense 1b)

Accident*es* *n.* 68, 69 something that happens or occurs; a fortuitous happening (*MED*, s.v. *accident*, sense 1)

Achelde → chelde

Acorde *v.* 146 be suitable or good (for a certain purpose) (*MED*, s.v. *acorden* v., subsense 7b)

Acou*er*nacle → couernacle

Adure*n*t *adj.* 86, 87 burning; hot and dry (cf. *MED*, s.v. *aduren*, v. (1 quotation); *OED*, s.v. †*adurent*, adj.)

Adusteble *adj*. 82 capable of being desiccated by exposing to strong heat, burned, or scorched; treatable with intense heat (*OED* s.v. *adustible*; cf. *MED* s.v. *adustif* sense 1, *adust* (ppl.) sense 1, *adusten* sense 1a, *adustioun* sense 1a)

Adewe → dewe

Affermatyffe *adj*. 152 positive, affirmative (as opposed to negative) (*MED*, s.v. *affirmatif, -ive* adj., subsense 1a)

Aforseyde *ppl*. 167 mentioned or stated in an earlier part of a book, a document, or a discourse; aforesaid, above-mentioned (*MED*, s.v. *afor(e-seid*)

Agrevus → grevus

Agyffte → gyffte

Alenyall → lenyall

Alkamy, Alkemye *n*. 1, 45, 53, 54, 57 the science of alchemy (*MED*, s.v. *alkamie*, sense 1)

All weye, All wey *adv.* 67, 204 all the while, continually, incessantly, always (*MED*, s.v. *al-wei, -wei(e)s*, subsense 2a)

Alumys, Alu*m*mys *n*. 34, 131 alum (common or potash; possibly also used as a generic term for alum-bearing minerals): a mineral salt, typically occurring as colourless or whitish crystals (*MED* s.v. *alum*, subsenses 1a, 1b; *OED* s.v. *alum*, n. 1, sense 1)

Alyon*ne* → lyon*ne*

Amasse → masse

Amore *n.* 286 one more (in number) (*MED* s.v. *on* num. + *more* adj. (comp.), subsense 3a)
Apecoke → pecoke
Areducer*e* → reducer*e*
Argumente *n*. 103 a proposition or inference (*MED*, s.v. *argument*, subsense 2b)
Artyfyceall, Artyfecyall, Artefecyall *adj.* 141, 158, 167 devised or made by humans; not natural (*MED* s.v. *artificial*, subsense 1a)
Asce*n*nde *v.* 205, 214 to rise as vapour, vaporise (*MED*, s.v. *ascenden* v., sense 6)
Asundre *adv*. **be dep*ar*tede** ~ 291 be separated (*MED*, s.v. *asonder, -re*, subsense 1a; s.v. *departen*, v. subsense 2a)
Atteyne *v*. 21 to succeed, be able to (*MED* s.v. *atteinen*, subsense 1c)
Attrame*ntes*, Att*r*amen*tes* *n.* 34, 131 vitriol, i.e. a sulphate of a metal (*MED*, s.v. *atrament*, subsense 1b; *OED*, s.v. *vitriol*, sense 1)
Auctours *n.* 17, 62 a source of authoritative information or opinion, an authority; a teacher; a writer (*MED*, s.v. *auctour*, sense 2)
Avyse *adj*. 157 well-advised, discreet, prudent (*MED*, s.v. *avise* adj., sense 1)

B

be *prep*. 2, 24, 30, 31, *etc*. by (*MED*, s.v. *bi* prep.)
best*es*, beste *n*. 37, 107, 127, 129 one of the animal kingdom, including humans; animal (as opposed to vegetable or mineral) (*MED*, s.v. *best(e* n., subsenses 1a, 2a)
beynge *ger*. **haue** ~ 113 come into existence (*MED*, s.v. *being*, sense 1)
bodelye *adj.* 54, 280, 281 consisting of matter; physical, material (*MED*, s.v. *bodili(ch* adj., senses 3, 4)
bodyes, bodye *n.* 41, 57, 61, 66, 68 etc. one of the seven metals (*MED* s.v. *bodi*, subsense 10b(a)), possibly also in the sense of material substance (subsense 10a(a)); 14 **mene*r*all ~s** metals/minerals (cf. Grund 2011b: 315 s.v. *bodi*)
borauc*es*, borac*es* *n.* 34, 132 a name given to several minerals, e.g. borax, malachite, sodium carbonate, verdigris, and possibly others; in alchemy, "one of the substances used in treating base metals" (*MED* s.v. *boras*, sense 1)
breke, brokene *v*. 190, 191 probably "crush, grind, pulverize" (*MED* sv. *breken*, subsense 3a)

C

Calcinac*iou*ns *n*. 31 the process of reducing a substance to powder, or the like, by heating it (*MED*, s.v. *calcinacioun*, sense 1)
caste *v*. 61, 285, 292 cast, throw (*MED*, s.v. *casten* v., subsense 1a)
Cetry*n*ne *adj.* 242 orange or yellow (*MED* s.v. *citrin(e*, *adj.* and *n.*)

chaunched, chaunchede *v.* 228, 231 changed, transmuted (*MED* s.v. *chaungen*, subsenses 1a, 4b)

chelde *n.* 193 a young child, a baby (*MED*, s.v. *child*, subsense 1a)

chelder*n*ne n. 4 a spiritual or moral descendant (*MED*, s.v. *child*, sense 10)

chese *v.* 293 to select, choose (sth.) as suitable (*MED*, s.v. *chesen*, subsense 1a)

choesse, choese *ppl.* 94, 119 selected, chosen as suitable (*MED*, s.v. *chesen*, subsense 1a)

clene, cle*n*ne *adj*. 70, 74, 75, 77, 78 free from admixture, pure, unmixed, unalloyed, unadulterated, unpolluted (*MED*, s.v. *clene* adj., subsense 1a)

clennes *n*. 69, 97, 176 freedom from admixture or adulteration, purity (*MED*, s.v. *clennesse*, subsense 1a)

clensy*n*ge *ger*. 158 the action of cleaning or purifying, here in an alchemical sense (*MED*, s.v. *clensing*, subsense 1a)

clere *adj.* 73, 74, 75, 76, 78 free from impurities, clarified, pure (*MED*, s.v. *cler* adj., subsense 2b)

closede *adj.* (from ppl.) 211 closed, having no openings (*MED*, s.v. *closen*, subsense 1b, 1c?); 216, 218, 288 of a container: provided with a lid or stopper (subsense 1e)

Coagulac*iou*ns *n.* 31 solidification, the action or process of coagulating (*MED*, s.v. *coagulacioun*, subsense 1b; see Grund 2011b, s.v. *coagulacion*)

comfortede *v.* 194 refreshed (with food or drink) (*MED*, s.v. *comforten* v., subsense 3a)

co*m*myxc*iou*n, *con*myxc*iou*n *n*. 56, 116 "the act or process of mixing or blending together" (*MED*, s.v. *commixtioun*, subsense 1a)

comounde *v*. 12, 13 to present as worthy, or in a favourable light (*MED*, s.v. *commenden*, subsense 2b)

compendeose *adj.* 1 of a treatise or narrative, or of an author's presentation of a subject: comprehensive though brief, concise, compact (*MED* s.v. *compendious*, subsense 1b)

complemente *n.* 24 completion, consummation, fulfilment (*MED*, s.v. *complement*, subsense 1b)

***con*busteble** *adj*. 84 combustible, capable of being burnt or consumed by fire, fit for burning, burnable (*OED* s.v. *combustible,* sense 1)

conclu*ciou*n, *con*clu*ciou*n, *con*clusyo*u*n, *con*closyon *n*. 3, successful outcome, success; achievement; 32 an inference or conclusion, whether drawn from premises or observations; 120, 126, 129, 131, 136, 143, 152 a principle, proposition, doctrine (*MED*, s.v. *conclusioun*, subsenses 2c; 3; 4a)

***con*gellethe, congeleth, congelede** *v.* 205, 238, 247 to combine two substances or 'qualities' into one (*MED* s.v. *congelen*, subsense 4a)

co*n*nynge *ger.* 55 skill; competence, mastery (here: of alchemy) (*MED*, s.v. *conninge* ger., sense 1)

conseyllede *v.* 9 to keep something from being known, keep secret, conceal (*MED*, s.v. *concelen* v., subsense 1a, 1b?)

***con*streynede** *v.* 166 impel (sb. to do sth.) (*MED* s.v. *constreinen*, subsense 2a)

***con*tenuall** *adj.* 172, 180, continuous, not intermittent; constant (*MED* s.v. *continuel*, sense 1)

***con*tenuall** *n.* 174 continuity (*MED* s.v. *continuel* adj., subsense 4a: as noun)

***contra*ryes, *contra*rye** *n.* 102, 106 one of a pair of opposed or contrasting qualities, conditions, actions, conclusions, etc.: here, in the Aristotelian sense (cf. *MED*, s.v. *contrarie* n., sense 1)

conuenyente *adj.* 288 apt, adequate, effective (*MED*, s.v. *convenient*, sense 2)

Cop*e*re *n.* 72 the metal copper, associated with the planet Venus in alchemy (*MED*, s.v. *coper*, sense 2)

corrupte *ppl.* 97 contaminated, impure, unsound; (of metals) debased (*MED* s.v. *corrupten*, subsense 2b(a))

cou*e*rnacle *n.* 218 a cover for a vessel (cf. *MED* s.v. *covercle* n.; "ME coveracle is a blend of covercle & covacle")

crafte *n*. 23, 226 the art of alchemy; 259 art (as opposed to nature), skill, craft (*MED* s.v. *craft* n.(1), subsense 3a)

Curssede *adj.* 21 wicked, malicious (*MED*, s.v. *cursed*, subsense 4c)

D

declarede, declare *v*. 62 explain (subsense 2a); 91, 257 reveal, show, display (*MED* s.v. *declaren* subsense 2a, sense 4)

declarac*iou*n *n.* 164, 166, 260 explanation (*MED* s.v. *declaracioun*, subsense 2a)

decocc*iou*n, decoct*iou*n *n.* 79, 125, 159, 179, 198, 231 heating, cooking, changing the nature of an alchemical substance with heat (*MED* s.v. *dēcocciŏun*, sense 1), "boiling in water or other liquid so as to extract the soluble parts or principles of the substance" (*OED* s.v. *decoction*, subsense 1a), "maturing or perfecting by heat; *esp.* of metals or mineral ores" (*OED* s.v. *decoction*, sense †2)

defaute *n*. 74 a defect, fault, flaw (*MED*, s.v. *defaut(e*, subsense 2a)

defenyc*iou*n *n.* 56, 147 a statement about the distinctive nature of a thing or the meaning of a word (*MED*, s.v. *diffinicioun*, subsense 2a)

degeste *ppl.* 140, 161, 173 broken down into a subtler form; transformed (usually by means of heat) (*MED* s.v. *digesten*, sense 2)

degestyo*u*n, degestyon *n*. 79, 155 the transformation of physical matter (usually by heat); the transformation of any substance used in alchemy (*MED*, s.v. *digestioun*, subsenses 2a, 2b)

delygence *n*. 157 diligence in a cause or to an end; persistent effort, industry (*MED*, s.v. *diligence*, subsense 1a(a))

delygentlye *adv.* 27 with full attention; carefully, heedfully (*MED*, s.v. *diligentli*, subsense 1d)

demynyc*iou*n, dominic*iou*n *n.* 26, 148–149 reduction, decrease (in this case, probably of information) (*MED*, s.v. *diminucioun*, subsense 1a)

dessese *n*. 43 possibly: material discomfort, "physical hardship" (*MED*, s.v. *disese*, subsense 1a); or "bodily discomfort, suffering, or pain" (sense 3)

destenc*iou*ns *n.* 30 condensation of vapors (*MED*, s.v. *descensioun*, subsense 1b) (cf. Grund 2011b: 318, s.v. *dissention*: "distillation [where the liquid descends down separated from the dross material]")

determed *ppl.* 269 stated (*MED*, s.v. *determinen*, subsense 6a)

deu*er*syte *n*. 210 variety, diversity, diverseness (*MED*, s.v. *diversite*, subsense 3a)

dewe *adj*. correct, right (*MED*, s.v. *du(e*, subsense 3a)

doctry*n*ne *n*. 4 knowledge, learning, education, edification (*MED*, s.v. *doctrine*, subsense 4b)

domynacioun *n*. 242 power to rule or control; lordship, sway, rule, control (*MED*, s.v. *dominacioun*, sense 1)

draven *ppl*. 1 translated (*MED* s.v. *drauen*, subsense 2e)

drawe *v.* 124, 234, 249 extract (Grund 2011b: 319, s.v. *drawe*)

dyademe *n*. 254 a monarch's crown or diadem (*MED*, s.v. *diademe*, subsense 1a)

dyspyce *v.* 252 to look down upon (sth. or sb.), have a low opinion of, have little respect for, regard as inferior (*MED* s.v. *despisen*, subsense 1a)

dystellac*iou*ns *n.* 31 distillation; vaporisation (*MED*, s.v. *distillacioun*, subsense 1c)

E

Elyx*er*e *n.* 3, 48, 61, 92, 256, etc. the agent for producing gold and silver through alchemical means, a substance of transmutative power, the philosophers' stone (*MED*, s.v. *elixir, elixer*, subsense 1a)

enchesou*n*e *n.* 97 **be þ^{e}** ~ because of, by reason of (*MED* s.v. *enchesoun*, subsense 7a)

engenderde *ppl.* to originate; to come into being, grow, develop naturally (*MED*, s.v. *engendren*, sense 2)

entente *n.* 28 meaning, significance, import; 107 care, labour, diligence (*MED*, s.v. *entente* n., subsenses 5a, 6b)

ent*er*ecyens *n.* 25 (possibly) distance (not in *MED* or *OED*) (**SN**)

equall *adj.* 204 identical in amount, extent, or portion (*MED*, s.v. *equal*, sense 1)

eselye *adv.* 198 without haste; gradually, slowly (*MED* s.v. *esili* adv., sense 2)

essenciall *adj*. 51, 229 real, true, fundamental (*MED*, s.v. *essencial,* subsense 1a)

essencyally *adv.* 99 by its very nature, by nature; fundamentally (*MED*, s.v. *essencialli*, sense 1)
esye *adj*. 187, 195, 289 of fire: slow or moderate (*MED* s.v. *esi* adj., subsense 4b)
evynlye *adv.* 188 uniformly; or constantly (*MED*, s.v. *evenli, -lich* adv., subsenses 2c, 2d)
existens *n.* 17 **In ~** in reality, really, actually (*MED*, s.v. *existence*, subsense 1a)
exschewede *v.* 20 to abstain from, forbear, avoid, shun (*MED*, s.v. *escheuen*, subsense 2b)

F
fantastycall *adj.* 181 illusionary (*MED* s.v. *fantastical*, subsense 1b), delusional (cf. Reidy 1975 s.v. *fantasie* n.)
fatenesse *n.* 175, 208 fertility (*MED*, s.v. *fatnes(se*, subsense 4a)
feminine *adj.* 149–150 of things thought to possess female functions or qualities: female, feminine (*MED*, s.v. *feminin(e* adj. & n. does not have a corresponding subsense, so this is formed by analogy with **masculyne**)
fer*e*, ferre *adj.* 108, 283 distant, far away, far (*MED* s.v. *fer* adj. (1))
fessell *n.* 200 → **vessell**
ffegure *n.* 111 a comparison or metaphor (*MED*, s.v. *figure* n., subsense 4a)
fixe, fyxe *adj*. 73, 74, 75, 76, 78 in a permanent state, i.e. not volatile (*MED* s.v. *fix(e*, subsense 1c)
fyxyo*u*ns, **fixio*u*n** *n*. 31, 76, 81, 84, 159 "the process of reducing a volatile spirit or essence to a permanent bodily form" (*OED*, s.v. †*fixion*; see *OED*, s.v. *fixation* subsense 2a)
folys *n.* 128 fools; foolish, stupid, or ignorant people (*MED*, s.v. *fol* n.)
fore*n*ne *adj*. 101 alien to one's nature, contrary, inimical (*MED*, s.v. *forein* adj., subsense 3d)
forw*ith* *adv.* 219 at once, immediately (*MED* s.v. *for-with* adv., sense 2)
furnese, ffurnesse, furnesse, furnace *n.* 50, 200, 201, 214 an alchemical furnace, an alchemist's oven (*MED* s.v. *furnais(e*, subsense 2a)
fusyo*u*n *n.* 87, 289 the operation of making a substance fluid by heating it; the state of fluidity as a consequence of that heat (*OED*, s.v. *fusion*, subsense 1a)
fyrynge *ger.* 81 heating (*MED*, s.v. *firing* ger., subsense 1e)

G
gaderde *ppl.* 154 **~ to gedere** join together, combine (*MED*, s.v. *gaderen*, subsense 4a)
genderde, genderth *v.* 66, 70, 73, 77, 82, etc. to produce, generate (*MED*, s.v. *gendren*, subsense 3a)

generacioun *n*. 89, 92 formation, development, making, origin (*MED*, s.v. *generacioun*, subsense 2a)
glase, glasse *n.* 216, 217 glass (*MED*, s.v. *glas*, subsense 1a)
glassede *adj.* 288 (of pottery) glazed (*MED* s.v. *glasen* v., sense 2)
golde *n.* 68, 72, 77, 137, 144, etc. the metal gold (*MED*, s.v. *gold* n., subsense 1a; sense 7?)
grev*us* *adj.* 125 tedious, difficult, distasteful (*MED*, s.v. *grevous* adj., subsense 1c)
grosnesse *n.* 173 density (Reidy 1975, s.v. *grosnes*; cf. *MED* s.v. *grosnes(se*, subsense 1d)
grou*n*de, grownd *n*. 2 the basis for a doctrine; the authority for knowledge or information; 95, 143 a premise laying the groundwork for other statements; "a fundamental principle" (*MED*, s.v. *ground* n., subsenses 5a, 5b)
grounde *v*. 39, 107 *refl*. to rely (upon sb. or sth. as authority or evidence) (*MED*, s.v. *grounden* v., subsense 3b)
groundede *ppl.* 270 learned (in a branch of knowledge) (*MED,* s.v. *grounden* v., subsense 3c)
gyffe → **ȝyffe** ***conj***.
gyffte *n.* 20 the dispensation or bestowal of a benefit by God, the Holy Spirit, etc. (*MED* s.v. *yift(e*, subsense 5b); **~ of gode** 20

H

heete *n.* 140, 155, 161, 172, 177, etc. heat (from a fire) (*MED*, s.v. *hete* n.(1), subsense 1a)
herbes *n.* 36, 121 here probably a medicinal plant or herb commonly used in alchemy (*MED* s.v. *herbe*, subsenses 3a, 4b)
here *n.* 128 hair of the human head (*MED* s.v. *her* n. (1), subsense 1a)
hoole *adj.* 23 lacking no part, complete (*MED* s.v. *hol(e* adj. (2), subsense 6a)
hyede *ppl.* 8, 234, 248, 250 concealed, hidden (*MED* s.v. *hiden* v., subsense1a)
hyll *n.* 173, 204, 210, 211, 220 the deep earth in which metals are generated **~ mene*r*all ~ of mene*r*all** 173, 210, **menerall** ~ 211 (**SN**)
hyte *pron*. 100, 168 it (*MED*, s.v. *hit* pron.)

I

Incresede, Incressyng *v.* 197, 289 to make sth. larger, greater, more intense (*MED*, s.v. *encresen*, subsense 2a)
Infenyte *adj.* 181 extremely great in number, very many (*MED*, s.v. *infinit(e* adj., subsense 2a)
Infenytlye *adv.* 32, 260 as often as one pleases, ad infinitum (*MED*, s.v. *infinit(e)li*, subsense 1b)

In medyatly *adv.* 220 straight, directly, immediately (*MED*, s.v. *immediat(e)li*, subsense 1c)

Inparabels → parabels

Inp*er*fyte, Inp*er*fyȝte *adj.* 61, 77, 79, 82, 85, etc. imperfect; not perfectly formed, not complete; lacking some quality or attribute necessary to perfection (*MED* s.v. *imparfit*, subsense 1c; *OED* s.v. *imperfect*, sense 2); in alchemy, specifically referring to lacking qualities necessary for making the Philosophers' Stone

Inprescyo*u*n, Inpressyoun *n.* 99, 103 a change or an effect produced in something; **make** ~ 99 cf. *taken imprescioun*, to receive shape, appearance, or physical attributes (*MED*, s.v. *imprescioun*, subsense 3b)

Inserac*iou*ns *n.* 31 "the bringing of a substance to the consistency of moist wax" (*OED* s.v. †*inceration*)

Intente *n*. 62 purpose or intention; 163 instruction or teaching (*MED*, s.v. *entente*, subsenses 1a, 8b)

Ioyeth *v.* to enjoy (sth.), take pleasure in (*MED* s.v. *joien*, subsense 3a)

Iry*n*ne *n*. 72 iron, the metal associated with the planet Mars (*MED*, s.v. *iren*, subsenses 1a(a), 1b)

Issewe *n.* 212 a place of exit, a way out of a place (*MED* s.v. *issue*, subsense 2a)

Iubit*er* *n*. 72, 77 tin, i.e. the metal associated with the planet Jupiter (*MED* s.v. *Jupiter*, subsense 1c)

K

knyte *v*. 108, 112 join together; combine (*MED* s.v. *knitten*, subsense 5a)

L

laketh *v.* 76 to be without (sth.), lack (*MED* s.v. *lakken*, subsense 1d)

latou*n*e *n.* 245 an alloy of copper, tin, and other metals; possibly an alternative name for mercury (*MED* s.v. *latoun* n. & adj.)

lede *n*. 72 lead, the metal (*MED* s.v. *led* n., subsense 1a); the metal of the planet Saturn, the fourth of the seven alchemical bodies (*MED* s.v. *led* n., sense 4)

lekenes, lykenes *n.* 111 parable, simile, analogy; 276, 277 similarity, resemblance, *poss. also* correspondence of quality or substance (*MED*, s.v. *liknes(se* n., subsenses 3a, 2a)

leq*ua*facc*iou*n *n*. 253 the act or process of liquefying, i.e. melting (*MED*, s.v. *liquefaccion*, sense 1)

lenyall *adj.* 179 in a line or row, linear (*MED* s.v. *lineal* adj., subsense 1a)

lett*er* *n.* 110 **Afftere** ~ literally, in the literal sense (*MED*, s.v. *lettre*, subsense 4c)

lewde *adj.* 183 ignorant, foolish, senseless (*MED* s.v. *leued*, subsense 2b)

loth *v. (+ dat.)* 187 to dislike (to do sth.) (*MED* s.v. *lothen*, subsense 1b)

luna *n.* 72, 74 silver, i.e. the metal associated with the moon (*MED* s.v. *luna*, sense 1b)

lute *n.* 218 a cement made of clay and other ingredients, used for hermetically sealing vessels or cementing one vessel to another (*MED* s.v. *lute* n. (2), sense 1)

lyckenede *v.* 192 compare (sb. or sth. to sb. or sth.) (*MED* s.v. *līknen*, subsense 1a)

lyon*ne* *n*. 105 a lion (the animal) (*MED* s.v. *lioun* n.(1), subsense 1a)

M

made *adj.* 183 extremely foolish, stupid, irrational (*MED* s.v. *mad*, subsense 3a)

magnaset*es* *n.* 35 probably a variant of *magnesia*, which is an ingredient of the philosophers' stone (cf. *MED* s.v. *magnesia*, sense 1; cf. also the ME form *magnetia* in *OED* s.v. *magnesia*)

Magnesijs *n.* 130 magnesia, an ingredient of the philosophers' stone (*MED* s.v. *magnesia*, sense 1)

Malencolye *adj.* 181 dominated by black bile; see *malencolye n*. (*MED* s.v. *malencolī(e adj*., subsense 1d)

malencolye *n.* 183 black bile: according to humoral theory, one of the four humours (*MED* s.v. *malencolī(e n.*, subsense 1a)

man*ne* *n*. 105, 193 a person, human (*MED*, s.v. *man* n., subsense 1a(a))

markecaset*es*, Marckeset*es* *n.* 35, 130 some kind of metallic sulphide used medicinally and in alchemy (*MED* s.v. *marcasite*, sense 1a)

mars *n*. 72, 85 iron, i.e. the metal associated with the planet Mars (*MED* s.v. *Mars*, subsense 1c)

masculyne *adj*. 147 of things thought to possess male functions or qualities: male, masculine (*MED*, s.v. *masculin(e* adj. & n., subsense 1b)

masse *n*. 154 an irregularly shaped mass or lump; mass of minerals, stones, or other objects, bound, compressed, or fused together (*MED* s.v. *masse*, subsenses 1a, 1b)

mater*e*, mater *n.* 12 subject matter (*MED*, s.v. *mater(e,* subsense 5d(a)); 48, 92, 94, 114 a substance from which something is derived, raw material (*MED*, s.v. *mater(e,* subsense 2b); **our*e*** ~ 117, 120, 122, 126, 130 the substance used as a starting point for the alchemical process

maystrye *n.* 29, 49, 166, 190, 195, 255 craft, special skill; mastery, control; mastery of alchemy (*MED*, s.v. *maistrie*, subsense 4a; Reidy 1975, s.v. *mastrie*)

medell *adj.* ~ **mene*r*alles** 130 unclear; refers to a class of minerals, possibly ones considered "intermediate in rank" (cf. *MED* s.v. *middel* adj., subsense 3b) (**SN**)

medesyn*n*e, medesyne *n.* 58, 60, 170, 292 transmuting agent (*MED*, s.v. *medicine*, subsense 1b); commonly also used as a term for the Philosophers' Stone (Reidy 1975, s.v. *medicyn(e*)

melteth *v.* 237 to melt (*MED*, s.v. *melten* v., subsense 1a(a))

myneralle*s*, myne*r*all, mene*r*all *adj.* 35, 41, 69, 71, 89, etc. having to do with a material substance that is neither animal nor vegetable; inorganic (*MED s.v. mineral* adj., subsense 1a)

myne*r*alle*s*, menerall *n.* 65, 66, 118, 130, 173, etc. something that is neither animal nor vegetable, a mineral substance; the ore of a metal (*MED*, s.v. *mineral* n., subsenses 1a and 1b)

menerys *n.* 172 a mine; the matrix in which a metal or precious stone was believed to grow (*OED*, s.v. *minera*; *MED*, s.v. *miner(e,* subsense 1a)

menys *n.* 183 methods, means (*MED* s.v. *mene*, subsense 1a)

menysterde *v.* 179 to supply or provide (sth. necessary or helpful) (*MED* s.v. *ministren*, subsense 2a(a))

M*er*curij *n.* 12, 65, 73, 75, 78 quicksilver, mercury; also philosophical mercury; a substance used in transmutation (*MED*, s.v. *Mercuri(e*, subsense 1d)

m*er*veyll *n.* 106, 283 a thing that causes astonishment or surprise; cause for wonderment or surprise (*MED*, s.v. *merveille*, subsense 1a(a))

mette*s*, metes *n.* 193, 194 food, nourishment, sustenance; also pl. (*MED*, s.v. *mete* n.(1), subsense 1a(a))

mettall*es*, metall *n.* 34, 46, 48, 92, 203 metalline substance, metal in general; one of the seven metals of medieval alchemy (*MED* s.v. *metal,* subsenses 1a, b, c)

moltte*n*ne *ppl.* 284 melted (*MED*, s.v. *melten* v., subsense 1a(a))

mome*n*t *n.* 294 a moment, unmeasured instant of time (*MED*, s.v. *moment*, subsense 1a)

mon*n*e *n.* 149 silver, after the association of the metal with the moon (*MED*, s.v. *mon(e* n.(1), sense 7)

mynes *n.* 65 a natural lode of metals (*MED*, s.v. *min(e* n.(4), subsense 1b)

myste *n*. 26 something that obscures the mind or reason; mental darkness (*MED* s.v. *mist* n.(1), subsense 2b)

mystye *adj*. 8 obscure, dim, mysterious; hard to understand (*MED* s.v. *misti* adj.(1), subsense 1b)

mveth *n*. the opening of a container; here, the opening of the alchemical vessel (*MED* s.v. *mouth*, subsense 3b(c))

N

nakede *adj.* 23 ~ **trewth** the plain truth; 199 of part of the body: uncovered, bare (*MED* s.v. *naked* adj., subsenses 5b; 1c)

nature, nato*ur*, nato*ur*e *n.* 67, 156, 178, 182, 184 etc. "Nature personified" (*MED*, s.v. *natur(e*, sense 7); 89, 100, 104, 105 etc. "an inherent quality, attribute, characteristic" (sense 4)

naturall*es* *n.* 46 here possibly: Aristotle's contraries (**SN**) (see Commentary)
necke *n*. 217 the narrow part at the top of a bottle or pot (*MED*, s.v. *nekke*, subsense 3b)
norysshede *v.* 193 feed, supply with food and drink, nourish (*MED*, s.v. *norishen*, subsense 1a)

O

occultatyffed *adj.* 14 hidden, concealed (not in the *MED* or *OED*; cf. *MED occulten*, sense 1: 'to keep (knowledge) secret, conceal'; cf. also the Latin ppl. *occultatus*, from *occulto*, 'hide, conceal')
opteyn*n*e *v.* 5 acquire (a science) (*MED*, s.v. *obteinen*, subsense 1b)
Ordeynede *v.* 45, 109 establish, institute (a practice etc.) (*MED*, s.v. *ordeinen*, subsense 3c)
Orygynall *n*. 113 origin (*MED* s.v. *original(e* n., subsense 1a)

P

p*ar*abels *n.* 16 **in** ~ figuratively, allegorically (*MED*, s.v. *parable*, subsense 1a)
pecoke *n.* 242 peacock (*MED* s.v. *po-cok*, subsense 1a; cf. subsense 1f, "alch. pocokes fetheres, a pattern of colors appearing as a result of an alchemical process")
p*er*fectyo*u*n, p*er*fecc*iou*n *n.* 155, 257–258, 263, 267, 268 etc. perfection; flawlessness; purity (*MED*, s.v. *perfeccioun*, subsense 1a)
p*er*fy*ȝ*te, p*er*fyte *adj.* 24, 62, 73, 75, 89 etc. perfectly refined; flawless (*MED*, s.v. *parfit*, subsense 1a)
phelosophere *n.* 14, 104 **þ^{e}** ~ an unidentified authority, here probably Aristotle (*MED*, s.v. *philosophre*, subsense 1f)
phelosophers, phelosophere *n.* 6, 54, 58, 60, 71 etc. an alchemist (*MED*, s.v. *philosophre*, subsense 1c)
playn *adj*. 59 of an account, a discourse, the truth: whole, complete, full (*MED*, s.v. *plein(e* adj., sense 3)
pleynly *adv*. 25 with verbs of telling, describing, etc.: wholly, fully (*MED*, s.v. *pleinli* adv., subsense 1a)
potencyall *adj*.? 101 latent, potential (*MED*, s.v. *potencial(e*, adj., subsense 1a)
p*re*excellen*t*e *adj.* 5 of surpassing excellence (*MED*, s.v. *preexcellent*, sense 1)
premysses *n*. 93 a proposition or previous statement leading to a conclusion (*MED*, s.v. *premis(se*, sense 3)
p*ri*ncipall*es*, p*ri*ncyples *n.* 46, 64 rule, law, principle (*MED*, s.v. *principle* n., subsense 1d)

p*ro*jecc*iou*n *n*. 52, 259, 272 transmutation by casting the 'powder' of the stone on to molten metal (*MED*, s.v. *projeccioun*, sense 1)

pure *adj.* 73, 75, 78, 154 unadulterated, unmixed with anything, uncontaminated (*MED*, s.v. *pure*, subsense 1a)

puryte *n.* 81, 84, 87 freedom from admixture or adulteration (*MED*, s.v. *purite*, subsense 1a)

put*re*facc*iou*n, putrefacc*iou*n *n.* 232, 236 the disintegration of a substance, a breaking down into component parts or elements (*MED*, s.v. *putrefaccioun*, subsense 1c)

Q

quekethe *v*. 239 to render (a substance) alchemically active (*MED* s.v. *quiken*, subsense 2d)

R

ratheste *adv. (superlative)* 48, 272 most readily, most easily (*MED* s.v. *rathest*, subsense 1b; poss. also subsense 1c 'most especially, principally')

recete *n*. 142 the receiving or reception of something (*MED* s.v. *receipt*, subsense 2a)

recordac*iou*n *n*. 27 remembrance, recollection, memory; potentially also the action or art of setting something down in writing. (*MED* s.v. *recordacioun*, subsenses 1a, 1c)

recurse *n.* 202 **haue A ~** to return (*MED* s.v. *recours* n., sense 1)

reducer*e* *n.* 170 something that reduces (cf. *MED*, s.v. *reducen*, subsense 4a)

reduceth, reducede *n*. 261, 262, 265 reduce (in chemical sense) (*MED*, s.v. *reducen*, subsense 4a)

redusede *v.* 24 summarise (a discussion) (*MED*, s.v. *reducen*, subsense 4b)

remembraunce *n*. 28 **~ of** reflection or meditation on (sth.) (*MED*, s.v. *remembraunce*, subsense 1a)

renneth *v.* 207 of water, oil, mercury, etc.: to flow, run (*MED*, s.v. *rennen*, subsense 8a(a))

Re<n>verberac*iou*n *n.* 215 the action of heating "(a substance) in such a way that flames are deflected on to or pass over its surface" (*OED*, s.v. *reverberate* v., subsense 3a) (cf. *MED* s.v. *reverberacioun*, subsense 1c: "furnaise of ~")

resolue *v*. 138 to melt; melt (sth.) by heat; reduce (sth.) to a liquid state, liquefy; also, soften (sth. by heat) (*MED*, s.v. *resolven*, v., subsense 1b)

resou*n*e *n.* 95, 101, 122, 129, 166 a principle, a reason, "a statement offered as an explanation of an observed fact" (*MED*, s.v. *resoun* n. (2), subsenses 5a, 4b)

Resseyve *v.* 114 take (a material object) into one's hand or possession; or possibly cf. the Latin *recipe* 'take' (*MED*, s.v. *receiven*, subsense 1a)

S

sadlye *adv.* 40 resolutely, determinedly, purposely, earnestly; with firm conviction (*MED*, s.v. *sadli*, subsense 4d)

salt*t*e*s*, salt*e*s *n.* 34, 130 poss. common salt, i.e. sodium chloride, and/or one of various substances resembling common salt (*MED*, s.v. *salt* n.(1), subsense 1a(a); sense 2)

sat*u*rn*us*, Sat*u*rne *n*. 72, 79 lead, i.e. the metal associated with the planet Saturn (*MED* s.v. *Saturne*, subsense 1d)

sauoryth *v*. 271 to know, comprehend, understand (*MED*, s.v. *savouren*, subsense 8a)

schyenne *v.* 246 of a smooth or polished surface: to give off reflected light, gleam, glitter, shine (*MED*, s.v. *shinen*, subsense 2a)

scyense, scyens, scye*n*nce *n*. 5, 6, 57, 59, 108 etc. "a branch of knowledge or learning"; in this case, alchemy (*MED*, s.v. *science*, subsense 3a)

sep*a*rac*iou*n *n.* 159 *alch*. the separation of elements; also, purification by removal of impurities (*MED*, s.v. *separacioun*, subsense 1d)

sertyfyede *v*. 15 **where þey** ~ be reassured or convinced, feel sure (*MED*, s.v. *certifien*, subsense 4b)

sethe *v.* 15 see (*MED*, s.v. *sen* v.(1), sense 1)

seth *v*. 186, 241, 249 of a liquid, a substance: to be heated to the boiling point, boil, seethe (*MED*, s.v. *sethen*, subsense 1a)

sewerly *adv.* 233 indeed, surely, for certain, certainly (*MED*, s.v. *seurli* adv., subsense 1e)

sodenlye *adv*. 19 (probably) without forethought, without premeditation (*MED*, s.v. *sodeinli*, subsense 1e)

soden*ne* *ppl.* 173, 224 past participle of the verb *sethen* → **seth**

soffystycall *adj.* 32 precise meaning here unclear; may be "fallacious, sophistic"; "capable of reasoning, rational"; "skilled in philosophy, learned, subtle" (*MED* s.v. *sophistical(e*, sense 1)

Sol n. 71, 73 gold, i.e. the metal associated with the sun (*MED* s.v. *sol*, subsense 1b)

soluc*iou*ns *n.* 31 the dissolving of a substance in a liquid (*MED*, s.v. *solucioun*, sense 3)

sooffte *adj.* 187 of fire, coals: slow-burning, not intensely hot (*MED*, s.v. *softe* adj., subsense 3b)

sottelte *n.* 43 sagacity, perspicacity, prudence; cleverness, shrewdness; keenness of wit or understanding (*MED*, s.v. *sotilte*, subsense 1a)

soule *n*. 211, 241, 242, 278 probably "a volatile substance" (Grund 2011b: 331, s.v. *sole*)

soune *adv.* at once, right away; also, in the near future; soon (*MED*, s.v. *sone* adv., subsense 1c)

sperytt*es* *n. pl.* 33 a volatile substance; a distillate; also, vapor; also, a vaporous substance (see note; *MED*, s.v. *spirit* n., subsense 9a)

sp*irit*uall *adj.* 280, 281–282 "having the properties of air; rarefied, volatile, vaporous" (*MED*, s.v. *spiritual* adj., sense 7)

spryngeth *v.* 122 grow or sprout from (sth.) (*MED*, s.v. *springen*, subsense 2a)

stodye *n.* 28 "zealous and diligent pursuit of knowledge, study; intensive reading and contemplation of a book, writings, etc." (*MED*, s.v. *studi(e*, subsense 2a)

ston*ne* *n. in* **our** ~ 115, 132, 169, 171, 232 etc. **þ^e** ~ 231, 247, **yo*ur*** ~ 227 the Philosophers' Stone or one of its varieties, i.e. the culmination of the alchemical process (*MED*, s.v. *ston*, subsense 9c)

stynkynge *ger.* 80 emitting a foul odour; disagreeable or foul odour, stench (*MED*, s.v. *stinking(e*, subsense 1a)

sublimac*iou*n *n.* 30 the process of refining a substance by heating it to the point of vaporisation in an enclosed container and discarding the sediment (*MED*, s.v. *sublimacioun*, subsense 1b)

s*ub*sta*un*ce, substau*n*s *n*. 54, 114, 162 (*MED*, s.v. *substaunce,* subsense)

sulpho*ur* *n.* 65, 73, 75, 78, 80, etc. the mineral sulphur, brimstone (*MED* s.v. *sulphur*, subsense 1a); sophic sulfur: one of the two elements comprising metal (*MED* s.v. *sulphur*, subsense 1c)

sup*er*fluete, sup*er*fluyte *n*. 26, 158 an excess in number or quantity, overabundance; 225 a waste product (*MED*, s.v. *superfluite*, subsenses 1a; 1b)

sup*ere*or*e* *adj.* 232 that is on a higher physical level; situated above or further up than something else (*OED*, s.v. *superior*, subsense 1a)

sup*er*uenyens *pr. ppl.?* 68 arriving, coming up (esp. unexpectedly) (**SN**) (from Latin: Simpson 2000: 587, s.v. *supervenio*)

suttellye *adv*. 270 attentively, carefully; with precision; clearly, perceptively (*MED*, s.v. *sotilli* adv., subsense 1a(a))

sylu*ere* *n*. 68, 72, 137, 144, 152, 256 the metal silver (*MED*, s.v. *silver* n., subsense 1a)

T

termente *ppl.* 38 ended (*MED*, s.v. *terminen*, subsense 2a)

terrestryall, t*er*rest*ri*all *adj*. 80, 83, 85, 86, 87, 88 "of the nature or character of earth", especially relating to dryness and solidity; "possessing earth-like

properties or qualities"; earthy (*OED*2, s.v. *terrestrial*, subsense †3, and cf. *MED*, s.v. *terrestrial,* sense 1)

thouwthe *conj.* 141 ~ **þ*a*t** although, in spite of the fact that (*MED*, s.v. *though* conj., subsense 1a(a))

threffold *adj*. three times as great, triple, threefold (*MED* s.v. *threfold(e* adj., subsense 1c)

thycke *adj.* 174 viscous, semi-solid (*MED* s.v. *thik(ke*, subsense 4a)

thycknes *n*. 217 one of the three dimensions of a solid object, depth as opposed to length and breadth (*MED*, s.v. *thikkenes(se*, subsense 1a)

thykenes *n.* 209 viscosity; a degree of viscosity (*MED*, s.v. *thikkenes(se*, subsense 3a)

tor*n*ne *v.* 141 to cause (sth.) to change in substance, transmute (*MED*, s.v. *turnen*, subsense 26a(b))

towchede *v.* 198 to describe (*MED* s.v. *touchen*, subsense 7a)

t*ra*nsforme (transfromme) *v.* 57, 68 to transmute (elements); also, affect the properties of (a mineral) (*MED*, s.v. *transformen*, subsense 1f)

transformac*iou*n *n*. 41, 101 here: change through natural means, perhaps transmutation (this subsense not recorded in *MED*, s.v. *transformacioun*, which gives only one sense: 'a supernatural alteration in semblance or form; metamorphosis; also, a deceptive alteration of appearance, disguise'; cf. *OED*2, subsense 1a, 'the action of changing in form, shape, or appearance')

tryffelys *n.* 32 a matter of little importance, something of no consequence, a trifling matter (*MED*, s.v. *trufle*, sense 2)

tut*e*s, tutijs *n.* 35, 131 "the crude zinc oxide obtained by the smelting of copper ore with zinc" (*MED*, s.v. *tutie* n., subsense 1a)

tym*m*e *n.* 174 a span of time having a definite, though often unspecified, beginning and end (*MED* s.v. *time*, subsense 2a); 27 **tymes** one of a number of repeated instances (*MED* s.v. *time*, subsense 11a)

Ty*n*ne *n*. 72 tin, the metal associated with the planet Jupiter (*MED* s.v. *tin*, subsense 1a)

V

vapo*ur*, wapour*e* *n.* 207, 208 emanation (*MED*, s.v. *vapour*, sense 5)

vegytatyues, vygetatyuys *n.* 107, 121, 124 plants (cf. *MED* s.v. *vegetable* n.; for the form, see *MED* s.v. *vegetatif* adj.)

ven*us* *n.* 72, 82 copper, i.e. the metal associated with the planet Venus (*MED* s.v. *Venus*, subsense 1d)

vessell, fessell, wessell *n.* 39, 50, 190, 200, 248, etc. a retort, condenser, crucible, or similar alchemical container (*MED*, s.v. *vessel*, subsense 1e)

veyne *adj.* 125 without meaning, purpose, or value; useless; of no benefit (*MED* s.v. *vein* adj., subsense 1a)
vnneth *adv.* 140 with difficulty (*MED*, s.v. *unethe* adv., sense 1)
vryne *n.* 128 urine (*MED* s.v. *urine*, subsense 1c)

W
wapour*e* → **vapo*ur***
wate *pron.* 171 what (*MED*, s.v. *what*, sense 2)
water*e* *n.* 138, 173, 205, 209 any of various chemical or alchemical agents (*MED*, s.v. *water*, subsense 5a(c))
werke *n.* 291, 294 an alchemical operation or process; also as **þ^{is}** ~ 195 (*MED*, s.v. *werk*, subsense 10a) **þ^{e}** ~ 236, 258, 281 the alchemical magnum opus (**SN**)
wessell *n*. 215, 216, 221, 222, 224 → **vessell**
wexeth *v.* 237 to change (into sth.), turn (*MED*, s.v. *waxen* v.1, subsense 13a)
weyghte, wheyght *n*. 76, 84, 88 the physical property of heaviness, mass (*MED*, s.v. *weght* n.1, subsense 1a)
whoo *n.* 182 misery, distress; ~ **be vnto you** may you suffer affliction or misfortune (*MED* s.v. *wo*, subsense 7b(a))
whe *pron*. 265 we (*MED*, s.v. *we*, sense 1)
where *v.* 142 were (*MED*, s.v. *ben*, subsense 1a)
whyll *v.* 141 will; modal auxiliary expressing futurity (*MED* s.v. *willen*, sense 27)
wodenes *n*. 183–184 unsoundness or derangement of mind, madness (*MED* s.v. *wodnes(se*, subsense 1a)
wombe *n.* 206 uterus, womb: figurative use (*MED*, s.v. *wombe*, sense 5?)
wyese, wyse *n.* 2, 54, 214, 279 reflecting the employment of prudence, discretion, or soundness of judgment (*MED*, s.v. *wise* n. (2), sense 2a)
wyese, wyse *adj.* 28, 269 wise, discerning, possessed of profound understanding (*MED*, s.v. *wise* adj., sense 1)
wyrchyng *ger.* 49, 165, 168, 199, 226, 231 (alchemical) operation, the generation of a substance (*MED*, s.v. werking(e ger.(1), subsense 8b; poss. also 6a: the plying of a skilled trade, working at a craft; also, the performance of an operation or a process pertaining to a trade)
wyȝte *n*. 134 the faculty of understanding; understanding (*MED* s.v. *wit* n., subsense 2c)

Y, ȝ
ȝevyne 125 → **ȝyffe**
ȝyffe *v.* 286 give, grant (*MED*, s.v. *yeven*, sense 1)
ȝyffe, gyffe *conj.* 27, 41, 61, 123, 137 if (*MED*, s.v. *if* conj.)

y3ffe 253 → **3yffe** ***v.***
3yte *adv.* 264 yet (*MED*, s.v. *yet* adv.)

Transcriptions: Groups 2, 3, and 4

Group 2: Copenhagen, GKS MS 1727, ff. 36r–41r.

I have not indicated script-switches in this transcription; the scribe occasionally switches from secretary to italic script for emphasis, for single words. All of the underlinings are in the original manuscript; it is difficult to tell whether they are by the original scribe or later annotators, so I have indicated them all in the main text of the transcription.

[*title, in a different hand, italic script*] Bacon his lookeinge glasse of Alchemye / f. 36r

Hermes[574] the father of Philosophers saith in[575]
his science, Alkamy is a body, the substance of one,
and by one symple compounde, Ioyned togeth*er* p*re*cious
thinges by coniunccion, & Afect: turnyng the same
to better kynde, by naturall coniunccon: / A nother
said Alkamy is a sciens teachinge to transforme
bodyes one into another and that by his owne medycen,
as yt appeareth in P*hilosop*hers bookes and the sciens is called
Alkamy after a Philosopher the w*hi*ch was called Alkam*us*
This sciens teacheth a medycen the w*hi*ch is called
Elixer the w*hi*ch yf yt be cast vpon Imp*er*fecte
bodyes yt maketh them p*er*fect

Nowe[576] I shall declare the naturall principles of f. 36v

[574] In the left margin with a nota sign: <no simple is a compounde>.
[575] In the right margin, in a different hand from either the supplied title or the main text: <Alkamy>.
[576] In the left margin: <.1.>.

generac*i*on of myn<~~*er*~~>es[577] yt is to saye the principle, mynes[578] /
is mercury & sulpher / and of theis be brought forth
all bodyes and all myneralls to whome belongeth many
braunches / kynde hath alwaye p*ur*posed to the moone & to
the Sonne but dyu*er*s accydent*es* comyng vpon hathe
transformed bodyes as yt appeareth in dyu*er*s Philosophers
Bookes for after the cleanes of theis bodyes aforesaid clene
& vnclene be gendred as the Son and the Moone Iupiter
Saturne[579], M*ar*s and venus / The sonne is a puer bodye
and a p*er*fect[580] of pure Mercury fixed and of puer sulpher
fixed & gendred and he hath no faute /

The[581] Moone is a body almost p*er*fect & fixed of cleane m*er*cury
& almost fixed of cleane sulpher & white Ingendred and
fayleth[582] a little fixac*i*on coler & waight / Iupiter[583] is a
body almost cleane Imp*er*fect fixed a p*ar*te of M*ercury* / and a
p*ar*te of sulpher and white Ingendry / and he wanthe
degestyon and decoction /

Saturne[584] is a body vncleane & inp*er*fect[585] fyxed of Cley &
yearthly m*ercury* / and a p*ar*te of sulpher / & Red Ingendryd
he wanthe fixation / clea*n*nes and ignic*i*on and he
hath to moche of the yearthlie combustibilnes and of
Read sulpher combustybill gendred and he fayleth
fixac*i*on cleanes and waight and he hath to moche

577 <mynes> has something struck out within the word. Probably underlined by a later annotator as a deletion; a caret inserted before the word. In the left margin: <mettalls>.

578 In the right margin, a correction in the same hand as the previous: <mettalls>.

579 In the left margin, a note in italic script: <n*o*ta> and next to it, <Sol.> and the numeral <.2.> and below, {Sun}.

580 Interlinear note, indicated by a caret after this word, in same hand as the previous corrections: <and fixed>.

581 In the left margin: <n^{ta}> and <Luna> and below, a symbol which was clearly {Sun}, but the scribe has rubbed out the right half so that it forms a crescent with a dot in the middle, becoming a passable symbol of the moon. Also in the margin, <.3.>.

582 In the left margin: <Iupiter>, below it {Jupiter} and the numeral <.4.>.

583 The scribe has written <p> as <b> first – the ascender of <b> has been crossed out.

584 In the left margin: <Saturne> and <.5.>, below {Saturn}.

585 A caret follows this word, with an interlinear addition, in the same hand as previous additions: <not>.

of vncleane couller and combustyble earthlynes ./

M^rs,[586] is a body vncleane & vnp*er*fect fixed of vnpuer m*ercury*
& vnpuer sulpher & of earthly combustibils gendred
he is white & not clere he wanthe cluris fusion &
waight he hath to muche of Sulpher he is fixed
of vncleane terrestitye combustible the generation
of theis bodyes and the kynde Alkamy s<o> <as> everiche
man oughte to knowe p*er*fectly

Nowe tutche agayne to seeke the matt*er* that is p*er*fect[587] f. 37r
and meete to make o*u*r Philosophers Stone of / were yt so
that of m*ercury* & sulpher all bodyes be engendred and the cleanes
of them / and ~~vapurnette~~[588] maketh p*er*fect & that none earth=
ly thinge maye cleave to the body ne make Imp*er*fecc*i*on
but yf it be compounde & formed of them / wherefore yt is
open Inoughe that no straunge thinge is mightie or
sufficient to make him p*er*fect or newe transmutac*i*on
Wherefore I haue greate wonder that any discreete
man will fix his mynde or Intent vpon any beastly
or vigetative thinges for of m*ercury* and sulpher all bodyes
springes and also nothinge cleaveth neither Ioynethe
w*i*th him neither can transmute them / but yt take
begynnyng of him / wherefore yt behoveth vs to take
M*ercury*[589] and Sulpher to the matter of o*u*r stone

Nowe of M*ercury* by him self neith*er* of sulpher by him self[590]
is gendred no[591] body w*i*thout they be togeath*er* / but of
them both dyu*er*s bodyes and myn*er*alls be gendred
therefore of mixteon of both, oure matter behoveth to
be chosen / that is for to saye not myxed w*i*th mans
blood or els other treys or mans heire or any other

586 In the left margin: <Mars>, and <.6.>, below {Mars}.
587 In the right margin, <.1.>.
588 Inserted above this word with a caret marking the spot before this word: <purity>.
589 In the left margin: <3>.
590 In the right margin: <.2.>.
591 In the left margin: <anie> .

vigityve thinges w*i*thout yt maye be brought into
m*ercury* / or sulpher and therefore of all vigitatyve thing*es*
we be excused. And to take M*ercury* and Sulpher in y^er^
owne[592] kynde w*i*thout we knewe the true p*ro*porc*i*ons
of them yt would not serve for no man can p*ro*porcion y^em^
The[593] Son*ne* is a p*er*fect body w*i*thout any sup*er*fluytie or
diminyshion the w*hi*ch yf he alone by liq*ue*facc*i*on medled
w*i*th vnp*er*fect bodyes & he made them p*er*fect then he
were Elixer to the Red The Moone is a body p*er*fect
& female and yf she made by liquefaccion vnp*er*fect
bodyes[594] p*er*fect , then she were the greate Elixer to the
white and that be they not / for they be only p*er*fect
&[595] yf yt weare so that their p*er*fecc*i*on weare able to be
medled w*i*th vnp*er*fect bodyes that Inp*er*fect bodyes shall
not be made p*er*fect by them , but rather by Inp*er*fect bodyes
they should be Leassed rath*e*r then made p*er*fect

f. 37v

And forasmuche as kynde symple; p*er*fecc*i*on they can
make none other body p*er*fect , thoughe they weare xx^ty^
tymes more p*er*fect then they be, wherefore the p*er*fecc*i*on
in[596] him is insep*er*able & symple but yf yt weare so w*i*th
the vncatyue they might be brought agayne into y^er^
firste state & sygner for the volatyve Son*ne* ou*er*cometh
the fix son*ne* The cause whie is that we R*ecipe* not the
Son*ne*[597] to the Red Elixer / neith*e*r the moone to the white
albeyt they be most p*er*fect bodyes / forasmuche as they be
symple p*er*fect w*i*thout cleansinge of mans witt /
and so strongly decocte w*i*th heate naturall that
vnneathe we maye worke in him w*i*thout fyer artyfici
all / and their kynde make a thinge p*er*fect yet yt cannot

592 Starting between this line and the next, in the left margin, a note which seems to concern the underlined section: <true p*ro*porc*i*on no man can>.

593 In the left margin: <y^e^ son*ne* is a p*er*fect body w*i*thout any sup*er*fluytie or dimynishion>.

594 In the left margin, relating to the underlined passage on the elixir: <they be not Elixers>.

595 In the left margin, starting between this line and the one above: <by imp*er*fect bodys sol & Lune should be made lesse rath*e*r then be made p*er*fect>.

596 In the left margin: <the volative son*ne* overcometh the first Son*ne*>.

597 In the left margin: <no^ta^ Sonne>.

puryfie & clense yt Inwardly wherefore of all theis
we be excused /

The[598] very true matter ought to be chosen of very pure
M & cleane & white not brought to his complement but
only[599] & *pro*porconably medled w*i*th suche sulpher redd and
white brought togeath*er* to a masse or substaunce / &
so we shall come w*i*th oure naturall witt & Artificiall
fyer[600] in the inward mundye fycac*i*on / & purytie of
him / & then yt shall be more p*er*fect and more stronge then
any[601] other bodyes be the w*hi*ch be decocte w*i*th symple naturall
heate / yf thou wilt softlie make Ingination / haue
Respect to the matter aforesaid and forgett yt not
Nowe sythe yt is so that we make o*ur* stone of two p*er*fect
matters[602] yt behoveth vs to make o*ur* matter more then p*er*fect
w*i*th oure Artificiall labo*ur* & yf thou knowe not the man*er*
of[603] workinge thereof / and what is the cause (sythe[604]
we see kynde hath made bodyes p*er*fect by busye working
as ye maye see on mynes be contynuall heate the w*hi*ch ys
no hills of mynes) that the grosse water is so moche sodden
&[605] decocte and thicked that by certen tyme M*ercury* and sulpher
of the fatnes of the earth by the same decoction and
heate ~~they~~[606] be Ingendred and by the contynuall heate
alwaye contynued vpon them after the cleanes & vncleanes
all bodyes be Ingendred / And syth kynde w*i*th only
decoction maketh all p*er*fect bodyes what eaylleth vs to

desyer to labor to make vnp*er*fytt bodyes p*er*fect Saving[607]

f. 38r

[598] In the left margin, a scribble that is possible an alchemical sigil and <no^{ta} / m*ercury* /.> and <5>.
[599] In the left margin, a small manicule.
[600] In the left margin, between this line and the above: <and then>.
[601] In the left margin: <of y^{e} p*er*fecte matters>.
[602] In the left margin: <more then p*er*fect>.
[603] In the left margin: <the mann*er* of working>.
[604] The parentheses are very heavily drawn; possibly added later.
[605] In the left margin: <nota purita*tem* corp*or*is in mines>.
[606] Struck out twice.
[607] In the right margin: <1>.

that lewde consystence of the people muste be occupied
and that causeth them to haue wynny*n*ge therafter /
for god hath geven to kynde one directe waye that
is decoction Saye not the Philosophers / Igni and[608]
Azocke is sufficient and they make all colers p*er*fect
and in another place make decoction make decoction
and yet make decoction[609] and in another place A biddeth
yo^{u} [610] make a meke glosinge fyer the w*hi*ch be lj dayes let
bren over after on ne increase yt not, ne quenche yt[611]
not for yf thou doo thou shalt haue harme And in
another place he saith That {Sun} thinge that is the
stone And w*i*th {Salt/Saltpetre?} way yt is to seethe And w*i*th one
vessell all the mastrye is ended / And in another
place[612] he sayth / grynde him A thowsand tymes And
another saith w*i*th fyer and not w*i*th hand*es* /
And som*m*e thincke that is muche like a mans creation
for as a childe first is fead w*ith* light meate and as yt
waxeth w*i*th stronger meate / and so he is norished vp /
and likewise ye muste Attemperate yo*ur* worke as y^{e}
childe is fead after his waxing / –

Nowe[613] shall I tell yo^{u} of the makinge of vessell of
Circulac*i*on and the fournes howe yt should be made
for as muche as naturall fyer setheth bodyes in
mynes & naturall fyer will not make the decoktion
w*i*thout a vessell Apte and able thereto / yf we will
followe nature & kynde whie should o*ur* vessell be lefte
behinde Se we therefore firste w*hi*ch is the place of
generation of bodyes in munerall places / It is
openly p*er*sewed w*hi*ch is the grounde and in that
grounde where the myneralls be there is an

608 In the right margin, in a different hand: <igni Azok>.
609 The scribe has first written <k> and then written <t> over it.
610 In the left margin: <A meke glosinge fyer for y^{e} space lj dayes>.
611 In the right margin: <3>.
612 In the left margin: <grinde w*ith* fyer & not w*ith* hand*es*>.
613 In the left margin: <the vessell & the fyer>.

heate over like duringe whose kynde is to assend[614]
alwaye & in his Assendinge he dryeth & congeyleth
water hidd in the bellye and in the vaynes of[615]
the earth of the w*hi*ch cometh M*ercury* and of the yearth
made hott floweth oute fatnes and yt is Sulpher /

And wheresoeu*er* vapor of this sulpher metheth in
the[616] vaynes of the earth w*i*th the vapo*ur* of m*er*cury
thereby the heate contynually Lastinge in the hill
be Ingendred by longe tyme after the dyu*er*sytie of
places[617] dyu*er*s bodyes And also yt is to take heede
that the myn*er*all Hills be all of stone and strongely
inclosed all aboute of him self for yf the heate
nighte[618] passe awaye bodyes shoulde not be Ingendred
Therefore yt followeth yf we will followe kynde &
nature[619] The furnysse shall be made that the fyer[620]
when he Assendeth vp shall not ought neith*e*r yt
maye go oute in no wise , for the same heate shall
make Reverberac*i*on vpon the vessell that hath the
matt*er* of the stone well closed w*i*thin him The w*hi*ch
vessell shalbe rounde of glasse in him self , the
mowth of the vessell shalbe Incelled glewed and
stopped w*i*th a cover of the same / And as the
heate of the mynes tutcheth not the matter of
the Sulpher neith*e*r of the m*er*cury because thearth
of the hill is betwene them all aboughte / even so
ymediatly the fyre ne the heate shall not
tutche the vessell contayning in them the matt*er*
of the foresaid But that vessell shalbe put in
another vessell closed, Also that all abought the
matter aboue said be inclosed surely aboue & beneath

f. 38v

614 In the right margin: <8>.
615 In the right margin: <9>.
616 In the left margin: <nota by the heate contynuall>.
617 In the left margin: <A Symylitude>.
618 An error for <mighte>.
619 In the left margin: <The ffurnesse & fyer>.
620 In the right margin: <3>.

and both sydes so that apte heate and temp*er*ate
maye be made /
Wherefore[621] in Lumine Lumin*um* yt is written that
m*ercury* in a 3 fowld vessell shalbe decocte or sodden /
Neu*er*thelesse in that P*hilosop*her the Sup*er*fluyties be doen
awaye of m*ercury* / in the p*re*parac*i*on and that the w*hi*ch is
to little and absent fulfilled by helpe of crafte

The 6 . Chapter is of all accedentall thinges
and Cencyall colers appearinge in the worke

f. 39r

Nowe[622] shall I tell yo^{u} the colers of y^{e} Philosophers stone
where one said as many colers as many names And
another said after the dyu*er*s colers apperinge in y^{e}
worke his names be by P*hilosop*hers chaynged / Another
said the first decoction the w*hi*ch pursuynge his coler
is blacke & in that blacknes is hyd whitenes & wete
thin , well in <u>that blacknes</u> is the key of the stone
Then after the putryfacc*i*on is waxed cytryne &
not very Red of coler as often as yt waxeth so yt
is conieyled before yt come to very whitenes / Then
he dissolueth him self & congealeth him self and
mortyfieth him self and quyckneth him self and
then maketh him self blacke / he maketh white he
maketh him self Red & he maketh him self grene
before[623] his very whitenes / <u>wherefore anothe*r* P*hilosop*her
sayd make decokcion till a grene childe appeare</u>[624]
vnto the w*hi*ch is his soule , & in grenes the soule hath
Lordship And also there appeareth before the whitenes
the colers of a Peacock and all the colers y^{t} maye
be thought app*er*eth before very whitenes and after
y^{t} appereth true whitenes / A P*hilosop*her sayd

621 In the left margin: <m*er*cury shalbe sodden in a iij folde vessell & before y^{t} y^{e} sup*er*fluyties of m*er*cury shalbe done away in the p*re*parac*i*on / .>.

622 In the left margin: <I would learne howe to see the dyu*er*sitie of colers when as the worke ys to be close sodden in iij foulde vessell>.

623 In the left margin: <y^{e} grene childe is his soule w*hi*ch app*er*eth before his whitenes>.

624 In the right margin: <5>.

when[625] the puer Latten is decokte that he shyne
as doth the eyes of a fyshe then his p*er*fytie is to
be abyden and is the stone congealed into verye
Rowndenes /
Anoth*er*[626] P*hilosop*her said when thou fyndes the whitenes
appears aboue all in the vessell thincke verylie in y^{t}
whitenes is ~~aboue all in the vessell~~ Rednes drawe not
oute y^{t} but let him decokte fourth till he be puer Red
Then betwene y^{e} whitenes & y^{e} Rednes shall appeare
pale coler like to ashes & after y^{t} whitnes shall come
a greiye coler of Ashes but the heate of the fyer
muste be increased a little Then sett not shortt by
thyne Ashes for god will send to them Liquefaccon & after
y^{t} by the will of god the king shalbe crowned w*i*th A .
dyademe of Redd ./

Nowe[627] will I treat of the mann*er* of p*ro*iection the w*hi*ch is y^{e} f. 39v
ayed of the worke yt is to be noted that one body is
more[628] furth*er* fro p*ro*iecc*i*on then anoth*er* for eu*er*y body by
Elixer maye be Reduced by p*er*fecc*i*on yo^{u} wote well
yt is lighter to reduce those that be nye rather
then those that be remote / .
Nowe yo^{u} maye vnderstand by the Chapters before w*hi*ch
bodyes be next & w*hi*ch be farthest, nowe take heede
howe[629] <u>nature is glad of kynde</u> & nature ou*er*cometh
nature; and nature meeting w*i*th his natures is
glad & in the other kyndes is chaunged & the P*hilosop*her
sayth like and like ioyeth w*i*th his like, si*mi*litude
is cause of frendship /.
In[630] this governance bodylie thinges be made
vnbodylie[631] an vnbodylie thinges be made bodylie

625 In the left margin: <The tokens of the p*er*fect Stone>.
626 In the left margin: <The transmu=tac*i*on and dyu*er*syties of all collers>.
627 In the left margin: <p*ro*iection>.
628 In the left margin: <no^{ta} Elixer>.
629 In the left margin: <here nature is glad of nature>.
630 In the left margin: <no^{ta} bene>.
631 In the left margin: <7>.

& in the full end all the bodyes be made spirytu=
ally[632] fixed, ye shall vnderstand thoughe y^t[633]
all the worke be vpon Sulpher & m*ercury* yet it is
not[634] vpon comon Sulpher nor vpon comon m*ercury*
but[635] it is vpon sulpher & P*hilosop*her m*ercury*[636]
the first is m*ercury* of kynde the w*hi*ch is y^e purest
matt*er* of the earth and yt is called Sperma
& aqua viscosa, of the w*hi*ch water, quicke silver
is[637] gendred of and all mettalls, Anoth*er* m*ercury*[638]
there is that other Mettalls be kyndly
dissolued him self w*i*th him self w*i*thout any thinge
of other Ingendrye comynge betwene them, and
when they be Leased in this manner then be they
very[639] m*ercury* and Sulpher And yt is cleped water
p*er*menens having in him self all that eu*er* needeth
to his p*er*fecc*i*on for this is the m*ercury* of crafte y^t the
P*hilosop*hers vsed and thesame y^t he was before or he

was congealed into mettalls for they be turned[640]
downe agayne into the myddest of the Center &
thus kynd hath brought forthe both m*ercury* & sulpher
&c

f. 40r

632 In the left margin: <8>.
633 In the right margin, starting here, extending down 7 lines: a vertical line with a small manicule.
634 In the left margin: <no^ta P*hilosop*her>.
635 In the left margin: <9>.
636 The rest of what has been written on this line has been heavily cancelled with cross-hatching. Two y-like descenders are visible below the deletion. A caret follows the final word before the deletion; in the right margin, written vertically compared to the running text, following a large caret, the correction appears in the main scribe's hand: <for there be 2 mann*er* of Sulphers & 2 mann*er* of m*er*curyes and yett they bee like>.
637 In the left margin: <10>.
638 There is another vertical line in the right margin (with a small manicule) going down to the end of the page.
639 In the left margin: <no^ta m*ercury* et Sulpher> and <11>.
640 In the right margin: <1>.

Group 3: London, British Library MS Sloane 2405, ff. 39r-42v.

As the macrons/tittles above <u>, used occasionally by the scribe, may be significant (used to indicate palatalisation), I have included them in the text as <ũ>. The scribe sometimes uses a dash with two diagonal strokes through it above words that do not seem like they include abbreviations; I have interpreted those as otiose/decorative, and have not indicated them in this transcription.

f. 39r

The mirrour of alchimie composed by y:[e]
famous fryer Roger Bachon . sometime
fellow of martin colledge and brasen
nose colledge in oxenforde cap .1.
the definitiones of alchimy

In manie ancient bookes there are found many
definitiones of this arte, y[e] intentiones where
of wee most consider in this chapter for Her
mes . sayth of this science: alchymie is a corp=[641]
orall science simplie composed of one and by
one naturally conioyning things more precious
by knowledge and effect and conuertinng them
by a natũrall co*m*mixtion into a better forme &
kind: and an other saith alchimy is a science
teaching how to transforme anie kind of mettall
into another and y.[t] by a proper medicine
and alchimy is a science teaching how to make[642]
and compou*n*d a certaine medicine w*hi*ch is called
Elixir y[e] w*hi*ch when it is cast vpon mettalls or
imperfect bodies doth fully perfect them in the
verie proiectione

641 In the right margin, in a different ink: symbols, {Philosophical Sulphur} and {Mercury}.

642 In the right margin, the same symbols here as above, {Philosophical Sulphur} and {Mercury}.

cap. 2. now first I ~~will~~\doe/ speake of y^e[643]
of y^e naturall principles and procreatione of
mineralls[644] . Secundly I will perfectly declare
y.^e naturall principales and procreationes of
mettalls.[645] where first it is to be noted that y^e
principles in the mynes are argent uiue and
sulfur

f. 39v

all mettals and minerals where of there be sundrie
and diuers kinds are be gottine of these twoe: but
I most tel you that nature always intendeth &
striueth[646] to the perfectione of gold. but manie ac
cidents comming betwene changes the mettalls as
it is euidently to be seene in diuers of y^e philos
shers books: for according to y.^e põritie and impu
ritie of y^e twoe aforesaide principles argent viue
and sulfur pure and impure mettals are ingend
dred to wit gold, silver, tinne, lead, copper & iron
of whose nature, that is to say põritie and impũ
ritie, or vncleane^s,[647] superfluetie, and defect, giue
eare to that, which followeth.
Albertus[648] magnus saieth that y^e mettals doth differe
in them selues in forme only, and that accidentelly,
and not essentially: and therfor it is possible to
separat that accidentall forme, and matter, in y^e

643 Starting with <now first>, this is a (somewhat later?) insertion by the main scribe.

644 In the left margin, starting here, there is a note running vertically compared to the running text: <ye cal.^n [word struck out, poss. includes alchemical symbol for sulphur] igne ad [word crossed out] \nigrum/ being done y.^e inceratio*n* is done with out deficulte . nota ye seuen Egypt*ia*n scales signifi<[?]> y^e 7 imbibit {Sulphur}*es* nota [smudge] al> This was continued from the previous page (f. 38v), from a Latin text. Other marginal notes to that text seem to be mostly in English too.

645 The section from <Secundly> to here has been boxed in from two sides with an intertwined double line, perhaps by a different hand.

646 In the left margin, in the same hand as the main text: <nota>.

647 <s> inserted above the final <e>, possibly by the main scribe or then a later annotator.

648 Inserted above this line, an interlinear addition in a possibly different hand, the same one that inserted the note on the previous page: <cap. 3 . I will perfectly declaire y^e naturall princip*les* and procreatio*ns* of mettalls now>.

mettals[649]: and there by it is possible to constitute
and make a nowe bodie, separatinge y.e pure from
the impure: because all ye mettals are ingenerated
in ye earth of sulfur and argent viue mixt to geither
in ye earth . As for exemple y.e childe in ye mothers
by[650] the corruptione and putrifactione w*hi*ch is in ye
wome or matrix y:e childe contracts and ingenders
infirmits by reasone of y:e corrupe matrix or wome
so it is in ye mettals who are corrupted ~~by~~ accidentally
by a corrupe sulfure, ~~and~~ filtie, and combustable earth
<th>erfor[651] this is the difference in ye mettals who differe

f. 40r

differe but accidentally in them selues . to wite
when y:e sulfur põre and red doth occure, mixe
and incorporate: with arg: viue in the earth of
them twoe is golde ingenerated; by longe or sho
rte space of time: and by a continũall naturall
concoctione. And when a pure cline and whit
sulfure doth occure, mixe and incorporat with
arg: viue in y:e earth of them is ingenerated silver
and in this thy differe that in y:e golde y:e sulfur was
reed and in y:e silver whit . And when a reed
sulfur[652] corrupe and combustable doth occure
mixe and incorporat with arg. viue in y:e earth
accidentally of them twoe is ingenerated copper
and it doth not differe frome golde, but in this yt
in gold y.e sulfure is not corrupted but pure, and
in copper it is corrupted by an impure and comb
ustable sulfur . And when a whit sulfur cor
rupe, combustable doth occure, mixe, and incorpo
rat accidentaly with arg: viue in ye earth of them
twoe is ingenerated tinne: and ye cause whey it
crakills betwext ye teeth: and is of a quicke and

649 In the left margin: <nota> in a different hand than the main hand.
650 In the left margin: <wome>, in the same hand as the chapter title insertions (either the main scribe's hand or a later addition).
651 There is a splotch of ink on <th>.
652 In the left margin: <nota> in the main scribe's hand.

sweift liquifactione, is because y^t y^e arg: viue
was not well mixed and incorporated withe sulfur
And when a blacke and corrupt sulfur doth occure
mixe and in corporate accidentally with a^rg: viue
in y:^e earth of them twoe is ingenerated lead.
And when a whit sulfur corrupt and combustable
doth accidentally occure, mixe and incorporat in
earth with arg: viue of them is ingenerated iron

f. 40v

and now it is sufficiently declared of what matter
y:^e mettals perfect and imperfect hath there originell
and how they differ in them selues only in form and
accidentally[653] and not assentially: w*hi*ch may be per
fected[654] \by/[655] wisdome and discretione and by arte. for
wee sie when y:^e imperfect mettals by experience, &
ingine are prepared mundified from all theire supr
fluities corruptiones and fugitiue immundicitie
and there terrestriall debilitie: y^t wee fine them of
much greater clearenes, fulgur[656], and puritie then
y:^e golde and[657] who are naturally perfected: and
nowe[658] it restes y^t wee come to y^e imperfect metter
or mettall w*hi*ch most be chosine perfectide and
purified by arte

Roger Bachon cap.3.

out of what things the matter of Elixir most
be more nearly extracted:

The generatione of mettalls as well perfect as im
perfect is sufficiently declared by that w*hi*ch hath
been alreadie spoken: now let vs returne to y:^e im

[653] A comma is inserted after this word, seemingly by a later annotator. The same is true of the words <ingine>, <prepared>, <suprfluities>, and <corruptiones>.
[654] In the left margin: <nota>, possibly in a later hand.
[655] One caret below the inserted word; inserted by the main scribe.
[656] There is an abbreviation marker above the second <u>; it is difficult to say what it signifies, as this word seems strange as a whole.
[657] This word is smudged, possibly struck out. <silver> is inserted above this word, probably by the later annotator.
[658] In the left margin, <nota> in lighter ink, perhaps by the later annotator.

perfect[659] metter or mettall that most be chosen and
perfectd Seeing y^{t} by y.^{e} former chapter wee haue
taught: y^{t} all mettaills are ingendred of arg. viue
an\d/[660] sulfur and how y^{t} theire impuritie and vnclean
nesse[661] doth corrupt: and that nothing may be min
gled with mettalls w*hi*ch hath not beene made or sprung
from them it remaineth cleare inough that no strang

f. 41r

strainge thing w*hi*ch hath not his originall from these
twoe is able to perfect them or to make a change &
and[662] new transmutatione of them : so y^{t} it is to be
wondred at that anie wise man should set his minde
vpon liuing creatures or vigitables[663] w*hi*ch are far off
when there be mettalls and minerals to bee found
nigh enough: neither may wee in anie wise thinke
y^{t} anie of y^{e} phiphers placed y^{e} art in y^{e} said remote
things except it were by way of comparison : but
of[664] the afore saide twoe all mettalls are made, neither
doth anie \thing/[665] cleaue vnto them, but y^{t} w*hi*ch is of them, nor
yeet chaungeth them, but y.^{t} w*hi*ch is of them, and so
of right wee must take arg. viue and sulfur for y.^{e}
matter of our stone : neither doth arg: viue by itself
alone nor sulfur by it selfe alone beget anie mettall
but of y:^{e} commixtione of them both divers mettals
and minerals are diuersly brought foorth . Our
metter therfor must bee chosen of y:^{e} co*m*mixtione of
them[666] both But our finall secreet is most excellent
and must hiddine to wit of what minerall thing that
is more neere then others it shuld be made: and in

659 In the left margin: <nota>, in the later annotator's hand.
660 There is a caret below <d> to mark the insertion; this insertion is in the main scribe's hand.
661 In the left margin: <nota>, perhaps in the main scribe's hand.
662 <a> inserted between this and the next word, with a caret below the line; it may be in the main scribe's hand or in a different hand.
663 The later annotator has corrected the <i>s to <e>s by writing on top of the letters.
664 In the left margin: <nota>, in the main scribe's hand.
665 Insertion by the main scribe, indicated by a single caret below.
666 In the left margin: <nota>, in the main scribe's hand.

makeing choise heere we must be verie warie.
I put to case then y:t our matter were first of all
drawne out of vegetables of w*hi*ch sort are hearbs
trees[667] and whatso ever springeth out of y:e earth:
Here wee most first make arg: viue . and sulfur
by a long decoctione, from w*hi*ch things, and their
operatione wee are excused: for nature herself
offereth vnto vs arg: viue and sulfur. And if

f. 41v

wee should drawe it from liuing creatures of w*hi*ch
sorte is manes bloude, haire, vrine, excrements hens
egs, and what else proceeds from liuing creatures
wee most likewise out of them extract arg. viue
and[668] sulfur by decoctione from w*hi*ch wee are freede
as we were before . Or if we should choose it out
of middle minerals: of w*hi*ch sorte are all kinds of
magnesia, marchasites, of tutia, coppres, allumes
Baurac<h>[669] salts and manie other : we should likewise
as afore extract arg: viue and sulfur by decoctione
from w*hi*ch as from y.e former wee also \ar/[670] excused: And
if we should take one of ye seuen spirits by if[671] selfe
as arg. viue, or sulfur alone: or arg. vi. and on of ye
twoe[672] sulfurs or sulfur viue or auripigment or
citrin . \whit/[673] arsenicum, or red alone or the like wee sh=
ould neuer effect it because sith nature doth not
perfecte anie thing with out æquall commixtione
of both, nether can wee: from these therfore as from
y:e fore saide arg. viue and sulfur in theire nature
wee ar excused. Finally if wee should choose

667 In the left margin: <nota>, in the main scribe's hand.
668 Starting at about this line, a curved candle-wax stain curves across almost 11 lines, as if a candle had been set down on the page. This obscures some letters.
669 The last letter is covered by the candle stain, but is legible as <h>.
670 An interlinear insertion by the main scribe, indicated with a caret below.
671 An error; should be <it>.
672 <e> is visible but rather smudged by the candle stain.
673 An interlinear insertion by the main scribe, indicated with a caret below.

them . wee ~~should~~\must/[674] mixe euerie thinge as it is accordg
to a dũe proportione w*hi*ch no man knoweth and
afterwards decocte it to coagulatione into a solide
lumpe: and therefore wee are excused from receũi*n*g
both of them in theire proper natuore : to wit argent
vi. and sulfur[675] sieing wee knowe not theire
proportione and y^{t} wee may meet w*i*th: a bodies wherin

wher in wee shall find y.^{e} said things proportioned coagulat*e*d
and gathered to geither after a due manner Nota keepe
this secret .{sigil}.[676] Gold is a perfect masculine bodie
with out ani superfluitie or diminutione and if it
should perfect y^{e} imperfect bodies mingled with it by
melting onlie it should be Elixir to red. Silver is
also a bodie almost perfecte and feminine w*hi*ch if it shuld
almost perfect y:^{e} imperfect bodies by his common m=
elting only it should be Elixir to whit w*hi*ch it is not
nor can not be because they only are perfect. And if this
perfectione might be mixed w*i*th y:^{e} imperfect y.^{e} imperfect
should not be perfected with or by. y:^{e} perfect but rather[677]
their perfectiones shuld be diminished by y^{e} imperfect
and be come imperfect. But if they were more then
perfect either in a twoe fold, foure, fold, hundred fold,
or larger proportione, thy might then well perfect
y.^{e} imperfect. And for as much as nature doth all
ways worke simply y.^{e} perfectione w*hi*ch is in them is
simple inseparable and incommiscible . neither may they
be put in y.^{e} stone or worke for firment to shorten y:^{e}
worke, and so brought to their former state, because
y.^{e} most volatile doth ouercume y.^{e} most fixit. and
for[678] y^{t} gold is a perfect bodie consisting of argt. viue
red and cleare and of such a sulfur therfor we choose

f. 42r

[674] The word is struck out many times. There is a caret after <should>, and <must> and something smudged inserted between the lines.
[675] Before this word, there is a symbol that resembles a question mark. It may be otiose.
[676] See Section 5.3.2.2.
[677] In the right margin: <nota>, in the main scribe's hand.
[678] In the left margin: <nota>, in the main scribe's hand.

it not for y^e^ matter of our stone to y^e^ red Elixir, be
cause it is so simplie prfect with out artificiall mun
195 dificatione: and so strongly digested and sod with a
naturall heat y.^t^ with our artificiall fier we are
scarcely able to worke on gold or silver. And thought
natur[679] dooth perfect anie thing, yet she cannot throughly

<~~on~~>[680] perfect and purifie it because she simplie worketh on f. 42v
200 y.^t^ w*hi*ch she hath . if therfor wee should choose gold or silver
for y.^e^ matter of y^e^ stone we should hardly and scantly find
fire to worke in them . and though we are not ignorent of y.^e^
fier yet could wee not come to y.^e^ through mundification
and prfectione ofit by reason of his most firme knitting
205 together and naturall compositione . we are therefore ex
cused for takeing y:^e^ first to wit gold too red, or y.^e^ secund to
wit silver too y:^e^ whit. Seeing we may find out a thing[681] or
some[682] bodie of as cleane or rather more cleane sulfur and
arg. viue on w*hi*ch nature hath wrowght little or nothing at
210 all[683] w*hi*ch with our artificiall fier, and experience of our
arte, wee are able to bring vnto his due concoctione, mund=
ificatione, colour, and fixatione, continuing our inge=
nious labor vpon it. Nota there most therfor be such
a metter chosen[684] wherin there is argt viue, cleane, pure,
215 whit and red not fully compleat but æqually and pro=
portionably commixt after a due manner with y^e^ like
sulfur and congeled into a solide masse[685]: y^t^ by our wis-

679 <natur> is in the left margin, but inserted by the main scribe to be part of this line.
680 Struck out thoroughly.
681 There are alchemical sigils above this word, <{sigil} et {sigil}>. I have not been able to interpret their meaning.
682 In the left margin, running into the interlinear space, possibly by the main scribe: <materia Elix:>.
683 In the left margin: <nota>, in the main scribe's hand.
684 An interlinear insertion between this word and the next, with a caret below: two alchemical sigils linked with <&>; they are difficult to interpret.
685 There is an insertion above this word seemingly in another hand, probably by the same later annotator: <metallum>.

dome[686] and discretione and by our artificiall fier we may
attine vnto y:[e] vttermost cleannesse of it, and y.[e] puritie
of y[e] same, and bring it to y[t] passe y[t] after y[e] worke is
ended it might bee a thousand thousand times more
stroung and perfect then y.[e] simple bodies themselfes
decocted by their naturall heate . be therefore wise.
for if thou shalt be subtile and wittie in my chapters
wherin by manifest profe I haue laide opine the
matter of y:[e] stone easie to be knowne[687] thou shallt
taste of that delightfull thing wher in y.[e] wholl intent
ione of y.[e] philosophers is placed .[688] Now when this

[*MoA ends here after "placed".*]

Group 4: London, British Library MS Sloane 3506, ff. 42r–46v

Transcription of <s> and <S> graphs is difficult in the case of this scribe, since majuscules are mainly differentiated by size, and the differences can be difficult to determine.

The Speculum Alchimiæ of Roger:
Bacon

f. 42r

The Præface

Severaly and in several methodes . ye ancient philosophers . spoke in

686 In the left margin: <nota>, in the main scribe's hand. In the margin, there is also a dotted, messy vertical line from the line starting "whit" down to the line starting "of y[e] same".

687 An interlinear insertion above this word, with a caret below the line between this word and the next: <is {sigil} et {sigil}>. These are the same sigils as used in the other insertions with sigils on this page.

688 Before "Now", a double intertwined line separates the end of Chapter III from the next text. This line is probably by the later annotator.

their writtings, when vnder an Ænigma and a darck voice they left to
vs a science . more noble . than any other, wholy hidden vnder a cloak of desp
eration , and that not withouta Cause . There fore I Conmand that above and
before all other writtings you put your minde vpon the seven chapters
Containing yeTransmutation of mettals revolving often in Your heart
their beginning, midle, and End . and you wil finde in them such a
subtility as wil fill your minde . /

ofThe diffinitions ofAlchimy the 1 Chapter

There are found in ancient writtings several diffinitions ofThis art
whose intentions whe intend to Consider in thisChapter for Hermes says
ofthis science . Alchimy is a science Corporaly \and simply/[689] Composed . out of
one &
through one Thing joyning by effect & knoledge prætious things and
by the same natura mixtion bringing them. to a better genus. and
an other says Alchimy is a science. teaching to Transforme. all genus
of mettals into an other and that by a proper medicine as may be
seen in many Philosophical books , Therefore alchimy is a science
Teaching[690] to make & generate, a Certain medicine Called Elixir .
wich when projected vpon mettals or imperfect bodys . it perfects
them wholy in the moment of Projection /

ofThe natural principels & generations of minerals
ye 2 Chapter /

Secondly I wil decleare the natural principles, & ye generation of
minerals . therefore first it is to be noted that \ye/[691] mineral[692] principles
in the mines are Mercury & sulphur, and out ofthem all mettals
are generated . as also all minerals of divers sorts & species . but I say
that nature always did intend to perfection that is gold, but several

689 Interlinear insertion by the main scribe, with one caret between the words marking the insertion.

690 <h> has a stroke through it; perhaps the scribe was originally going to spell this word <teatching>.

691 <ye> inserted above the line by the main scribe, with the descender of y in the space between words to mark the spot.

692 <ine> has been added in darker ink on top of the illegible original letters, probably by the main scribe.

intervenient accidents haue forme mettals . as is sayd in many Phisical
Books for according to the purity and impurity ofthe abovesayd two
namely argent vive & sulphur, pure and impure mettals are generated

namely . gold, silver, \Tynn/[693] putter, lead, Copper, Iron, of whose nature f. 42v
namely purity and impurity, or vnclean superfluity take these
following Words . of yeNature of gold. gold is a perfect body
generated out of a pure fix cleare red argent vive and outof
clean fix red incombustible sulphur, and it has no defect . ofye
Nature ofsilver, silver is a clean body \all/[694] most perfect generated
outofa clean white \almost/[695] fix & cleare argent vive and outof such a
sulphur . it wants a little fixation, Colour, & pondorosity . of
yenature of putter . putter is a clean imperfect body generated
outofa clear white fix & not fix argent vive outwardly white
but inwardly Red and outofsuch a sulphur and it wants onely
Digestion & decoction , ofye nature of Lead, Lead is an vncleand
& imperfect body generated outof impure volatile terrestrial and
focculent[696] outwardly a little white, inwardly Read argent vive
and outof such a Combustible sulphur , and it wants purity fixat
ion, Colour and ignition . ofye nature ofCopper . Copper is an
imperfect & vnclean body generated out of an vnclean Volatile
Terrestrial Berning Red but not cleare argent vive, and out
ofsuch a sulphur and it wants fixation[697] purity and weight
and it has alto much of vnclean Tincture, and incombustible
Terrestrity. ofyeNature of Iron . iron is an vnclean and
imperfect body generated out of an impure alto fixe terrestrial
adurent white & Read but not cleare argent vive and out
ofsuch a sulphur . and it wants fusion, purity & weight and
it has alto much of fix not clean Terrestrial & Combustible
Sulphur . all this Sayings Every alchymist should exactly

693 A supralinear addition indicated with a caret below the line. This may be in a different hand from the main scribe's.
694 Interlinear addition in the main scribe's hand. Indicated with two carets – one below the line, one next to the insertion.
695 Interlinear addition in the main scribe's hand. Indicated with two carets – one below the line, one next to the insertion.
696 <f> is an error; should be <s>.
697 The <o> is rather unclear: the scribe has written it on top of a previously written letter.

observe[698] . /

f. 43r

Out of wich nearest the matter ofThe Elixir must
be extracted Chapter. 3 /

in the aforesayd sayings. the generation of the perfect and imperfect
mettals is sufficiently determinated /. now whe must Come to the Election
and perfection, ofthe imperfect matter. it is manifest enough out
ofthe præceding Chapters[699] that all mettals are generated out of
sulphur & argentvive, and that their impurity and vncleannes Corrupts,
and as nothing must be put to mettals, wich has not its original
from them or is not Composed out ofthem, ~~and~~\now/[700] it is manifestenough that
nothing extraneous wich has not its original from this two, is potent
<a>nd[701] powerful enough to perfect the same, or. make new ones. by their
Transmutation . Therefore . it is \to be/[702] admired that any pr<u>dent[703] man
can settle his intentions vpon animals or vegetables wich are Very
remote , when m<e>ttals[704] are found more neare . and no body must belive
that any philosopher put the fundament of this art vpon any of
this remote things, except by similitude. But out of the afforesayd
two all mettals grow, and nothing adheres to them, & nothing is joyned
with them, nor transmutes them, if it has not its original out of them.
and there fore by R<i>ght[705] whe must take sulphur & argent vive for
ye matter of the stone , and neither argent vive alone or sulphur
alone generates mettals. but out of both their Commixtion mettals.
are generated as also many minerals. Therefore . out of both their
mixture whe must Elect our matter . yett our final secretis most
excellent & hidden namely out of wich Mineral thing it may be
done soonest & wich is ye nearest. and this whe must onely Elect.
now I say lett the matter first be taken out of vegetables, as

698 <o> is filled with an ink blotch.
699 An interlinear addition: <How>. This may be in the main scribe's hand, but may be a later annotator's.
700 Insertion above the struck-out word by the main scribe.
701 <a> is unclear; there appears to be a mistaken <p> written below it.
702 Interlinear addition in the main scribe's hand. Indicated with two carets – one below the line, one next to the insertion.
703 <u> is unclear; it has been added by the main scribe on top of a previously written letter.
704 <e> is unclear; it has been added by the main scribe on top of a previously written letter.
705 <i> is unclear; it has been added, probably by the main scribe, on top of a previously written letter.

are herbs. & trees or other things growing out ofye Earth. then you
must first make out of them sulphur & argent vive by a long
Decoction, from wich, and from . such an operation whe are excused
for nature proposes to vs a more nearer argent vive & sulphur.
and if whe should Elect it out of animals as are Human blood
Hair Vrine, Hens Egs & all what procedes . from animals . then

you must extract out ofthem sulphur & argent vive by a
Longdecoction, from wich whe are excused as before, if whe Elect
midle minerals . as are alsorts of magnesias, marchasites, tutias
attraments or Vitriols, allums, Borax, salts or they likes, there
must as before . be made outof them sulphur & argentvive by decoction
from wich like from all others whey are excused, and if whe did
elect one of the seven spirits by itself , as argent vive alone or
Sulphur alone, or argent vive and one ofboth sulphurs, or sulphur
Vive or o<r>pement[706] or arsenick yellow or Red . whe would never.
perfect it for like nature makes nothing Without æqual mix
ture of both . , also whe doe not . from wich then . as from the
abovesayd whe are Excused . and finaly if whe Elected them
according as they are then whe must mixthem in a due prop
ortion ,wich no man knowes, and by boyling Congeale them into
a solid Masse , and there fore whe are excused from taking both
in their proper nature namely argent vive & sulphur because
whe know not their proportion . Lett us finde then bodys in
wich whe may finde them Congealed in ye abovesayd proportion
& in a due methode . and this keep as a secret . gold is a perfect
masculine body without any superfluity or diminution . and
ifit Could perfect imperfects onely by admixtion & liquefaction
it would be an Elixir for the Red. Silver also is a body almost
perfect . foeminine, and if it Could perfect, imperfects onely
by fusion it would be an elixir for the white , wich is not, ~~nor~~[707]
Can not be for they are onely Perfect . and ifthis perfection
where Mixible with imperfects the imperfect would not be
perfected with the perfect but ye perfection of the perfect would
be diminusched ~~by~~[708] ye imperfect . but if it where plusquam perfect

f. 43v

[706] <r> is unclear; it has been added by the main scribe on top of a previously written <p>.
[707] <or> written over this word as a correction by the main scribe.
[708] <with> written above this word as a correction by the main scribe.

Double Threefould or houndred fould or more then it would perfect the
imperfects . and because nature always worcks simply therefore their

perfection is simple, inseparable, and not mixible, neither would
it <~~f?~~>\be/[709] put for the abbreviation ~~in~~to the stone for a ferment ,and reduced
into thei[r]first[710] matter, because the most volatile Overcomes ye most fixe
and because gold is a perfect body out ofRed cleare & living argent
vive and such a sulphur. therefore whe doe not Elect it for the matter of
the stone for the Red Elixir for it is also simply perfected with out any
ingenious puriffication , and is so strongly digested and boyled by natural
Calidity, that by our artificial fire whe Can hardly worcke vpon it . and
alto nature <~~knowes~~> . perfects something yett she knowes not how to purefy
for the worckes . Simply vpon that wich she has . Therefore . if whe Elected
gold or silver for the matter ofyestone scarce or difficultly whey could finde
afire that would act in them . and alto whe know the fire yett whe can not
Come to their internal mundification and perfection because oftheir most
strong natural Composition therefore whey are excused from taking yefirst
for the Red and yesecond for the white because . whe finde a Thing or a body
of a clean or cleaner sulphur . & argentvive vpon wich nature has little
or nothing operated wich whe may by aur artificial fire and Experience
of our art bring to a due decoction mundification Coloration & fixation
operating over it our most ingenious operation . Elect therefore such a matter
in wich is argent vive pure cleare white & Read not brought to any
Complement but mixt æqualy and in due proportion by a Right
methode, with such a sulphur and Congealed into a solid masse, also that
by our prudence & ingenuity and our artifficial fire whe may Come to
~~its~~ \their/[711] internal purity , and make the same also that after the Complement
ofthe worck the are a million times stronger & perfecter then the simple
bodys Decocted by natural calidity . therefore be Prudent . for if you
are subtile and ingenious in our chapters in wich by manifest declaration
whe openly demonstrated ye matter ofye stone you wil Teast that
Delicious thing vpon wich all the intentions ofthe ancient Philos
ophers . are founded /

f. 44r

709 <be> is an interlinear insertion by the main scribe, above the previous, cancelled word (2–3 letters).

710 <their> appears to have been <them> first, but the main scribe has scribbled corrections on top of <m>, and written <r> in superscript.

711 <their> inserted above the struck-out word by main scribe.

Of The Methode of Worcking, ofye moderating
of yefire & Continuating yeSame Chapt 4 .

f. 44v

Now I belive. you have found the True matter ofthe blessed stone
of Else you are hard brained or Quite[712] insipid or ignorand vpon wich
the operation ofAlchimy isto be Performed when whe vndertake
to perfect the imperfects . & that With the plusquamperfects . and
because Nature has Given[713] vs alone the perfects with the imper
fects there fore whe ought to make plus quam perfect the matter
noted in[714] our chapters. by our Worck & Artificial Operation, and if
whe are ignorand in the methode ofworcking, what is the reason
that whe doe not see nature worcke who formerly made mettals? doe
whe not see that in the mines byContinual Calidity the grosnes of
the water is so far decocted & inspissated that it is become in time argent
vive? and out ofye fattnes ofyeEarth by the same Continual decoction
is generated sulphur? and by the same Calidity Continuating Constantly
out of the aforesayd according to the purity & impurity all mettals
are generated? and that nature onely by decoction makes perfect &
imperfect mettals. ? o madnes I pray. what forces you to make
the aforesayd by fantastick & melancholick regimens,? as one says.
what thinck you, that intend to overcomme nature and make mettals.
more then perfect by a new Regimen Come from their foolisch inventions.
and God has given to nature a straid way namely Continual decoction
and you ignorants doe not care for this. item. azoth & fire are enough
an in an other place. heat perfects all and in an other place boyle
boyle boyle with out tediousnes. and in an other place lett your fire
be gentle always æqual in Burning and lettit be no stronger or
else it wil Cause damage and in an other place, patiently and
always. and in another place grinde him seven times and in an
other place know that out of one thing namely stone . and by one way
namely boyling and in one vessel the whole magistery is perfected

712 <te> is written on top of a previous letter, possibly <d>, as a correction by the main scribe.

713 <G> (which might also be <g>, but written big to cover up the mistaken letters) written on top of two (now illegible) previous letters, as a correction by the main scribe.

714 <in> has been written on top of another two-letter word by the main scribe.

f. 45r

and in an other place you must grinde by fire , & in an other place this worck is like yeCreation ofa man, for like an infant in the beginning is nourisched by a gentle[715] ~~dyed~~ died but when ye bones grow stronger it is also nourisched by stronger Victuals , also our magistery in the beginning wants a gentle fire wich is to be vsed in all Decoctions. and alto whe always take ofa strong fire yett Truely whe meane that in the Regimen ofye worck the fire should be augmented by degree till to ye End . /

of The Quality of y^e^ Vessel & . furnace
Chapter . y^e^ 5 .

The Termine & methode of doing whe have now declared now whe wil say ofye vessel & furnace and out of what the should be made when nature boyles mettals. in the mines by the natural fire she makes yesame \not/[716] without vessels. and when whe propose to follow nature in boyling for what should whe Reject vessels ? but lett vs see first what the place is where mettals are generated[717] . itis manifestely percieved in mineral places that in the bottom ofye mountaine ye Calor is æqual whose nature is always to rise and by rising it always drys vp and Congeales ye gross water hidden in the veins ofye Earth or Mountaine into argent vive, and ifin the same place a mineral fattnes \is/[718] Calefyed out ofsuch a Earth gathered togheder in ye veins ofye Earth it is sulphur .. and as is seen in the veins ofye sayd Earth this sulphur . generated outofye fattnes ofyeEarth as is sayd meets ye argent vive in the veins ofyeEarth, and procreates ye Thicknes. of a Minerale Water . and there by æqual heat in a long time divers mettals are generated according to ye \diversity &/[719] purity of ye place . but in ye

[715] <e> has been written on top of a previous letter, probably <y>, as a correction by the main scribe.
[716] Interlinear insertion by the main scribe, indicated with two carets, one below the line and one in front of <not>.
[717] The main scribe seems to have been first written <d> right after <t>, and <e> has been written on top of this mistaken letter.
[718] An interlinear insertion by the main scribe, with no carets, simply inserted above the line.
[719] An interlinear insertion by the main scribe, with one caret between <ye> and <purity>, below the line.

mineral plaeses is found a heat[720] allways[721] æqual & Lasting[722] . and
Therefore it is to be noted that the Externe Mineral Mountain
is every where closed & stony for if the heat could goe out then
mettals would never be generated . therefore if whe intend to –

f. 45v

follow nature, whe must have necessarely a furnace like into
a mountaine, not big but of a Continual heat also that the fire
when it ascends . may finde no way to goe out and also that it may
reverberate ye vessel in wich is ye matt er of yestone, this vessel must
be round with a little neck made ofglass, or ofsome Earth repres
enting the nature or Compactnes ofye glass whose mouth must be closed
with a good wax or lute and like the heat in mines tu\t/ches[723] not
immediately ye matter ofSulphur & argentvive because the Earth
ofye mountain hindres every where , also ye fire must not
tutch ye vessel immediately Containing ye abovesayd Matters but the
vessel must be put yett into an other, also that the temperate heat
may tutch ye matter Every where hence it is that Aristotle says
in yebooke Called Lumen luminum . that the mercury should
be boyled in a Triple vessel and that the vessel should be of a
most Hard glass or better of Earth ~~representing~~\posseding/[724] the nature of
glass.

of The accidental & Essential Coulours apearing in yeworck . Chap 6 /

When you have found out ye matter. you must know the True methode
ofworcking by wich methode & by wich Regimen yestone by boyling
is often[725] transmuted into various Colours, Hence one says . so manyColours
so many names according to the divers Colours apearing in the worck hence
it is that yefirst operation ofour stone is Called putrefaction and our
stone growesblack Therefore one says when you finde him to be black

720 <t> is written on top of an earlier <d>.
721 The first <l> seems to be added later as a correction by the main hand.
722 <L> is written on top of two letters, possibly <le>, by the main scribe.
723 A correction by the main scribe, the addition of <t> indicated with one caret below the line.
724 This correction is inserted above the struck-out word, by the main scribe.
725 This word is a mere scratch on the paper (the scribe running out of ink), but legible.

know that in ye blacknes. whitenes is hidden . then you must extract
it out of this most subtile blacknes . but after putrefaction it growes
Red but not in a true Rednes ofwich one says it often growes red
it often growes yellow it often melts & is often Congealed before true
Whitenes and itdissolves itself it Congeales itself it putrefys it self
itColorates[726] itself it mortifyes it self it vivifyes itself it blacknes
itself it whitenes itself it growes Red & white as also green an<d>
therefore onesays boyle it till it apaeres green and it is its soul and an other[727]

says that in that greennes the soul prædominates for before white the Color of a[728]

f. 46r

Therefore[729] one says know that all ye Colours ofye world and that
can be excogitated apeare before whitenes. and then followes true whitenes
Therefore one says when it is pure boyle till it apeares like fisch Eys then you
may Expect vse[730] from it and then the stone isCongealed into Roundnes and
an other says when you finde whitenes in ye vessel be Certain that in this
whitenes readnes is hidden & then You must extract theSame but boyle
it till readnes apeares . for betwixt readnes & whitenes is an asch
~~C<ou>l<our>~~[731] Colour, ofwich is sayd after whitenes you can not Err for by
augmenting the fire You bring it into an aschColour of wich an other
says . æstime ye asches for god wil give to you Liquefaction[732] and att last

[726] <or> is written by the main scribe on top of mistaken letters that are now illegible.

[727] This line is written on top of the pencil line marking the bottom margin; the scribe is normally careful to keep within the margins, so this indicates this line may have been added later as a correction (see the next note).

[728] This line is written above the pencil line marking the top margin: that is, the main scribe realised they had missed part of the text, and had to fit it in later. This also explains why there is an insertion above the line without a caret, intended to follow after the end of the line: <Peacock apeares>. The scribe needed to fit the final part of this passage in.

[729] Here, there is an interlinear addition by the main scribe, with the first word crossed out and the second word, <pea>, in very faint ink. The scribe probably started writing the "Peacock apeares" from the previous line here, but decided to add it above the previous line instead.

[730] <se> is in very dark ink, written by the main scribe over a previous faint letter (possibly <s>).

[731] The struck-out word is partly difficult to read. The scribe probably originally wrote "Coulour", tried to correct this with a large <o> on top of <ou> (this is partially visible beneath the deletion strokes), but eventually simply deleted the whole word and rewrote it afterwards.

[732] <L> is written on top of a previous mistaken letter by the main scribe.

yeking is Coronated with a red Diademe. by ye helP[733] of god ./

OfyeMethode ofprojecting ye medicine vpon
every one ofthe imperfects Chapter 7 /

I have finisched my promise namely the magistery of making the
mostexcellent Red Elixir now finaly whe wil treate ofye methode of
projection wich is yeComplement ofyeworck & ye exspected joy the Red Elixir
makes yellow all mettals in infinitum & Transmutes yesame into fine gold, and ye
white Elixir whitenes in infinitum andbrings all mettals into perfect
whitines but you must know . that one mettal . is more Remote from perfection
Then an other, and an other more nearer, and alto every mettal is brought by
ye Elixir to Perfection, yett ye ~~perfects~~\nearest/[734] are more easy more better brougth
to it then the Remote and because whe finde a nearer therefore whe are
excused from the Remote, what mettals are remot & neare to perfection you
may finde it in Our chapters ifyou are ingenious and without any doubt
he who knowes. so much. in this my speculum as to finde out the matter wil
know wel Enough . vpon wich body he shal Project His medicine. for the
masters ofthis art whohave found it out by their Philosophy show manifestly
enough a linear and open way when yeSay nature Containes nature nature
overcomes nature and nature meeting nature is overjoyed and is transmuted
into other natures , and in an other place Like apetites its like for similitude
is the Cause offrendship ofwich many philosophers. ~~leff~~ left notable secrets

f. 46v

know that yesoul quickly enteres its body wich by no means wil joyne with
an other body, and in an other place for the soul enteres quickly its own
body ; and not an other for ifyou wil joyne it withan other body you
wil worcke in Vain , for this Vicinity is more aparent . because Corporeals
are made[735] incorporeals by this Regimen and inCorporeals. are[736] made Corporeals.
and in the Complement the Whole worck is spiritual fix and because the

[733] The majuscule-like <P> seems to be here because the scribe originally wrote the letter's ascender as extending too high.
[734] The correction is added by the main scribe on top of the struck-out word.
[735] <a> seems to have been <e>, and the scribe has drawn an extra stroke to make it look like <a>.
[736] <a> is written on top of a mistaken <&> by the main scribe.

spiritual Elixir is so far præpared[737] & deduced ~~byy~~[738] beyond its nature. therefore
it ~~its~~ is no wonder. that it does not mixe with a body vpon wich it is projected
and itis also difficult to project vpon a Million & farther and Trans
mute the same presently. Therefore. Iwil tell you one great secret .
You must mix one part ofit with a Thousand ofa near body all this
putinto a vessel wel closed put it into the fixating furnace first
with a gentle fire then by Augmenting the fire always ~~every~~\for/[739] three
Days till the are joyned inseparabiliter and this is a worck ofthree
days and then again You must project one part ofthis vpon a
thousand of a nearer body and this is a worck of one day or of
one hour , or moment, for wich wonderful secret ye almighty God is
to be Praysed for Ever & Ever

Finis

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[737] The first <r> is written on top of a mistaken <æ>, corrected by the main scribe.

[738] Here, the scribe seems first to have written <by>, then corrected this by writing <ey> on top of the <y>, but eventually struck this out and rewrote the whole word.

[739] The correction is inserted above the struck-out word by the main scribe.

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Appendix 1: *The Mirror of Alchemy* witness descriptions

Structure of the witness descriptions

The bulk of the following descriptions are based on my own observations when consulting the *MoA* manuscripts *in situ*.[740] I have supplemented my research based on library catalogues and, where possible, the Handlists of the *Index of Middle English Prose*.[741] As in Chapter 4, for MSS **A** and **C** I have concentrated on the Parts which contain *MoA* (Parts III and I–II, respectively; see Section 4.2.1). The description of the printed witness, **Oli**, is formatted similarly to the manuscripts, but as it is a description of the *edition*, not of a specific copy, this description does not completely parallel the manuscript descriptions. Further information on the witnesses can be found in Chapter 4 of this study.

The descriptions are based on the topic divisions and order used by Marttila (2014: e.g. 355–360), as his categorisation is wide-ranging enough to cover all relevant aspects of the witnesses. However, I have added a category for language, as the present study does not include a dialectal analysis like Marttila does (2014: 539–587). The manuscript descriptions below are set out in the following order:

1) Physical description
2) Collation
    a) Signatures and catchwords

[740] I have viewed the manuscripts several times: October–November 2014; June 2015; June 2016; and October—November 2017 (a two-month visit). I briefly viewed the BL copy of **Oli** in November 2017.

[741] The library catalogues: for the BLO Ashmolean collection, Black (1845); for TCC, James (1900–1905); for CUL, Hardwick & Luard (1858); for the BL, the handwritten Sloane Catalogue and the online catalogue; for GKS, the online catalogue. Handlists: **A** – Eldredge (1992), IX; **C** – Connolly (2009), XIX; **G** – Taavitsainen (1994), X; **S1S2** – no handlist yet; **T** – Mooney (1995), XI.

   b) Foliation/pagination
3) Layout
4) Current binding
5) Contents
6) Language
7) Hands used
   a) Scribal hand
   b) Other hands
8) Decoration
9) Later additions
10) Origins and provenance.

The description of **Oli**, as mentioned, follows this model as far as possible, omitting categories 4, 6, and 9 as irrelevant to a printed edition. Even in the categories included, the description of **Oli** is more sparse, as my discussion of the printed edition in this study does not go onto the level of individual copies.

What information do the categories give? First, physical description (1), discussed in Section 4.2.1, includes the basic information about the witness, citing previous descriptions and giving information on the physical codex such as format and, in the case of manuscripts, size, possible watermarks, and overall condition (whether the manuscript is much damaged, for instance). Collation (2) describes the structure of the codex in detail, giving a collation formula where possible. In this formula, I indicate quires with Arabic numerals, and the number of leaves is in superscript. Any missing leaves or other anomalies are in parentheses. The "+" sign indicates a quire boundary, and "*sg*" means a singleton leaf; "*bf*", used for MS **A**, indicates a single bifolium. Signatures and catchwords as well as foliation/pagination are also described in this category, separately from the collation formulae.

Layout (3) moves on to the manuscript pages: whether they have been ruled, and what size the margins and text space are (Section 4.2.4). Category (4) describes the current binding, dating it when possible (Section 4.2.1).

I have included detailed lists of contents (5) for those witnesses for which it was feasible to do so within this study: MSS **CGS2T**, and **Oli**. The contents of **GS2** have not been listed in previous descriptions or studies at all. **CT**'s contents have been listed by Timmermann (2015), but as her interpretations of textual boundaries differ somewhat from mine, I have included the content list for these two manuscripts in the descriptions below. For MSS **AS1**, I give a short summary of the contents. In the

case of MS **A**, the catalogue description includes a detailed list of the contents; in the case of **S1**, as the manuscript is formed of short excerpts mainly in Latin, a full list of contents was not possible for the present study. The language category (6) mainly includes general information on the language(s) used in the witnesses, as dialectal analysis was not within my focus. The main focus is on whether the witness is mono- or multilingual. I discussed these aspects of contents and language in Section 4.4.

In Section 4.2.2, I described the hands used in the manuscripts especially as supporting evidence for the dating of the manuscripts. My treatment of hands (7) in the below descriptions is shorter, with the intent of encompassing all the hands appearing in the manuscripts (or Parts, in the case of MSS **AC**). Decoration (8), discussed in Section 4.2.4, lists the decorative elements in the witnesses: rubrication, large initials, and any illustrations.

I do not meticulously document every later addition (9); that section merely includes information on whether the MS includes later additions at all, and mentions particularly relevant ones (cf. Section 4.3). Finally, origins and provenance (10) describe the history of the witness, listing any known previous owners (discussed in Section 4.2.3).

A Oxford, Bodleian Library MS Ashmole 1486

Physical description

MS **A** is briefly described in the catalogue of the Ashmolean Manuscripts (Black 1845: 1335–1343). It is formed of six Parts, all individual booklets (the catalogue calls them "six MSS. on paper", Black 1845: 1335). The booklets vary in size: the largest (Part I) is 290 x 200 mm and the smallest (Part VI) is 150 x 200 mm. The booklets are all paper (some have parchment covers). Part III can be dated to c. 1500. Part III, consisting of 75 leaves, is a paper quarto, although a very large quarto at c. 280 x 200 mm. The paper in Part III is thick and dirty, and the binding of the MS is tight. Watermarks are barely visible, and are not decipherable. There appears to be a remnant of a cross watermark on f. 42. Overall this Part is in quite good condition. It can further be divided into three sub-parts.

Collation[742]

Part III: 1^8 (wants 1) + $2–6^4$ + *bf* + *bf* + 7^4 + 8^4 + 9^4 (1 leaf excised) + 10^4 (wants 1) + $11–14^4$ + 15^4 (wants 2) + *sg*.

Signatures and catchwords: Quires 2–6 are signed A–F; quire 7 is signed A, quire 8 B, and quire 10 also B; quires 11 –14 are signed C–F. Catchwords in Part III are in red ink, used at the end of each *signed* quire in Part III (thus, not at the end of the unsigned quires), on ff. 18v, 22v, 26v, 30v, 34v, 47v, 54v, 58v, 62v, 66v, and 70v.

Foliation/pagination: The Parts are all foliated separately. Elias Ashmole has numbered the MS parts in ink; the numbering has been corrected by a later, archival hand. Part III was labelled Part IV by Ashmole.

Layout

Ruling in Part III occurs only in the calendar on ff. 2r–7v, with pricking in the margins, and the astrological table that follows (f. 8r). Despite the lack of visible ruling, the margins are similar throughout Part III: upper margins c. 25–30 mm (although titles are usually written into these margins by the rubricator); lower margins usually c. 50–60 mm, although earlier in Part III, c. 35 mm; outer margins c. 25–30 mm; and inner margins c. 20 mm. The text space in Part III varies between 190–200 x 150 mm. The number of lines per page varies; in the section with *MoA* it is c. 35 lines.

Current binding

The binding is brown leather; the style of binding, with a vertical line in the leather a little way from the spine, indicates that the MS was bound between c. 1640–80 (cf. Pearson 2005: 68). The MS was most likely bound at Ashmole's behest, as the style of binding is identical to other MSS in the Ashmolean collection such as MS Ashmole 1459, which is stamped with Ashmole's coat of arms (see Stamp 1 in Morris & Oldfield 2012). The spine is labelled "Ash. 1486".

Contents

The other Parts of this MS also contain alchemical material. The catalogue (Black 1845: 1338–1340) lists the contents of Part III accurately; here, I will give a summary

[742] This collation is based on my examination of the MS *in situ*.

of the contents of the booklet. Part III begins with an astrological chart (f. 1r) and a possibly heraldic image of a hart (f. 1v); a calendar for each month follows (ff. 2r–7v). Alchemical treatises form the majority of this Part's texts. These treatises are "Interrogaciones Regis Kalid", ff. 9r–14r; "Arcium Alkamie", ff. 15r–21r; "Liber Turbe philosophorum" (which may include some separable shorter pieces), ff. 21v–24r; "Septem Claves", ff. 24v–25v; a Latin treatise on multiplying metals, ff. 26r–27v; "Gemma salutaris", f. 28r; "Notabilia Philosophorum", ff. 28v–29v; "Septem condiciones hujus materie", ff. 30r–v; "Opera Aristotilis", ff. 31r–38v; "Ignocius Ignocius Ignocius", ff. 39r–40v; "To knowe the nature off phylosophye", f. 41r; **"Liber Multipharie" i.e. *The Mirror of Alchemy*, ff. 42v–48v**; part of Ripley's "Compound of Alchemy", ff. 49v–71v; "Blamekym", f. 72v (ends incomplete); and "The alchemical vision of John Dastin", ff. 74r–75r (begins midway). Of these fifteen treatises, all are in prose apart from the *Compound of Alchemy*.

Language

Despite the Latin titles and other limited use of Latin, the majority of the treatises in Part III are in English. Only two treatises, "Interrogaciones Regis Kalid" and the unnamed treatise on multiplying metals, are entirely in Latin. MS **A** is not in LALME.

Hands used

Scribal hands: The main scribe of Part III, Hand A, is the same throughout, but different from any of the previous scribes in the other booklets of **A**. The script in Part III is early Tudor secretary, with the flowing ductus of hands from very early s. xvi. Titles and rubrics are written in hybrid secretary, a formal script. In Part III, rubrication seems mainly to have been done by a separate rubricator, so the rubricated portions are probably by a Hand B.

Other hands: Part III has been annotated by several later hands from s. xvi and s. xvii. Major scribbles/annotations appear on ff. 14v, 31r (according to the catalogue, the long note here is by a T. Robson), 41v–42r (two hands, possibly including a John Reeve, whose name is written on f. 41v), and 75r–v (several hands s. xvi and s. xvii, including the same as on f. 31r, i.e. Robson). The hands annotating *MoA* include a secretary hand from s. xvi commenting on ff. 43v, 44v, and 45r.

Decoration

Part III has a distinctive decoration and textual organisation scheme unlike any of the other booklets in MS **A**. This scheme involves rubrication in a more formal hand than the running text; large initials (usually about two lines in height) outlined in red and painted blue; and some illustrations, mostly of alchemical apparatus (on ff. 1v, 8v, 15v, 16r, 16v, 17r, 19r, 20r, 20v, 21r, 27v, and 31r).[743]

Later additions

The MS has been annotated by hands datable to s. xvi and s. xvii, i.e. later than the MS was copied (see sections on hands and provenance). The additions sometimes relate to the texts copied, sometimes not (e.g. the scribbles on ff. 41v–42r).

Origins and provenance

No explicit information on the provenance and history of Part III, but some clues appear. On f. 1v, there is a full-page illustration, of "a hart, lying down on a diapered ground; in the style of a pattern for needlework" (Black 1845: 1338): below the hart, in the bas-de-page, there are two more harts, drawn in a more humorous style. In the main image, "Ephemeri vita" has been written within the hart's body: this is potentially a family motto. There is a date on f. 14v: 1541. This is included several times in a note by a later annotator: this note is a list of stables let by the annotator in that year. Personal names mentioned in this list are "Maist*er* garret", "medylton", "Raffe wellet", "the god man beell pykemonger", "Freston", and "Smale". No place names are mentioned apart from the "berre taverne". The name "John Reeve", by a later annotator, appears on f. 41v next to a short recipe in the same hand. It is possible that this refers not to the scribe of these annotations, but to the person the scribe got the recipe from.

[743] Concerning the illustrations that are not alchemical apparatus: f. 1v contains an illustration of a hart; f. 8v, drawings of a woman and a man (with moon and sun on either side) above an unfilled nativity chart; f. 31r has an illustration of a dragon (coloured in red and blue), which is labelled "ffigura" and appears to be a metaphorical illustration of part of the alchemical process.

C Cambridge, Cambridge University Library MS Kk.6.30[744]

Physical description

MS **C** is described in the Cambridge University Library Catalogue (Hardwick & Luard 1858)[745] and in Timmermann (2015: 496–501). A small paper quarto (except for a single quire with some parchment), the MS contains ii + 141 + ii leaves and can be dated to s. xv^{ex} and s. xvi.[746] The MS is divided into six Parts; I concentrate on Parts I and II (see Section 4.2.1). Part I has a single watermark, glove with flower; Part II has three: scissors with S on top, coat of arms, and glove with flower (possibly the same one as in Part I).

Part I is a paper booklet dating to s. xv^{ex}; its leaves measure c. 222 x 150 mm (the first quire measures c. 215 x 145 mm). The first five leaves of the first quire are excised, visible as small stubs in the gutter. Other mutilated leaves (whether entirely or partially cut out) in Part I are ff. 2, 13, 27, and 29b. Part II is a paper booklet dating to s. xv^{ex}, with some later additions from very early s. xvi. The measurements for the leaves in Part II are c. 218 x 150 mm. The first leaves, ff. 46–48, seem to have been added later. Part II also has mutilated leaves, in which half the leaf has been cut out: 51 and 56. Apart from the mutilations, Parts I and II are in rather good condition.

Collation

MS **C** has not been previously collated. Based on my codicological examination of the MS, and the help of Dr Orietta Da Rold, I suggest the following division into Parts, collated:

- Part I: ff. 1–45; collation: 1^{10} (missing leaves 1–5) + 2^{12} (missing leaves 5, 12; leaf 9 mutilated) + 3^{14} (leaf 12 mutilated) + 4^{10} (missing leaf 8) + 5^{10} (missing leaves 9, 10)

744 I am grateful to Dr Orietta Da Rold (St John's College, University of Cambridge) for her invaluable in-person help with the codicology of MS **C** (November 2017), especially concerning quiring and watermarks. The watermarks mentioned in the description have been identified by Da Rold.

745 Item 2110, pp. 726–728.

746 The 16th-century hands are in the form of marginal comments and scribbles such as a poem on f. 70v.

- Part II: ff. 46–60; collation: 1^4 (first leaf missing) + sg + 2^{12} (leaves 2, 7–8 mutilated)[747]
- Part III: ff. 61–70; collation: 1^{14} (missing leaves 9, 11, 13, 14; leaf 10 mutilated)[748]
- Part IV: ff. 71–86; collation: 1^{16}
- Part V: ff. 87–109; collation: 1^{14} (first leaf missing) + 2^{10}
- Part VI: ff. 110–141; collation: 1–2^{14}

Signatures and catchwords: There are no catchwords in Part II; Part I has a single catchword on f. 5v. This catchword is on the last leaf of the first quire; the second quire begins after it. Signatures appear in this second quire, from C1 to C6 (ff. 6–10; the leaf with C5 is missing); there are no signatures elsewhere in Part I, and none in Part II.

Foliation/pagination: The MS is foliated in a modern hand, in pencil. The original foliator made mistakes in the numbering, so the foliation is at times corrected for long stretches.

Manuscript layout

Part I is ruled in plummet, although the markings have mostly disappeared. The text measurements for Part I's quires are c. 150 x 110 mm; bottom margins c. 40–50 mm, top margins c. 10–20 mm, outer margins c. 35–40 mm, inner margins c. 10–15 mm. The pages in Part II are not ruled, apart from ff. 46–47, ruled in the same light brown ink of the running text, and f. 48, ruled on the outer margin in plummet. F. 49r, with a calendar chart, has ruling on the inner margin and the calendar is ruled. The text measurements for the quire that includes *MoA* in Part II are c. 170–175 x 120–130 mm; bottom margins c. 30–35 mm, top margins c. 10 mm, outer margins 10–20 mm, inner margins c. 10 mm. There are c. 28 lines per page.

747 Textual evidence from *MoA* (see Chapter 5) suggests that there must have been an additional leaf between ff. 50 and 51, as Chapter 1 and the start of Chapter 2 of *MoA* are missing. However, no remnants of such a leaf are visible in the MS as it exists now, so I have not attempted further conjectures regarding the original collation of the MS.

748 Leaf 9 is barely visible; leaves 11, 13, 14 are stubs visible in the gutter.

Current binding

The binding is 19th-century and the spine is labelled "Alkimia M.S."; on the front pastedown, a bookplate with the date 1715 has been glued, below which an archival hand has written a large "E" in pencil.

Contents

The catalogue calls the MS "A Collection of Alchemical and Medical Tracts" (p. 726). The MS has been compiled from miscellaneous booklets, all of which are predominantly alchemical in content. MS **C**'s contents (all Parts) have been described in detail by Timmermann (2015: 497–501); however, my interpretation of the textual boundaries differs to some extent, and thus I present here a list of the contents of Parts I and II.

Part I:[749]

1. Ff. 1r–10v. *The Mirror of Lights*, an alchemical treatise (see Grund 2006b). The treatise ends incomplete and mid-sentence at the end of f. 10; there may have originally been another leaf after f. 10.
2. F. 11r. Recipes involving the plant walwort, and how to make precious stones.
3. Ff. 11v–14v. How to make a furnace. An alchemical treatise including illustrations.
4. Ff. 14v–15v. Alchemical texts and recipes, the last ending incomplete, as there appears to be a leaf missing.
5. Ff. 15r–19v. "Agude chapiter namyde dyabesse the whyche is clepede Rebus". An alchemical treatise including illustrations.
6. Ff. 19v–22r. An alchemical treatise.
7. F. 22r. A note on alchemical vessels.
8. Ff. 22v –29bv. A text defining alchemical substances and procedures, including recipes.
9. Ff. 30r–34v. Alchemical recipes, one attributed to John Styward and some to John Frynge (possibly the same person).

[749] This list (and that of Part II) is based on consultation of the MS in situ, and the listings in *IMEP*, Handlist 19 (Connolly 2009).

10. Ff. 35r–36r. “Liber t*ur*b*atum* philosophor*um*”. An extract from the alchemical treatise *Turba Philosophorum*.
11. Ff. 36r–37v. “Notabilia phelosophor*um*”. Another extract from *Turba Philosophorum*.
12. Ff. 37v–38v. An alchemical treatise on the ‘seven terms or keys’ of alchemy (eight are in fact listed).
13. F. 38v. A list of words and symbols for planets and metals.
14. F. 39r–v. “De furnes ffaciendum”. An alchemical treatise on the furnace, with drawings of furnaces preceding.
15. F. 39v. “Ad v*er*triandum vasa”. An alchemical recipe.
16. Ff. 39v–40r. An alchemical recipe for multiplying the red stone.
17. Ff. 40r–41v. An alchemical treatise on the stone and elixir.
18. Ff. 41v–45v. Part of George Ripley’s *Compound of Alchemy*, written as prose; ends imperfectly in the chapter on congelation.

Part II:

1. Ff. 46r–47v. Medical recipes in English.
2. F. 48r–v. Extracts from George Ripley’s *Compound of Alchemy*, from the chapters on solution, separation, perfection, and putrefaction. Written as prose, as above. Not catalogued in *DIMEV*.
3. F. 49. This single leaf (smaller in size than the surrounding leaves) has scribbles in 15th- and 16th-century hands: an unfilled calendar chart in seemingly the same ink as the previous folio is on f. 49r, with some scribbles in a faint ink within the chart. Below it, in different hands, are texts indicating the nativities of John Corfe, Elizabeth Lambe, John Robjoute, John May (son of John May), and William son of William; the dates are from the years 1483, 1486, 1502, 1504, and 1506.
4. F. 49v. Snippet of a poem, recipes, and other short notes, in English and French, including an alchemical note “ffor þ^{e} Mayst*er* poke”.
5. **Ff. 50r–56v. *The Mirror of Alchemy*.**
6. Ff. 57r–58r. An alchemical text, seemingly using brass as a starting point; the beginning is obscured because of leaves having been mutilated.
7. F. 58r. A medical recipe for making a tooth fall out by itself.
8. F. 58v. A recipe for making gilt.

9. Ff. 58v–59v. An alchemical text in English, beginning "It is opyne And pleyne that the op*er*ac*i*on of our Medysyne . is the op*er*ac*i*o*n* of nature". This text ends with an attribution "Ramu*n*d*us* de lapide", referring to Raymond Lull.
10. F. 59v. A note on the alchemical spirit and water, in English.
11. F. 60r–v. One Latin and several English alchemical recipes. The last recipe is on f. 61r, i.e. the first leaf of Part III.

Hands used

Scribal hand: The main hands used in Parts I and II:

Hand A: ff. 1r–45v, 60r–61r

Hand B: ff. 46r–47v, 58v–59v

Hand C: ff. 47v, 48r–v, 49, 50r–58v, 59v

Hand A is a rather small, neat anglicana/secretary hybrid of late s. xv. Hand B, used in Part II, is also a late s. xv anglicana/secretary hybrid, but with more secretary features than Hand A. Hand C, used in Part II, is the hand that *MoA* is written in. It is also late s. xv, and an anglicana/secretary hybrid. This hand has also drawn the calendar chart on f. 49r, and seemingly at least some of the nativities.

Other hands: Parts I and II do not have many additional annotations: the marginal notes are mostly in the main hands of the scribe. There is a pen trial on f. 41, the letter <P> and some scribbles. In Part II, f. 49 – a singleton – has nativities on its recto (see Contents), some of which may be in other hands than Hand C.

Language

MS **C** has texts in Latin and English; Parts I and II mainly have texts in Middle English, with some shorter Latin texts interspersed, and some Latin titles. *eLALME* localises MS **C** to Rutland based on the language of Hand B and possibly Hand A (Benskin et al. 2013).[750] The *eLALME* entry mentions that Wymenton (see Origins and provenance) is in northwest Bedfordshire, not far from Rutland.

[750] It should be noted that *eLALME* divides the hands as follows: "Hand A, ff. 1r–45r and 60r–61r; hand B, 46r–59r. ff. 141" (Benskin et al. 2013): that is, it subsumes under Hand B what I consider to be two scribes, B and C.

Decoration

In Part I, some initials embellished in the same ink as the running text; otherwise, no decoration. Part I has some practical illustrations: a representation of "walworte" on f. 11r, and drawings of alchemical implements and furnaces on ff. 11v, 17r, 17v, 19v, 26v, 28r, 28v, 31r, and 39r. There is also a tiny illustration, within the running text, of "Arote of þ^{is} schape rownde & full of smale holys", on f. 16r. There are also several manicula, mostly in the main scribal hand (Hand A). Some of them are quite decorative, e.g. f. 37v.

Part II has no decoration or rubrication, nor illustrations; the only non-text item is on f. 49r, a calendar chart with months on the y-axis and days on the x-axis: it has not been filled in, although there are some faintly scribbled names on top of it. Some late-15th- and early-16th-century nativities have been written below the chart.

Later additions

A later hand, in faint pencil, has drawn a sketchy manicule in pencil on ff. 39v (Part I) and 54v (Part II). In Part I, a (presumably) later reader has added crosses (X) in the margins on ff. 28v, 29ar, 29av, and 30v, and possibly also underlined some text on f. 40v. F. 49 (both recto and verso) seems to consist mainly of later annotations; f. 49v has short lines of poetry in French.

Origins and provenance

The MS was possibly owned or (partly) written by John Frynge, Rector of Wymenton (Singer 1932, vol. III, 1932: 1019); his name appears in Part I, on f. 33v: "Iohen frynge" and "Op*us* rectoris de wymenton Canonici"; and probably on f. 30v, "Op*us* Ioh*ann*is Stywarde". F. 49v has faint letters, possibly initials: "S:B". Other markers of possible provenance are the nativities on f. 49r: John Corfe, Elizabeth Lambe, John Robjoute, John May (son of John May), and William son of William; the dates are from the years 1483, 1486, 1502, 1504, and 1506. John Robjoute is named as being "de Meratyng". Meriton is a town near Peterborough in Cambridgeshire: as Rutland borders Cambridgeshire, the MS, now at CUL, may have circulated and ended up not very far from where it was written. As the MS is numbered within the classes Dd–Mm, it was probably part of the library's collections by the mid-18th century (see Connolly 2009: xxiii).

G Copenhagen, Royal Library (Det Kongelige Bibliotek) MS GKS 1727 kvart

Physical description

The catalogue entry for MS **G** is from the 1780s.[751] The entry does not include codicological details; the present description is based on my *in situ* examination of the MS.

MS **G** is a paper quarto with pages measuring c. 220 x 160 mm. The MS can be dated to s. xvi^2 based on its script and the dates written in it: 1555 (Taavitsainen ed. 1994: 11), 1593 (e.g. f. 31r), 1595 (e.g. f. 23r), and 1596 (f. 20v).[752] There is a parchment stub before the final endleaf. Some watermarks are visible although difficult to identify; the same few watermarks repeat throughout. The MS is in quite good condition apart from the binding, although frequent cancellations show that it was much used.

Collation

i + 188 (missing pp. 151–162, 179–180). The quires seem to alternate between tens and sixes. Due to travel restrictions, I was only able to view the MS once, and was not able to examine the MS in enough detail to determine a detailed collation.

Signatures and catchwords: None, at least in the leaves containing the two versions of *MoA*.

Foliation/pagination: Ff. 1–135 are foliated in a 16th-century hand. After f. 135r, the foliation changes to pagination: f. 135v is marked p. 136. The pagination may be in a different hand, although also a 16th-century one.

Layout

Most leaves of the MS are ruled in plummet on all four sides, with the written space c. 180–190 x 110–115 mm. Some leaves have been ruled with more specific needs in mind: e.g. ff. 15v–16r accommodate the lists of alchemical items bought and/or sold in 1595. Ff. 16v–30v are unruled and seem to contain unplanned notes. After f. 30v, the ruling continues as before until f. 131v. From that leaf until the end of the

751 The Kongelige Bibliotek catalogue can be found online. The catalogue was completed between 1784 –1786 (Dr Erik Petersen, Royal Library's Centre for Manuscripts and Rare Books, personal communication, 29 November 2016).

752 I was not able to locate the date 1555 in the MS.

MS, there is no ruling apart from pp. 184–85, which include a table. There are c. 37 lines per page.

Current binding

The MS is bound in limp parchment; the binding appears to be original (16th-century). The binding is currently somewhat damaged, and the sewn-together quires can partially be seen through the damaged section of the lower spine.

Contents

MS **G**'s contents are alchemical, consisting of treatises, some verse, recipes and other alchemical notes. The library catalogue is incomplete, and the *Digital Index of Middle English Verse* (*DIMEV*) on the verse and Taavitsainen (ed. 1994: 7–11) on the English prose contents do not provide a complete account. I provide a more detailed list of the items in MS **G** below. I have marked in square brackets if the item is in the Handlist (Taavitsainen 1994), using the item numbers there. I have also marked *DIMEV* numbers for the verse.

1. Ff. 1r–8r. "Accurtac*ion*es et practica Raymundi" (in English). An alchemical treatise. [1]
2. F. 8v. Alchemical notes and diary entries. Mostly scribbled out and heavily cancelled.
3. Ff. 9r–15r. "Breviarium Naturalis Philosophia" (in English). An alchemical verse treatise, written in 1557 by Thomas Harryson (alias Charnock). Pages crossed out.
4. Ff. 15v–16r. Account list of items bought for alchemical work (or sold?).
5. Ff. 16v–17r. Alchemical recipes "of m^{r} garland".
6. Ff. 17v–18r. Lists relating to alchemical practice "out of the loge booke".
7. Ff. 18v–20r. "A note of m^{r} digg*es* his worcke, after his preparatione [|] of his two materalls Sol and Mercurye". Account of an alchemical experiment.
8. F. 20v. Dates and notes from 1595–96, perhaps concerning alchemical work. Heavily cancelled.
9. F. 21r–v. List of alchemical books and other alchemical notes.

10. Ff. 22r–30v. Alchemical notes in various hands, some of them received from Mr Nicolas Hill in 1595, including some recipes. Greek and Latin text on f. 29r, Hebrew letters on f. 29v.
11. Ff. 31r–32v. A tract from Mr Fouler, 1593. Crossed out. [2]
12. Ff. 33r–34v. Alchemical tract/recipe. [3]
13. Ff. 34v–35r. Alchemical tract. [4]
14. Ff. 35r–36r. Two alchemical processes. [5]
15. **Ff. 36r–40r. "Bacon his lookeinge glasse of Alchemye". The first copy of *The Mirror of Alchemy* in G. Title written in a different hand in italic script. [6]**
16. Ff. 40r–41r. "Secreta Ph*ilosph*er Bacon".
17. Ff. 41r–53r. "[C]erten questyons demaunded by the reuerend fathr the archbisshop of reynes of the master guillyam de cenes". Listed as two items in Taavitsainen (1994): [7], an alchemical treatise in the format of questions and answers (ff. 41r–49r), and [8], an appendix to the treatise (ff. 49v–53r).
18. F. 53r. "[C]ertayne notable Instruccions w^{ch} be right speciall good". Short alchemical tract. [9]
19. Ff. 53v–54v. Alchemical treatise. [10]
20. Ff. 55r–62r. "Novum lumen. The new light". An alchemical tract. [11]
21. Ff. 62v –64r. Alchemical poem, "I am marcury that mighty flos flowre". Includes a prologue on ff. 62v–63r ("To whome this boke shall come"). [DIMEV 2121]
22. Ff. 64v–67v. Alchemical poem, "In the partis of Rome the wedding of m*er*cury". This is the sole witness of this poem. [DIMEV 2620]
23. Ff. 68r–77r. "[P]arable of the Philosophers drawne oute of an olde booke" (f. 77). Alchemical treatise. [12]
24. Ff. 77v–82v. "Artium Alkamie" (in English). Alchemical treatise including some illustrations on ff. 78v–79v and 80v. [13]
25. Ff. 83v–84r. Short alchemical tract in Latin. Mentioned as a prologue to the two following recipes by Taavitsainen, which are grouped under the same item number (1994: pg).
26. F. 83v. Alchemical recipe. [14]

27. F. 84r. Admonition to pray for Lord Mowbray.
28. F. 84r. Alchemical recipe. [14]
29. Ff. 84v–86r. Alchemical illustrations.
30. Ff. 86v–91r. “Liber Philosophorum” (in English). An alchemical tract in seven chapters (Taavitsainen (1994: 9) mentions four). [15]
31. Ff. 91r –93r. “Septem Clauis huius Scientie” (in English). An alchemical tract. [16]

Ff. 93v–96r are empty.

32. F. 96v. “Gemma Salutaris” (in English). An alchemical tract. [17]
33. Ff. 97r–98v. A compilation of alchemical rules and aphorisms by various philosophers. [18]
34. Ff. 99r–110v. “Septem condic*i*ones huius Materie”. An alchemical tract. [19]
35. Ff. 101r–113r. “Opera Aristotilis”. An alchemical tract with a commentary (which starts on f. 110v). [20]
36. Ff. 113v–116v. An alchemical tract. [21]
37. Ff. 116v–117r. “To knowe the nature of Philosophye”. An alchemical tract. [22]
38. **Ff. 117v–126r. “Liber Multipharie” (in English). The second copy of *The Mirror of Alchemy* in G. [23]**
39. Ff. 126v–128r. An alchemical tract on the philosophers’ stone. [24]
40. Ff. 128v–131v. “Visio Ioh*ann*is Dastyne” (in English). An alchemical treatise. [25]
41. Ff. 132r–134r. Alchemical notes from Mr Garland, Mr Turpin and Mr Tisdale (c. 1595).
42. Ff. 134v–135r, pp. 136–144.[753] Alchemical recipes.
43. Pp. 145–148. “An extracc*i*on of the .7. books of the natures of thing*es* / first written by p*ar*aselsus”. An alchemical treatise in seven chapters; it seems to end incomplete at p. 148.

[753] The change from foliation to pagination happens here.

44. Pp. 149–150. Alchemical notes.
45. Pp. 163–169. Alchemical notes and recipes in various hands. Includes a medical recipe on p. 168.
46. P. 170. A table of alchemical symbols.
47. Pp. 172 –173. Alchemical recipes. Crossed out.
48. P. 174. A recipe for "a pleasant drinke".
49. P. 174. A medical recipe "for to kill the woormes".
50. Pp. 174–178. Alchemical notes from Mr Edgcome, Mr Tisdale and others. They appear to be partially accounts of alchemical experiments.
51. P. 181. Alchemical notes.
52. Pp. 182–183. "[O]f the planett*es* and there nature*s*". A list of the planets' features concerning alchemy.
53. Pp. 184–185. A table with the qualities of the four elements.
54. P. 186. Alchemical notes.

Hands used in the manuscript

Scribal hands: The main hand is a secretary hand from s. xvi. Most of the MS seems to have been written in the same hand, Hand A: a typical form of Elizabethan secretary. Hand A sometimes uses italic script for emphasis.

Other hands: Notes and shorter sections are written in other hands, s. xvi and possibly s. xvii. There are also marginal notes in various hands.

Language

All the texts in this MS are in English; there are some titles and short phrases in Latin.

Decoration

The MS is not decorated. There are some alchemical illustrations (mostly of furnaces) on ff. 78v–79v, 80v, and 84v–86r. These are functional rather than decorative; some of them are only half-finished.

Later additions

Many of the notes in other hands seem to be later additions, as well as some of the marginal notes. The frequent cancellation of sections of the texts, or marginal notes, may be the work of later annotators.

Origins and provenance

The MS entered Copenhagen's Old Royal Collection (Gamle Kongelige Samling) by 1787. The alchemical manuscripts belonging to the collection were likely all acquired by King Frederick III (r. 1648–1670) (Taavitsainen 1995: 81). The earlier provenance of MS **G** is not certain, but Taavitsainen considers the Copenhagen manuscripts to have once belonged to a high-level English alchemist (1995: 81–82).

The inner front cover of the MS contains a signature: "Lond. Is. Habrechtt. 1613". This is Isaac Habrecht (1589–1633), an astronomer, physician, and alchemist from Strasbourg, who possibly bought this MS from London in 1613. There are other signatures in the manuscript: "Liber Christopheri Tayloris"[754] (f. 96v) and "Thomas Harryson anno 1557" (ff. not given in Taavitsainen ed. 1994: 11). Biographical works such as the *Dictionary of National Biography* do not have records of these names. A person named "m^{r} garland" is mentioned often in the MS (e.g. f. 31). Taavitsainen (1995: 81) identifies him as either Edward Garland, a friend of Dr John Dee's, or Francis or Robert Garland, who are also mentioned in Dee's diary. Other names mentioned in the MS are Nicolas Hill (from whom much of the material was received: e.g. "Nicolas hill gaue me all these noats", f. 23r), Mr Tisdale, Mr Robinson, Mr Digges, Mr Edgcome, and Mr Fouler.

[754] Christopher Taylor also owned MSS GKS 240 and 1747 (Taavitsainen 1995: 82).

S1 London, British Library MS Sloane 2405

Physical description

The MS is briefly described in the handwritten *Catalogue of Additional Manuscripts, Sloane 2268–2496* (vol. 8, p. 51).[755] This paper quarto can be dated to s. xvii (possibly s. xvii^{ii}). It consists of ii + 106 + ii leaves. The original leaves measure c. 195 x 145 mm. The paper is not of good quality, as the ink often bleeds through the pages. There are traces of watermarks visible on ff. 41, 45, 48, 52, 54, 56, 57, 58, 61, 62, 65, 70, 72, and 81. However, the watermarks are so fragmented and small that identifying them was not possible.

Collation

The MS was damaged before being bound; it was originally a smaller quarto. The original collation cannot be determined due to the rebinding: the leaves have been mounted on guards, obscuring the original quiring.

Signatures and catchwords: There are no quire signatures. The scribe frequently repeats the last word or words of the verso on the next recto. This practice is similar to catchwords, but the scribe writes the words *within* the running text on the verso, not in the margin, and the words are thus repeated. The practice is not consistent, and the repetitions are frequent enough that they cannot refer to quire boundaries.

Foliation/pagination: The MS is foliated in a later hand, in red ink, like MS **S2**, probably by Sir Hans Sloane. Starting from f. 14, the foliation is corrected in pencil by a later archival hand, possibly due to the insertion of a new leaf (f. 14) when binding the MS.

Layout

The MS is unruled. The text space varies: in *MoA*, it is c. 170 x 110 mm, with margins of 10 mm (top), 10–15 mm (bottom), 20 mm (outer), and 15 mm (inner); but in some of the Latin texts, there are barely any margins and the text space is c. 170 x 135 mm. There are c. 28 lines per page.

[755] Consultable at the British Library. The online catalogue entry has slightly different information.

Current binding

The binding is 19th-century. The spine labels the MS as "Collectanea de Lapide Philosoph.", whereas the British Library online catalogue titles it "Aristotle SUPPOSITIOUS WORKS: Excerpta alchemica ex: 17th cent". Two dirty parchment leaves form the first and last leaves of the MS: thus, the MS may have been originally bound in a parchment wrapper.

Contents

The MS is an alchemical commonplace book containing short alchemical recipes, excerpts, and treatises in Latin and English. Most of the MS is in Latin and lacks titles, and it is difficult to perceive the beginnings and ends of texts. The following general description focuses on the English contents, especially those in the British Library catalogue.

The MS starts with Latin alchemical excerpts and recipes; there are some switches to English within the Latin, and some recipes entirely in English (e.g. f. 31v). These notes/excerpts/recipes continue up to f. 39, where *MoA* begins. After Chapter 3 of *MoA* ends on f. 42v, the text continues with alchemical treatise material in English, referring to Geber, Nicholas Flamel, Basil Valentine, and George Ripley; this material ends on f. 47v. F. 48r begins another set of alchemical excerpts in Latin, the first attributed to Arnold of Villanova. There is an excerpt attributed to Nicholas Flamel in English on ff. 50r–51r, after which more Latin excerpts follow. A treatise in English on making precious stones through artificial means, attributed to Lucation ("y.e famus Italian"), is on ff. 58r–60v, followed by another treatise in English, "Artrohius his secret booke", ff. 60v–63v. More short alchemical excerpts and notes in Latin and English are on ff. 63v–89v. In between these notes, there are a few other items, listed here: f. 68, a slip of paper inserted into the MS, has a note on the verso in the main hand of the MS (in the neater English version of that hand), with a few lines of poetry attributed to Ripley. F. 80 is also a slip inserted into the MS: its verso has a list of measurements (in English) relating to mercury. F. 82v includes notes in English in the main scribe's hand, including a list of King Henry VIII's wives ("Kinge Henery 8 ye 8 [sic] his wifs"), and alchemical notes in English and Latin. An alchemical text entitled "Documentum lullij", i.e. attributed to Raymond Lull, is on ff. 69v–91r; it is difficult to tell when it ends. After that, the alchemical excerpts and notes continue until the final fully written folio, f. 103v.

Hands used

Scribal hands: The MS is written in the same hand, Hand A, apart from later notes and marginalia. The appearance of the hand varies. Most of the MS is written in a 17th-century rapid italic. *MoA* is in a more steadily and slowly written version of this hand, a mostly non-cursive set/book italic. Hand A does not use many abbreviations when writing in English. When abbreviations occur, they are marked with a straight horizontal stroke with two diagonal strokes crossing it, used for nasal consonants and e.g. <w*hi*ch>.

Other hands: The parchment leaves which probably originally surrounded the MS contain annotations in other hands. On f. 1v, i.e. the verso of the parchment wrapper at the beginning, the same adage is copied three times: first in what appears to be s. xvi secretary script (the text has faded quite a bit), then in a more formal non-cursive script with secretary features (e.g. round-backed <d> and reverse <e>); and finally, in the hand of the main scribe of MS **S1**: "labour in youth whilest health doth last [|] and rest in age when strength is past:". It is likely that the parchment wrapper was recycled, and the previous annotations may have been on the parchment wrapper already.

Language

The MS is mainly in Latin, but English texts are interspersed throughout. Many of the shorter notes involve frequent code-switching between the two languages.

Decoration

There are occasional borders for the texts in the same ink as the text: these consist of simple lines or two intertwined lines. There is no decoration in the MS; it is written in black or brown ink throughout, with no illustrations. Alchemical sigils are heavily used in the extracts and notes forming the main content of the MS, however.

Later additions

The only major later addition appears to be the note on f. 104; see below.

Origins and provenance

The only potential mark of provenance in the MS is a note on f. 104, which appears to have been a separate slip of paper originally but is now bound into the MS. This leaf contains an alphabet on the recto, together with a note saying <p: me scriptu*m*:

Galf. Bromfield". This does not appear to be Hand A, although Bromfield uses the same abbreviation marker for the nasal abbreviation as Hand A does. On the other side of the slip bearing Bromfield's note, i.e. f. 104v, there is some text in Latin written by Hand A. Bromfield does not appear in the *DNB*. There is a scribble on f. 1v, possibly a name reading <Lon^{e} Ja>, but the text is too faded for a reliable reading. The only reliable information on the provenance of MS **S1** is that it belonged to Sir Hans Sloane's (1660–1753) collections.

S2 London, British Library MS Sloane 3506

Physical description

The MS is briefly described in the handwritten *Catalogue of Additional Manuscripts, Sloane 3403–3674* (vol. 14, pp. 476–478).[756] This paper MS, a folio, can be dated to s. xvii^{ex} or possibly s. xviii^{in}. It consists of iii + *sg* + 114 + *sg* + iii leaves. The singletons before and after the actual manuscript leaves were probably endleaves in a previous binding. There are 114 foliated leaves, but 16 blank unfoliated leaves are interspersed within the texts, making up the final count of 130 leaves. The MS measures c. 315 x 200 mm, and is in very good condition. There are no identifiable watermarks; faint traces of a large watermark can be seen on the bottom half of some leaves. The MS was originally labelled "ms. A. 764" on the flyleaf; this has later been changed to 3506.

Collation

1^{8} + *sg* + *sg* + 2^{12} + *sg* + 3^{10} + *sg* + 4–9^{12} + 10^{8} + 11^{10} + *sg* + *sg* + 12^{4} + *sg* + *sg*. This collation is provisional, as the original quire structure may have been disturbed by rebinding.

Signatures and catchwords: None.

Foliation/pagination: The MS is foliated in the same red ink as **S1**, probably by Sir Hans Sloane. Sixteen blank leaves occur between the different texts in the MS: these blank leaves are not foliated.

[756] Consultable at the British Library; the online catalogue entry has slightly different information.

Layout

The MS is ruled on all four sides, in plummet, with variable margins measuring c. 10–15 mm (top), c. 10–22 mm (bottom; mostly 10–15 mm), c. 25 mm (outer), and c. 25–30 mm (inner). There are c. 29–32 lines per page.

Current binding

The MS was rebound by the British Library in 1984. However, the binding has retained the (probably original) quire structure: the quires are sewn onto tabs in the binding, enabling the book to be opened without causing damage. The spine labels the MS "Alchemical Treatises".

Contents

The British Library online catalogue entry does not include all the items in the MS, so I give a full list here. As the MS has several texts copied/translated from *Theatrum Chemicum* (Section 6.2.4), I have marked those texts with "TC" in the items below, and indicated the volume and page number where possible.

1. Ff. 1r–8v. "Here Begin The Essential as wel as the accidental Questions of Arnold De Villa nova to Pope Boneface ye Eight". An alchemical treatise. [TC, 1613; Vol. IV. p. 622]
2. Ff. 9r–32r. "The Mirror of Alchymy by Arnold De Villa nova". An alchemical treatise. [TC, Vol. IV, p. 584]
3. Ff. 33r–36r. "The Thenth Book of Archidoxes of Philippus Theophrastus Paracelsus". Excerpt from an alchemical treatise.
4. Ff. 37r–41v. "The Philosophical Cannons of Paracelsus". A list of alchemical maxims.
5. **Ff. 42r–46v. "The Speculum Alchimiæ of Roger Bacon" (*The Mirror of Alchemy*).** [TC, Vol. II. p. 377]
6. Ff. 47r–52r. "The Axioms of George Ripley". Alchemical advice, probably based on Ripley's poem. [TC, Vol. II. p. 110]
7. Ff. 53r–64r. "Annonimi Verbum Demissum or The hidden and never Revealed word of ye Philosophers". An alchemical treatise.
8. F. 65r. "Concerning Sulphur in ye 4th Volume ofye Theatrum Chymicum pag. 360". Alchemical recipes. [TC, Vol. IV. p. 360]

9. F. 66r. “Of Quicksilver. Vol. 2 of theat chimic pag. 38.” An alchemical recipe. [TC, Vol. II p. 38]
10. Ff. 66v–67r. “an other Methode of Quicksilver in ye 4th Volum of ye Theat. chym. pag 453”. An alchemical recipe. [TC, Vol. IV p. 453]
11. Ff. 68r–71r. “The Summary of Nicolas flamels Philosophy”. An alchemical treatise. [cf. the Latin in *Musaeum Hermeticum reformatum*, Quarto, Franc. 1678, p. 172.]
12. Ff. 72r–73v. “The Practice of Mary ye Prophetesse”. Excerpt from an alchemical treatise.
13. Ff. 74r–75r. “The Allegory of Merlin”. An alchemical treatise.
14. Ff. 76r–84r. “Potestas Divitiarum of Raymund Lully”. An alchemical treatise (in English).
15. Ff. 85r–87v. “Liber Trium Verborum of King Calid”. An alchemical treatise (in English).
16. Ff. 88r–96v. “Liber Secretorum Alchimiæ of King Calid The Son of Sazichi”. An alchemical treatise (in English).
17. Ff. 97r–102v. “A Treatise Concerning Salt Nitre”. An alchemical treatise, including a section in verse.
18. Ff. 103r–105r. Coloured illustrations of alchemical furnaces, with notes in French.
19. Ff. 105v–106r. Coloured illustrations of alchemical vessels, with notes in English.
20. Ff. 107r–112r. Coloured illustrations of alchemical furnaces, with notes in English.
21. F. 113r. “The Tracts in this book”. Intended as a table of contents, but not filled in.

Hands used

Scribal hands: The MS is mostly written in the same round hand in brown ink, Hand A. The note on f. 113r is written, in pencil, in this same hand. This rather irregular, mostly cursive hand is somewhat uneven in ductus. Apart from occasional secretary reverse <e>, the hand has typical letter-forms for a mid-to-late s. xvii English round hand.

Other hands:

1) The final notes concerning the alchemical illustrations (ff. 104v –112r) appear to be in a different hand, quite similar to the main scribe's hand: Additional Hand 1, a predominantly round hand, but with more secretary letterforms than Hand A (notably reverse <e>, which is used frequently in this hand but which Hand A only uses in <y^{e}>). Additional Hand 1 is also neater than Hand A, with a more regular ductus. Additional Hand 1 also seems to have written the short note on f. 113v.
2) An entirely different hand on f. 114r, listing some of the texts in the MS (including *MoA*). Additional Hand 2 uses mostly reverse <e> but also epsilon <e>. It is very rapid but non-cursive, and has the appearance of an italic rather than round hand.

Language

Most of the MS is in English. There are some Latin titles and "finis" texts at the end of some of the works copied; and French accompanies some of the illustrations at the end of the MS (see Contents).

Decoration

The MS, on the whole, is barely decorated at all. A major exception is on ff. 103r–112r, with illustrations of alchemical instruments spanning entire pages, inked and painted (probably with watercolour).

Later additions

The alchemical illustrations on ff. 103r–112r, as well as the notes appended to them, may have been added later by Additional Hand 1. Additional Hand 2's partial table of contents on f. 114r certainly appears to be a later addition.

Origins and provenance

There are no clues as to the provenance of this MS. The only thing that can reliably be said is that the MS was part of Sir Hans Sloane's (1660–1753) collections.

T Cambridge, Trinity College MS O.5.31

Physical description

The MS is described in the Trinity College *James Catalogue of Western Manuscripts* (James number: 1312)[757] and by Timmermann (2015: 403–405). The MS can be dated to s. xv^{ex} based on its handwriting and overall appearance. MS **T** is a paper MS in folio, with pages measuring c. 350 x 250 mm. It consists of i + *sg* + 37 + i leaves. "*Sg*" here marks a single parchment leaf at the front, which is the remnant of an earlier limp binding; the catalogue mentions that "one cover of a vellum wrapper remains" (James 1900–1905: 331). Traces of watermarks are visible on ff. 2, 6, 9, 14, 17, 21, 23, 26, 27, and 28; apart from f. 6 (probably a crown or flower resting upon a circular base), they could not be further distinguished with the equipment available.

Collation

$1^{12} + 2^{20} + 3^{?}$ (five left).

Signatures and catchwords: Catchwords (in the original scribe's hand, single words or short phrases) are used on most folios on both recto and verso.

Foliation/pagination: Foliation is in a later hand (probably s. xvii), and has been corrected by an even later hand up to f. 10. Previously extant folios may thus have been lost from the start.

Layout

The MS is ruled on all four sides in plummet, although the ruling is often only faintly visible. The margins are wide (top: c. 30 mm, bottom: c. 55–65 mm, inner: c. 20–25 mm, outer: c. 50 mm), leaving a text area of c. 260 x 175 mm. There are c. 36–44 lines per page.

Current binding

The thick millboard binding is from the 18th century, and is now rather fragile. Many of the books in the Gale collection (which **T** belongs to) have a similar binding; these

[757] Linne R. Mooney has also briefly described the MS in the *IMEP* handlist for Trinity College manuscripts (1995: 121–125).

MSS were probably bound for Roger Gale before the donation to Trinity College in 1738 (see Origins and provenance).

Contents

All the texts in the MS are alchemical treatises. The James Catalogue (1900–1905) and Timmermann (2015: 404–405) list the contents, Timmermann in more detail. As my interpretation of some textual boundaries differs somewhat from both, I include my listing of MS **T**'s contents here. Notably, Timmermann (2015: 405) conflates the shorter texts following *MoA* with *MoA*.

1. Ff. 1r–7v. An alchemical treatise, appearing to consist of several treatises; also includes parts that are recipes. Timmermann (2015: 404) identifies this as Pseudo-Albertus Magnus's *Semita recta.*
2. Ff. 8r–9v. "Libe*r*e t*ur*b*atum* philosopho*rum*". An alchemical treatise.
3. Ff. 9v–10v. "Notable of þ^{e} phelosophers". An alchemical treatise.
4. Ff. 10v–11v. "Ther ben .7^{o}. termes or*e* keys". An alchemical treatise.
5. Ff. 11v–12r. "The .7^{o}. *con*dycyo*u*ns". An alchemical treatise, copied again on ff. 16r–17r.
6. F. 12r. A short alchemical text, beginning "Ffor sothe þ^{e} bodye Incorp*or*ates þ^{e} speryte".
7. F. 12v–16r. Gemma Salutaris. An alchemical treatise, begun again on f. 13r. It seems to incorporate several texts, including some in Latin on ff. 13r–14r.
8. Ff. 16r–17r. "Ther be vij.^{e} condyscyo*u*ns". See item 5.
9. F. 17r–v. "To knowe þ^{e} Natur*e* of phelosophye". A short alchemical treatise.
10. **Ff. 17v–21v. "Her be gynneth A compendeose Abstrace of Alkamy". *The Mirror of Alchemy*.**
11. F. 21v. A short alchemical treatise beginning "Gyffe þ^{e} regemente of þe^{m}".
12. Ff. 21v–25v. An alchemical treatise beginning "Crystes name be blyssede".
13. Ff. 25v–27r. An alchemical treatise outlining the errors in the previous treatise.
14. Ff. 27r–37r. Ripley's *Twelve Gates*, written as prose.

15. F. 37r–v. A prose epilogue to the *Twelve Gates*.

Hands used

Scribal hands: The running text of the MS is written in the same hand, Hand A, described by the James Catalogue as "a current hand, ugly but clear". The script is a s. xv anglicana, with some secretary features (<g> especially). The ink used in the running text is a lighter brown on ff. 1–3, is a darker brown from f. 4 onwards, sometimes verging on black. The ink occasionally bleeds through onto the other side of the page.

Other hands: The MS contains annotations to the texts in at least two later hands.

1) Additional Hand 1: A secretary hand from s. xvi, writing interlinear and marginal corrections and comments in a darker black ink (e.g. f. 18v, f. 22r).
2) Additional Hand 2: An italic hand probably from s. xvii or early s. xviii, with some secretary features, such as <d> with a rounded loop (e.g. f. 11v, f. 16r, f. 18r, f. 27r).

There are many early modern "nota" notes, perhaps in Additional Hand 1; also notes from s. xv ("nota" signs and manicula), which seem to have been added by Hand A. The verso of the parchment leaf at the start of the MS contains notes in Additional Hand 2 and a s. xvi secretary hand which does not appear to be the same as Additional Hand 1.

Language

The MS is almost entirely in English, with some Latin in the form of single words, phrases, explicits, titles, and other such short sequences within the ME texts. There are two longer stretches of Latin: a short piece on f. 4r (beginning "Speculu*m* Alkamie Sc*ri*ptura"), and part of the text *Gemma Salutaris* on ff. 13r–14r (which may be a separate text). MS **T** is not in *eLALME*.

Decoration

The MS is not much decorated; there is some rubrication for titles and some initial capitals. There are some functional drawings of alchemical equipment, drawn in the same dark ink as the running text and captioned in red ink. A marginal illustration of a dragon appears on f. 21v, its protruding tongue pointing to the beginning of a new

text; it seems to be in the same ink as the running text. Timmermann (2015: 404) lists the MS **T** illustrations in detail.

Later additions

There are some later annotations from s. svii and possibly s. xviii (as noted above). Additional Hand 1 comments on and sometimes corrects the original texts. Additional Hand 2 is possibly the hand of Roger Gale or his father Thomas Gale (see section on provenance); the notes in this hand are all scholarly, which points to this being the hand of either one of the Gales. E.g. the notes on f. 11v and f. 16r are notes connecting two texts as the same (and indeed, the original scribe has copied the same text twice).

Origins and provenance

The online TCC catalogue states that MS **T** is "[p]art of the Gale collection, given to T.C.C. by Roger Gale in 1738. Marked A.30". Roger Gale (1672–1744) was an antiquary and Member of Parliament born in Cambridgeshire (Clapinson 2004); he inherited his father Thomas Gale's sizeable library and continued in his father's antiquary footsteps (Doggett 2004). Roger Gale was educated at Trinity College, which explains why he donated his manuscripts to them. It is not known where MS **T** originated from; the MS may have been part of Thomas Gale's collection, collected by Roger Gale, or bequeathed to him by one of his peers.

Oli STC 1182 (2nd edn.)

Physical description

The British Library online catalogue includes a short description of **Oli**, as does the Huntington Library online catalogue. **Oli** was printed by Thomas Creede for Richard Olive in 1597. It is a quarto of 84 pages. I have consulted two copies: Huntington Library 35023 (via *EEBO*) and British Library C.115.n.11 (*in situ*).

Collation

1–12[4].

Signatures and catchwords: The signatures run from A to L. Catchwords are found in the bottom right corner of each page, both recto and verso.

Foliation/pagination: The edition is paginated starting on A3.

Layout

The layout is single-column. The typeface used is roman. Occasional words are emphasised in italic; italic is also used for headings.

Contents

The volume is almost entirely alchemical, with only the final treatise including more generally scientific content.

Title-page:

"THE Mirror of Alchimy, Composed by the thrice-famous and learned Fryer, *Roger Bachon,* sometimes fellow of *Martin* Colledge: and afterwards of *Brasen-nose* Colledge in *Oxenforde.* Also a most excellent and learned discourse of *the admirable force and efficacie of art and nature, written by the same Author.* With certaine other worthie Treatises of the like Argument. *Vino vendibili non opus est hedera*. LONDON. Printed for Richard Oliue. 1597."

Colophon: "Printed at London by Thomas Creede. for Richard Oliue. 1597."

1. **Pp. A2–16. "The Mirrour of Alchimy, composed by the famous Fryer, *Roger Bachon*, sometime fellow of *Martin* Colledge, and *Brasen-nose Colledge in Oxenforde*."**
2. Pp. 16–17. "The Smaragdine Table of Hermes, Tris*megistus of Alchimy*." One of the fundamental texts of alchemy.
3. Pp. 17–27. "A briefe Commentarie of Hortulanus the Philosopher, vpon the Smaragdine Table of *Hermes* of *Alchimy*." An alchemical commentary on the previous text.
4. Pp. 28–53. "The Booke of the Secrets of Alchimie, composed by Galid the sonne of *Iazich*, translated out of Hebrew into Arabick, and out of *Arabick into Latine, and out of Latine into English*." An alchemical treatise.

5. Pp. 54–84. “An excellent discourse of the admirable force and efficacie of Art and Nature, written by the famous Frier *Roger Bacon, Sometime fellow of Merton Colledge, and afterward of Brasen-nose in Oxford*.” A scientific treatise including alchemical portions.

Language

Oli is entirely in English; there is a single “FINIS” at the very end of the volume.

Decoration

The title-page has a small illustration of a crowned naked goddess holding a book in her hands, being whipped by a hand emerging from clouds above her. This illustration includes the initials TC (i.e. Thomas Creede) and has the text “VIRESSIT VVLNERE VERITAS”. Elsewhere in the edition, ornamental initials occur on A2r, A3r (p. 1), and H1v (p. 54). A decorative border precedes the Preface on A2r.

Origins

Thomas Creede (*b.* in or before 1554, *d.* 1616) was the printer for **Oli** (see Gants 2004). Creede ran a printing house in London in the late 16th and early 17th centuries. Richard Oliue was the publisher or stationer for **Oli** and published books between 1596–1601, but further information on him is lacking.

Provenance

The copy I have consulted at the British Library has some scribbles on the title-page, showing it was used, and a name is written in an italic hand (16th or 17th-century) at the bottom of the title-page, possibly <Sa : Jeake> with a word which may spell out <poet> and the number 6; however, it was not possible for me to examine this copy in detail concerning provenance clues. The Huntington Library copy in *EEBO* does not contain any evidence of earlier provenance, as the database has chosen as unmarked a copy as possible; however, the library catalogue entry notes that the copy was “bought by CSmH from Quaritch, Oct. 1922, cat. 369:75”.

Appendix 2: The manuscripts of the Latin *Speculum alchemiae*

Table I lists the manuscript witnesses of *Speculum alchemiae* in UK repositories, and Table II lists the witnesses of this work in other repositories worldwide. The descriptions below are of the UK manuscripts.

Table I. Manuscript witnesses of *Speculum alchemiae* in UK repositories.[758]

Dating	Shelfmark	Folios/pages
15th c.	Cambridge, Gonville & Caius Coll. 181/214	pp. 213–219
15th c.	Cambridge, Trinity College R.14.44[759]	pp. 117–130
15th c.[760]	London, British Library Add. 15549	ff. 101–110
15th c.	London, British Library Harley 3528	ff. 69–75v
15th c.	London, British Library Sloane 692	ff. 1–9v
15th c.	London, British Library Sloane 1118[761]	ff. 50–56v
15th c.	London, British Library Sloane 2325	ff. 44–46v[762]
15th c.	London, British Library Sloane 2327	ff. 36–38[763]
15th c.	London, British Library Sloane 3744	ff. 60v–64v
15th c.	London, Wellcome Library 517	ff. 169

758 I have added reference numbers from the Thorndike-Kibre catalogue's electronic version (eTK) in footnotes in cases where the manuscripts can be found from that catalogue.

759 eTK number: 0702E.

760 Linden says, of BL MS Add. 15549 (Linden 1992: xiv): "The text of the *Speculum Alchemiae* (fols. 101–110) is dated 1474, and the later printed versions follow this manuscript very closely."

761 eTK number: 0888G.

762 Lacking Chapters V, VI and VII.

763 Lacking Chapter I and most of Chapter II.

Dating	Shelfmark	Folios/pages
15th c.	Oxford, Bodleian Library Ashmole 1416	ff. 101–104, ff. 105–106v[764]
15th c.	Oxford, Bodleian Library Bodley 484	ff. 198–205[765]
15th c.	Oxford, Corpus Christi College 185	ff. 155–156[766]
c. 1500	London, Wellcome Library 758	ff. 37r–44v
1528–29	Cambridge, University Library Ff.iv.12	ff. 43r–50v (old foliation: 39r–45)
c. 1565	London, Wellcome Library 383	ff. 100–107v
c. 1565	London, Wellcome Library 384	ff. 1–7
1579–94	London, Wellcome Library 719	ff. 281v–289v
16th or 17th c.	Edinburgh, Royal College of Physicians ERG/1/1/1-52	pp. 207–214

Table II. Manuscript witnesses of *Speculum alchemiae* in repositories elsewhere.

Dating	Shelfmark	Folios/pages
14th c.	Bologna, Bologna University Library 1062 (2082)[767]	ff. 1– (21r)
14th c.?	Marburg, Universitätsbibliothek B 20b[768]	ff. 37v–41v
15th c.	Bernkastel-Kues, Bibliothek des St. Nikolaus-Hospitals 201[769]	ff. 44–49
15th c.	Bologna, Bologna University Library 164 (153)[770]	ff. 67v–70v
15th c.	Bologna, Bologna University Library 303 (500)[771]	ff. 157v–163v
15th c.	Bologna, Bologna University Library 747 (1492)[772]	ff. 15r–27v
15th c.	Cambrai, MS 920 (819)	f. 130
15th c.	Montpellier, École de Médecine 479	
1464–68	Boston, Boston Medical Library 18	f. 193r[773]
1480?	New Haven, Yale University Library Mellon Collection 19	(unknown)

764 Includes excerpts from other texts.
765 Lacking Chapter VII.
766 Seems to lack Chapter VII.
767 eTK number: 0888G.
768 eTK number: 0888G.
769 eTK number: 0888G.
770 eTK number: 0888G.
771 eTK number: 0077G.
772 eTK number: 0888G.
773 Part of Chapter VII only. See Wilson (1939: 140-41, item 687).

Dating	Shelfmark	Folios/pages
15th – 16th c.	Bologna, Bologna University Library 270 (vol. xxvi)	(unknown)
early 16th c.	Stockholm, Kungliga biblioteket (Royal Library) X 501	(unknown)
16th c.	Florence, Biblioteca Nazionale xvi (7) 30	(ends imperfectly p. 16)
16th c.	Leiden, MS Vossianus Chym. Q. 25	ff. 17v–22
16th c.	Leiden, MS Vossianus Chym. Q. 21	ff. 175v–180
16th /17th c.	Modena, Biblioteca Estense Latin 361	(unknown)

The descriptions below contain all the manuscripts listed in Table I: the manuscript copies of *Speculum alchemiae* currently in UK repositories (19 MSS). One of them (number 15) was only viewable digitally; the others I have examined *in situ*. Linden (1992) has described three of these Latin manuscripts briefly; however, his list only mentions MSS in the British Library and also includes MS Stowe 1070, whose copy of "Speculum Alkymye" is the 'other' *Speculum alchemiae* (*DWS* 196; see Section 4.1.1) written in the form of a letter by Roger Bacon – that is, a different work.

The following short descriptions are not intended as full manuscript descriptions like those for the English *MoA* manuscripts in Appendix 1. The purpose of the following brief descriptions is to give a picture of the kinds of manuscripts that *Speculum alchemiae* was copied in, and what the structure of the Latin copies of *MoA* is (see Table 6.1 in Section 6.2); the descriptions focus on *Speculum alchemiae*. The descriptions are organised according to the current repository.

(1) Cambridge, Cambridge University Library MS Ff.4.12: This folio-format paper MS was written in 1528–1529 by Robert Greene of Welbe. *Speculum alchemiae* is on ff. 43r–50v, titled "Rosarium Iohannis". The text starts directly with a list of chapters (in list form), i.e. there is no prologue. The chapters follow in order, corresponding in content to the basic structure of the work; cf. Table 1.1). The explicit and colophon after Chapter VII is: "De quo semp*er* mirabilis & laudabilis est deus in eternu*m* / Amen / Finis hui*us* p*er* me Rob*ertum* Greene de welbe". A later hand has written a marginal note on f. 43r, attributing the text to Roger Bacon and referring to *Bibliotheca Chemica Curiosa* (Table 3.3 in Section 3.3.2), in which the work is printed. The MS as a whole, an alchemical compendium in Latin, also contains other Pseudo-Baconian texts.

(2) Cambridge, Gonville & Caius College MS 181/214: This quarto MS, formed of four booklets in parchment and paper, can be dated to s. xv. It is written in Latin and contains alchemical texts in various hands. *Speculum alchemiae* is on pp. 213–219. It is untitled and has no incipit, and begins straight with the prologue ("Multifarie m*ulti*s q*ue* modis"). The chapters are listed after the prologue as part of the running text. The seven chapters proceed in the usual order. The work ends with an explicit, naming this text "spec*ulu*m alki*mi*e". This copy is not attributed to Roger Bacon.

(3) Cambridge, Trinity College MS R.14.44: This quarto paper MS can be dated to s. xv and is formed of booklets; *Speculum alchemiae* is in Part II, forming all of that part, pp. 117–130. The work has no medieval title, but a 17th- or 18th-century hand has written "Hic liber est Speculum Alchemiæ Rog. Baconis" on f. 117r. *Speculum alchemiae* starts with the prologue, followed by the list of chapters as part of the running text. The chapters follow in order; the work ends unfinished in the middle of Chapter VII, mid-page. The booklets are mainly alchemical in nature, with some medical content; the MS also contains other Pseudo-Baconian material.

(4) Edinburgh, Royal College of Physicians MS ERG/1/1/1-52: This folio-format paper MS can be dated to s. xvii. The MS contains alchemical prose treatises in Latin, as well as some alchemical poetry also in Latin. The scribe of this MS was Sir George Erskine, Lord Innerteil (c. 1567–1646), a Scottish aristocrat who was interested in alchemy and Rosicrucianism (McNeill 2006). *Speculum alchemiae* is on pp. 207–214. It is titled "Doctissimi uiri Rogeri Baconis Angli de Alchemia libellus cui titulum fecit Speculum Alchemiæ". This version contains the preface and seven chapters with the usual content. Chapter VII ends with "de quo semp*er* mirabilis est laudandus Deus noster in æternu*m*" and "Finis".

(5) London, British Library MS Add. 15549: This quarto MS in parchment and paper (the parchment leaves support the quire binding) can be dated to 1474 (in e.g. the explicit to SA on f. 110r). It was written by a scribe signing as "D. R.". A single production based on quire numbering and decoration scheme, this MS is mostly in Latin, with Middle English verse and recipes at the end of the book in the same scribal hand. The MS has alchemical texts, but also other scientific texts such as one on astronomy. *Speculum alchemiae* is on ff. 101r–110r. It begins with a long incipit calling the work "speculu*m*

alkemie" (this incipit appears as an afterword in some other MS copies); the title also appears (in the same 15th-century hand) before the prologue. The work proceeds with the prologue, the list of chapters following it (as part of the running text). The chapters proceed in order. The explicit and colophon is "p*er* d*o*mi*n*i qui semp*er* est mirabilis atq*ue* laudandus deus nost*er* inet*er*nu*m*. Amen. Anno d*omi*ni . 1474. / D. R. /" After a paraph, the following ends the work: "Et sic explicit liber qui vocat*ur* Speculu*m* alkemie de t*ra*nsmutac*io*ne metallo*rum*". Briefly described in Linden (1992: xiv); Linden mentions that the later printed versions follow this MS very closely.

(6) London, British Library MS Bodley 484: This quarto paper MS can be dated to s. xv; there are some scribbles and additions from s. xvi. The MS is predominantly written in Latin, but appears to be English in origin, as there is at least one text in English in the scribal hand. The contents are medical and alchemical, and the MS seems mostly to be written in the same scribal hand. *Speculum alchemiae* is on ff. 198r–201r. This version does not include an incipit or the prologue; however, the scribal hand has written "Multifarie m*u*ltisq*ue* modis &c." (i.e. the first words of the prologue) as a title on f. 198r. The copy starts with a reference to Hermes in Chapter I. The chapters proceed in the usual order, with the usual content, from I to VI. Chapter VII is not included in this copy. The text ends after Chapter VI with "Explicit notabilia isti*us* t*ra*ctat*us*", so it may be that the scribe has purposefully copied the parts that they considered to be notabilia.

(7) London, British Library MS Harley 3528: This quarto paper MS can be dated to s. xv. It has been badly damaged at some point and the leaves have had to be repaired and rebound. It may be formed of separate booklets. The MS is entirely in Latin. The contents are alchemical: mostly treatises, and some poetry (e.g. a Latin version of Ripley's *Compound of Alchemy*). The MS features some other works attributed to Roger Bacon in addition to *Speculum alchemiae*. A later italic hand has identified some of the texts and written their titles out in the top margins of pages. *Speculum alchemiae* is on ff. 69r–75v. It is entitled "Multipharie" in the medieval scribal hand of the main text; the annotating italic hand has written "Speculu*m* Alkymiæ R: B." beside the medieval title. This version has the prologue (starting "Multipharie multisq*ue* modis"), but no list of chapters. The chapters proceed in order; after Chapter VII (ending with the words that form the explicit in some versions, "de quo semp*er* m*i*rab*i*lis est laudandus deus n*oste*r inet*er*nu*m*"). After that, there comes a longer 'afterword' (also

occurring in Sloane 2327), naming the treatise "spec*ul*um alki*mi*e" and ending "Explicit iste liber de spec*u*lo Alkymie &c Deo gracias". The later annotator reconfirms their attribution to Bacon after the explicit: "Est R. B.".

(8) London, British Library MS Sloane 692: This small octavo paper MS can be dated to s. xv (there are some scribbles and shorter texts from s. xvi). The MS as a whole features only alchemical texts. It is mostly in Latin, with some marginalia and shorter texts in English (later additions onto originally blank leaves). The MS also contains other Pseudo-Baconian texts. *Speculum alchemiae* is on ff. 1–9v, with a title (in part impossible to read due to damage) of "liber .7. ca*pitulorum* in <..> vio" and underneath, "Iupiter co*n*tento". A 15th-century hand at the bottom of f. 1r has attributed the text to Roger Bacon, writing "Rogero bakon". This copy has some things in a different order than usual: Chapter II seems to include some things that do not usually appear in that chapter – things usually in the 'preamble' to Group 1's *MoA,* and a list of chapters (as part of the running text), after which Chapter II continues as usual and the chapters proceed as usual. Chapter VI is mentioned in the list of chapters, but is missing from the text; Chapter VII ends the work, and there is an explicit "de q*u*o se*mper* mirabilis e*st* lauda*n*dus de*us* nost*er* inet*er*nu*m* <..> sit laud honor .&. gl*or*ia. Ame*n*. <..> Et e*st* exposicio spec*u*li . ut l<..>gi Explicit . lib*er* vocat*us* m*u*ltiphariam". Briefly described in Linden 1992: xiv.

(9) London, British Library MS Sloane 1118: This quarto format paper MS can be dated to s. xv (marginalia and additional texts in hands from s. xvi and xvii). The MS belongs to the "Sloane Group" (Voigts 1990) and is thus part of an organised book production process. *Speculum alchemiae* is on ff. 50–56v. There is no incipit, but there is a prologue and a list of chapters (in list form) at the end of the prologue, and the seven chapters follow in order. The work has been titled "opus philosophica" in a later hand. The explicit is "de quo semper mirabilis est laudandus deus nostro ineternum . Amen." The MS contains mainly alchemical texts in Latin, with some medical texts. Briefly described in Linden (1992: xiv); described in detail in Honkapohja (2017: 66–77).

(10) London, British Library MS Sloane 2325: This quarto paper MS can be dated to s. xv. It was once owned by John Dee. The MS is alchemical in nature, and seems to have been a practical compilation. The MS is very short, only 46 leaves. *Speculum alchemiae* is on ff. 44r–46v. This version is

not titled. It begins with the prologue ("Multifaria*m* mult*is*q*ue* mod*is*"); there is a list of chapters as part of the running text at the end of the prologue. The chapters proceed in order, but the treatise ends incomplete – even ending mid-sentence – in the middle of Chapter IV. It ends with around three quarters of the page unused; the reasons for ceasing to copy *Speculum alchemiae* are unclear. The MS is entirely in Latin.

(11) London, British Library MS Sloane 2327: This quarto paper MS can be dated to s. xv. Like MS 2325, it was once owned by John Dee (his name appears on f. 1v, with the date 1559). The MS forms a clear whole, and includes other texts attributed to Roger Bacon, but the *Speculum alchemiae* in here is not attributed to him. *Speculum alchemiae* is on ff. 36r–38r. It starts acephalous near the end of Chapter II, so it cannot be said whether it once had a medieval title, prologue, and list of chapters. However, the medieval table of contents on f. 1v includes a title for SA: "lib*er* vtil q*u*i vocatur spec*ul*um alkymie". A later, italic hand (possibly Dee) has remarked on f. 36r: "desideratur prima pars huius libri", 'the first part of this book is missing'. The first chapter to be mentioned on f. 36r is Chapter III. An italic hand has written "Multifarie multisq*ue* modis" on this leaf, so that annotator had clearly seen other copies of this work, as those are the opening words of the prologue. After the incomplete Chapter II, the chapters proceed in order. After the end of Chapter VII and closing words similar to the explicits in some of the *Speculum alchemiae* versions, the text continues with an afterword explicitly naming the text "spec*ul*um alkymie" as in the table of contents. The explicit is "Expli*ci*t lib*er* de spec*u*lo alky*mi*e // deo g*ra*c*ias* //". The other texts in the MS are also alchemical; the MS has a clear decoration scheme with red and blue initials, red filigree, and rubrication.

(12) London, British Library MS Sloane 3744: This octavo paper MS (with some parchment leaves) can be dated to s. xv. It does not only contain alchemical material: there is also e.g. some heraldic material. *Speculum alchemiae* is on ff. 60v–64v. "Multifarie multisq*ue* modis", in the same hand as the main text and underlined in red ink – i.e. the opening words of the prologue – appears to act as a title. This version lacks a prologue and list of chapters, and starts with "Hermes i*n* hac sci*enci*a"; this is the first chapter. The chapters proceed in order, but the work ends incomplete in the middle of Chapter VI; this appears to be because a leaf has been lost.

(13) London, Wellcome Library MS 383: This quarto paper MS can be dated to c. 1565 and is strongly connected with MS 384. MS 383 is mostly written in Latin, with some Italian and Spanish. Its scribe was Joannes Batista. It contains alchemical texts. *Speculum alchemiae* is on ff. 100r–107v. There is a title, perhaps for the preface more than the work as a whole: "Speculu*m* a rugerij baconis prefatio". There is no list of chapters after the preface, but the seven chapters proceed in order. However, between Chapters III and IV, an "apologia Jo: bap*tis*ta contradico" is inserted. The *Speculum alchemiae* chapter numbering continues as normal in this version despite this addition.

(14) London, Wellcome Library MS 384: This thick quarto paper MS can be dated to c. 1565. It has its original vellum binding. It consists of alchemical works and extracts in Latin, with a few short texts in Italian and Spanish. The MS was apparently compiled by its scribe, Joannes Batista. *Speculum alchemiae* is on ff. 1–7, but not at the very start of the MS – the foliation is irregular. The work is attributed to Bacon: "Speculu*m* rugerij baconi anglisi" (f. 1r). The prologue is very short and does not include a list of chapters. The chapter content is in essence the same as in the usual, but the chapter division is very different from the usual division into seven chapters. In Chapter II, the scribe/compiler divides the different metals into short chapters of their own. Chapter III is not numbered but seems to continue as part of the "nature of iron" in Chapter II. Batista also adds an insertion of his own after the content of what is Chapter III in the other versions; this is the same "apologia" as in MS 383 and is numbered Chapter VIII. What is usually Chapter IV of *Speculum alchemiae* follows and is also labelled Chapter VIII, and the chapter numbering continues from it so that this version ends up having 11 chapters in total.

(15) London, Wellcome Library MS 517: This quarto paper MS can be dated to s. xv late. It has been digitised by the Wellcome Library.[774] I was not able to view it in person, so this brief description is based on the manuscript catalogue and digital images. The MS includes texts in Dutch and Latin; in addition to alchemical treatises, it contains astrological, medical, and magical texts. *Speculum alchemiae* is on ff. 165r–169r. It is titled "Tractat*us* sup*er* speculu*m* alchi*mi*e", in the same hand as the running text. It starts with the prologue ("MVltipharie multis q*ue* modis" etc.), after which a list of

[774] See *Collection of alchemical, technical, medical, magic and divinatory tracts (MS.517)*.

chapters follows (with the chapters listed in a slightly different order). The scribe seems to have modified the textual organisation, but the text itself appears to be in the same order. This version has a longer explicit, "Explicit tractat*us* & co*m*pendiu*m* su*per* speculu*m* al*chimi*e in quo ph*ilosoph*oru*m* om*nium* intenc*i*o toti*us* q*ue* art*is* secretu*m* lucide absque fixione aliq*ua* p*atet*. Deo grac*ia*s Amen" (f. 169r).

(16) London, Wellcome Library MS 719: This octavo paper MS can be dated to 1578–1594. Its vellum binding is from a 15th-century legal document. It has alchemical treatises in French and Latin. According to the Wellcome Library online catalogue (entry for MS 719), this MS was produced in Puylaurens, in southern France. *Speculum alchemiae* is on ff. 91v–99v. Chapter titles starting from Chapter III are copied in a style mimicking printed text; this copy of *Speculum alchemiae* appears to be copied from the version of *SA* printed in *De Alchemia* (1541). Its title attributes the work to Roger Bacon, and includes the name *Speculum alchemiae*. The WL 719 copy appears to be a fairly faithful copy of the printed text, containing the preface and all seven chapters in the customary order. As per the printed text, it does not have a list of chapters. The date 28 October 1578 is written after the treatise.

(17) London, Wellcome Library MS 758: This octavo paper MS can be dated to c. 1500. It has its original vellum binding, with a circle pattern on the back cover. According to the Wellcome Library online catalogue, this MS was "probably compiled and written by Octavianus de Spino of Bergamo", and possibly produced in Bergamo in northern Italy (entry for MS 758). The MS contains alchemical treatises, receipts, and extracts in Latin and Italian. *Speculum alchemiae* is on ff. 37r–44v. It is attributed to Roger Bacon in the library catalogue, but not in the MS itself: the MS attributes the text to Abubachar. This version has the prologue (beginning "Multifarie di*xerunt* m*u*ltisq*ue* mo*d*is"), which includes a list of the chapters at the end (as part of the running text). The chapters proceed in order, with the usual content.

(18) Oxford, Bodleian Library MS Ashmole 1416: This quarto paper MS can be dated to s. xv. There are some later additions from s. xvi. The MS contains alchemical prose and poetry, some medical remedies, and astrological material; it is predominantly alchemical in content. The MS is written in Latin and English. *Speculum alchemiae* is on ff. 101r–104r, but the ending of Chapter VII also appears separately on f. 106v. This version contains the

prologue (starting "Multifariam m*u*ltis q*ue* modis"), with the list of chapters at its end as part of the running text. The chapters proceed in the usual order up to the end of Chapter VI. Chapter VII ends incomplete on f. 104r, with an explicit "Deo gracia*rum* alto honor & benedicto nunc et in e*ter*na*m* Amen". The usual ending of Chapter VII, with the mention of it being the work of one day or one hour or one moment, is on f. 106v at the end of another alchemical text. This Chapter VII ending ends with the usual explicit for the Latin texts, "de q*ue* se*m*p*er* deus ur*e* est laudand*us* mirab*i*lis inet*er*nu*m* amen".

(19) Oxford, Corpus Christi College MS 185: This quarto paper MS (with parchment endleaves) can be dated to s. xv. The MS contains alchemical treatises and recipes. These are predominantly in Latin, but there are also some recipes in English in the main scribe's hand. The MS was once in the possession of John Dee, and has annotations by him. *Speculum alchemiae* is on ff. 156r–157r. A text in the main scribal hand on the first page reads "P*ro*logus isti*us* libelli incipit sic s. Multipharia*m* m*u*ltis q*ue* mod*is* & c s*equitur* p*ri*mu*m* c*apitulu*m inc*ipi*t hic". The scribe thus appeared to be aware of the prologue, but did not copy it, starting instead directly with Chapter I. This version appears to be somewhat abbreviated, as e.g. Chapter III does not have all of the information content. However, the basic content of the chapters is the same from Chapters I–VI. Chapter VII is not included, but it seems to be briefly summarised at the end of Chapter VI on f. 157r.

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