EDITING MIDDLE ENGLISH MEDICAL MANUSCRIPTS: THE CASE OF GLASGOW, UNIVERSITY LIBRARY, MS HUNTER 509[1]

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ABSTRACT. *It has been pointed out that the editing of a scientific treatise should be "an extended and challenging exercise in judgment, requiring an earnest commitment to scholarship" (Keiser 1998: 110). In the present article, the challenges and steps involved in the process of editing a specific Middle English medical text, G.U.L. MS Hunter 509, are dealt with. After a brief introduction to the manuscript, the stages previous to editing are discussed. These include transcription, of which the main difficulties are addressed and possible ways to overcome them put forward, lemmatisation and morphological tagging. Then, the two types of edition that have been carried out, printed and electronic, are presented. A comment on the glossary and list of lemmas closes the article.*

Keywords: Middle English, medical treatise, Gilbertus Anglicus, editing, lemmatisation, morphological tagging.

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EL PROCESO DE EDICIÓN DE MANUSCRITOS MÉDICOS EN INGLÉS MEDIO: EL CASO DE GLASGOW, UNIVERSITY LIBRARY, MS HUNTER 509

RESUMEN. *Se ha señalado que el proceso de edición de un tratado científico debería considerarse "an extended and challenging exercise in judgment, requiring an earnest commitment to scholarship" (Keiser 1998: 110). En el presente artículo, se detallan las distintas etapas de las que se compone dicho proceso, así como las decisiones tomadas, en la edición de un texto médico específico escrito en inglés medio, contenido en el manuscrito G.U.L. Hunter 509. Tras una breve introducción, se exponen las principales dificultades a la hora de transcribir el texto, así como posibles soluciones. Tanto la transcripción como la lematización y el etiquetado morfológico son actividades previas a los dos tipos de edición acometidas, impresa y electrónica. Finalmente, se concluye haciendo referencia al glosario y a la lista de lemas.*

Palabras clave: Inglés medio, tratado médico, Gilbertus Anglicus, edición, lematización, etiquetado morfológico.

1. INTRODUCTION

The manuscript under consideration is G.U.L. Hunter 509 (hereafter *H509*), housed in the Hunterian Collection at Glasgow University Library (press-mark V.8.12). It holds the work entitled *System of Physic* from folios 1r to 167v. The first part comprises a treatise on the four humours (ff. 1r-3v), followed by a discussion on uroscopy and a further exposition of humours and complexions (ff. 3v-14r). The larger part, from folios 14r to 167v, contains the Middle English Gilbertus Anglicus, an adaptation written in prose ca. 1400 of the *Compendium medicinae*, which was compiled by Gilbertus Anglicus, or Gilbert the Englishman, at around the middle of the thirteenth century. Apart from being one of the most important works of early mediaeval medicine and a reflection of the situation of medical science of its age and country, it is the oldest complete treatise on general medicine written by an English author which is extant (Handerson 1918 (2005: 17)). The *Compendium* was one of the standard references for physicians until the seventeenth century and also an academic text. It covers disorders of the human body and the ordering follows the usual method of the time, which is a *de capite ad pedem* structure (i.e., the discussion of sicknesses starts from the head and moves downwards to the feet). This is in the same encyclopaedic tradition of Arabic writers such as al-Majusi and Ibn al-Jazzar, and Salernitan predecessors such as Johannes de Sancto Paulo (Glick *et al.* 2005: 196).

At the end of the manuscript, there are several medical recipes or remedies for migraine in a different hand (ff. 168v-169r), an additional note (f. 171r), and mixed recipes and annotations in various hands (f. 171v). An assessment of the script (Esteban-Segura 2008b) and dialect (Esteban-Segura 2010) suggests that the main text was copied during the second half of the fifteenth century, around 1460.

2. TRANSCRIPTION

The first stage prior to editing involved the transcription of the text. Part of this was done directly from the manuscript, but the microfilm and electronically digitised images were also used for the process and for further stages of revision. Although transcribing may seem a mechanical and even an easy task at first sight, this is far from reality since the process has complications.

One of the most obvious has to do with the length of the text. The manuscript comprises more than 170 folios (some of them repeated), so the total of pages amounts to more than 350. Another of the problems concerns the handwriting or script, since graphs differ considerably from present-day ones and some can look very similar (thus giving rise to ambiguity) such as, for example, letter-forms <t> and <c> in the words 'aft*er*ward' (figure 1), 'scarsnesse' (figure 2) and 'etyn' (figure 3).
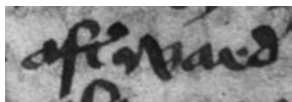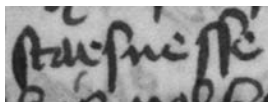
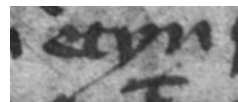

| Fig. 1. 'aft*er*ward' | Fig. 2. 'scarsnesse' | Fig. 3. 'etyn' |

Apart from this, the same graph is employed for *þ* and *y* throughout the text with the resulting vagueness when transcribing unknown terms. For figures 4 and 5, there are several possibilities: *'þreos'/'yreos'; 'þiees'/*'yiees'. Looking up words in dictionaries and putting them in context were key elements to solving the problem.
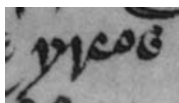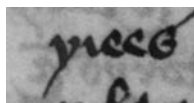

Fig. 4. 'yreos'   Fig. 5. 'þiees'

Abbreviations and special signs are mainly standard but sometimes several readings are possible as, for instance, when a word contains or, more typically, ends with a flourish, which can stand for a number of possibilities, such as *e* (in

'eer*e*', figure 6), *er* (in 'p*eri*te*ri*e', figure 7) and *re* (in 'þed*re*', figure 8). Also, as seen in the example of 'p*eri*te*ri*e', a horizontal stroke through the descender of <p> makes reference to the same letters as the flourish does, *er* in this case.
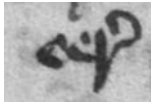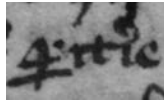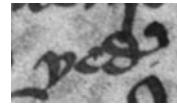

Fig. 6. 'eer*e*'   Fig. 7. 'p*eri*te*ri*e'   Fig. 8. 'þed*re*'

The same symbol can be employed for different letters or groups of letters, as in 'sq*ui*na*n*tum' (figure 9) or 'd*ri*nesse' (figure 10): the sign represents both the vocalic group *ui* and the consonant plus vowel *ri*. This symbol also refers to most of the letters in the word 'x*risti*' (figure 11). In a parallel way, a round curl on the line can denote both *con* ('*con*forteþ', figure 12) and *us* ('woman*us*', figure 13).
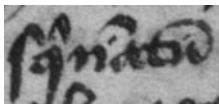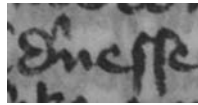
Fig. 9. 'sq*ui*na*n*tum'   Fig. 10. 'd*ri*nesse'   Fig. 11. 'x*risti*'
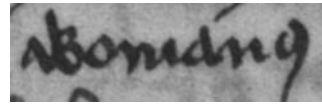
Fig. 12. '*con*forteþ'   Fig. 13. 'woman*us*'

A similar case takes place with expansion marks indicating a nasal, which may signify *m* or *n*. In those instances in which there was ambiguity, it was solved by finding out how the word was written elsewhere in the text without expansion; when the two options were possible, the most frequent form was selected. This is illustrated with the words 'emplastre' and 'enplastre'; both variants occur in the text but, since those with *m* have more occurrences than those with *n*, *m* was preferred and used for expansion ('e*m*plast*re*s', figure 14).
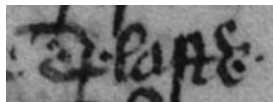
Fig. 14. 'emplast*re*s'

It is difficult to establish whether horizontal strokes through final ascenders have meaning or not; on occasions, they may just represent an otiose mark whose

only function is decoration. Despite this, they have been expanded to *e* for the sake of consistency ('wroth*e*', figure 15).
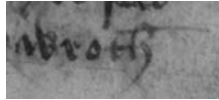
Fig. 15. 'wrothe'

Minims are also problematic given that they are not separately made and the scribe does not always dot letter *i*; therefore ambiguity is bound to arise, as several combinations are possible. With unknown words, all potential combinations had to be looked up in the dictionary. Instances of this are the minims in words such as 'mussilage' (figure 16), which can be interpreted in different ways (*'inussilage', *'niussilage', *'ninssilage'), or 'cathmie' (figure 17), with several alternatives as well (*'cathnne', *'cathune', *'cathime'). In such cases, the sense of the word within its context as well as linguistic information have been crucial in order to determine the right option.
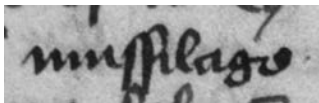

Fig. 16. 'mussilage'
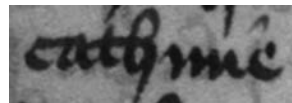
Fig. 17. 'cathmie'

Punctuation is a difficult matter too, first for the quantity of marks, which slowed down the process of transcription considerably, but also because sometimes it was complicated to differentiate a mark from a stain in the folio. The most employed marks are the punctus (figure 18), the punctus elevatus (figure 19) and the virgule (figure 20), which may also be double (figure 21) or appear in different combinations with the punctus (figures 22-23).
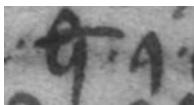
Fig. 18. Punctus
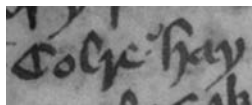
Fig. 19. Punctus elevatus

Fig. 20. Virgule
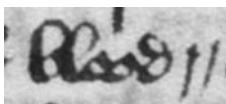
Fig. 21. Double virgule
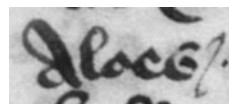
Fig. 22. Virgule and punctus

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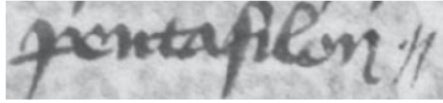
Fig. 23. Punctus and double virgule

Symbols for apothecaries' weights are sometimes confusing, especially when there is a long list of symbols, ingredients and numerals, in which case a correct interpretation so as to decide the elements that go together becomes essential (figure 24).
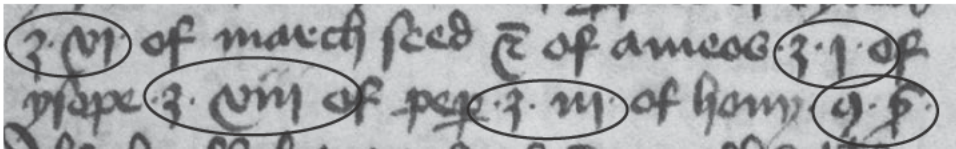
Fig. 24. Apothecaries' weights and numerals

3. LEMMATISATION AND MORPHOLOGICAL TAGGING

Once the text was transcribed, it was lemmatised and morphologically tagged. These tasks have been done using an Excel spreadsheet, where the transcription was pasted, separating a word per row. *H509* forms part of a corpus of Middle English scientific prose (see 4.1. below); thus, for the purpose of lemmatising, the *Middle English Dictionary* (Lewis *et al.* 1952-2001, in McSparran *et al.* 2001-), henceforth *MED*, has been employed, since it provides a standard headword that can be applied to all the texts in the corpus. The fact that new texts are being added to the corpus and that texts come from far-flung areas of the country (and hence, display different dialectal features) was decisive for seeking "a more typical English spelling" (Moffat 1998: 240) for the headwords. Besides the lemmas, the tags include information regarding the word-class and also the accidence where relevant (tense, number, gender, etc.). As just mentioned, the first entry in the *MED* was chosen for the lemma, so every single one had to be looked up in this dictionary.

The tagging has allowed a proper understanding of the text and finding out or detecting problems or mistakes in syntax, morphology, etc. This information has been helpful for the edition and also used to build the glossary. In addition, it offers the possibility of generating lists of frequencies, concordances, and so on.

Table 1. Concordances generated for adjective *cold* (arranged by *Lemma* column)

Lemma	-5	-4	-3	-2	-1	Keyword	+1	+2	+3	+4	+5	Reference
cŏld, a	•	The	water	•	js	coold	and	moyst	/	liquide	and	1r, 10
cŏld, a	•	The	erþe	•	js	coold	•	and	dryʒe	•	[h]euy	1r, 10
cŏld, a	•//	ffleu//me	•	js	•	coold	•	and	•	moyst	of	1r, 15
cŏld, a	kynde	•	Malencolie	•	is	coold	•	and	dry	•	of	1r, 20
cŏld, a	•	and	kyndly	he	is	coold	•	and	moist	of	nature	2v, 10
cŏld, a	þe	watyr	þe	wyche	is	coold	•	and	moist	/	in	2v, 10
cŏld, a	þe	erþe	•	þat	is	coold	•	and	driʒe	•//	Þe	1rb, 10
cŏld, a	hold	[it]	•	for	here	coold	•	dredful	hert	/•	And	1vb, 5
cŏld, a	And	•	bi cause þat	þei	[ben]	coldere	•	of	brayn	•	þan	1vb, 5
cŏld, a	•	þat	age	•	is	coold	•	and	driʒe	•	Elde	2rb, 1
cŏld, a	•	and	þat	age	is	coold	•	and	moist	/	Þese	2rb, 5
cŏld, a	•	and	þat	age	is	<coold·>	and	moist	//	Sanguyn	folk	2rb, 20
cŏld, a	driʒe	•	heruest	/	is	coold	and	driʒe	•	Wynter	•	2vb, 10
cŏld, a	driʒe	•	Wynter	•	is	coold	•	and	moist	/	•	2vb, 10
cŏld, a	•	Westwynd	•	þat	is	coold	and	moist	/	Norþenewynd	•	2vb, 20
cŏld, a	/	Norþenewynd	•	þat	is	coold	•	and	driʒe	//	Þese	2vb, 20
cŏld, a	and	driʒe	•	West	is	coold	•	and	moist	/	Northe	3r, 1
cŏld, a	and	moist	/	Northe	is	coold	•	and	driʒe	//	Colrik	3r, 1
cŏld, a	regnþ	malencolie	•	þat	is	coold	•	and	driʒe	•	and	3r, 25
cŏld, a	regnþ	fleume	•	þat	is	coold	and	moist	and	so	is	3v, 1
cŏld, a	old	folk	duel//lyng	/	in	colde	cuntrees	•	namely	in	wyntres	5r, 10
cŏld, a	wyntres	tyme	•	in	vsyng	coold	and	moist	dietyngis	of	þe	5r, 10
cŏld, a	leene	old	folkes	•	in	coold	and	driʒe	tymes	•	þat	5v, 15
cŏld, a	siche	maner	of	dietyng	as	coold	þinge	and	driʒe	•/	Be	5v, 20

Table 1 presents a fragment of the concordances generated for the adjective *cold*. The lemma appears in the first column to the left, then the context of the five previous words, the occurrence or keyword in the middle, the five subsequent words, and finally the reference to the electronic edition (see 4.1. below), which includes the folio (whether recto or verso) and line where the word appears. The number of lines comprises five of them; therefore line 10, for instance, may refer to lines from 10 to 14. The concordances can be arranged in different ways. In Table 1, the classification has been done according to the *Lemma* column; the order that the word follows in the text is supplied. This can provide information about the usage of the word throughout the text; for example, if it is more frequent in some parts than in others or whether it is lacking from any fragment, as well as other type of data. In Table 1, we can observe that the adjective *cold* is mostly predicative. Thus, concordances can be useful to carry out morpho-syntactic studies.

Table 2. Concordances generated for adjective *cold* (arranged by *-1* column)

Lemma	-5	-4	-3	-2	-1	Keyword	+1	+2	+3	+4	+5	Reference
cŏld, a	And	•	bi cause þat	þei	[ben]	coldere	•	of	brayn	•	þan	1vb, 5
cŏld, a	•//	ffleu//me	•	js	•	coold	•	and	•	moyst	of	1r, 15
cŏld, a	siche	maner	of	dietyng	as	coold	þinge	and	driȝe	•/	Be	5v, 20
cŏld, a	hold	[it]	•	for	here	coold	•	dredful	hert	/•	And	1vb, 5
cŏld, a	old	folk	duel//lyng	/	in	colde	cuntrees	•	namely	in	wyntres	5r, 10
cŏld, a	leene	old	folkes	•	in	coold	and	driȝe	tymes	•	þat	5v, 15
cŏld, a	kynde	•	Malencolie	•	is	coold	•	and	dry	•	of	1r, 20
cŏld, a	•	and	kyndly	he	is	coold	•	and	moist	of	nature	2v, 10
cŏld, a	þe	watyr	þe	wyche	is	coold	•	and	moist	/	in	2v, 10
cŏld, a	þe	erþe	•	þat	is	coold	•	and	driȝe	•//	Þe	1rb, 10
cŏld, a	•	þat	age	•	is	coold	•	and	driȝe	•	Elde	2rb, 1
cŏld, a	•	and	þat	age	is	coold	•	and	moist	/	Þese	2rb, 5
cŏld, a	•	and	þat	age	is	<coold·>	and	moist	//	Sanguyn	folk	2rb, 20
cŏld, a	driȝe	•	heruest	/	is	coold	and	driȝe	•	Wynter	•	2vb, 10
cŏld, a	driȝe	•	Wynter	•	is	coold	•	and	moist	/	•	2vb, 10
cŏld, a	•	Westwynd	•	þat	is	coold	and	moist	/	Norþenewynd	•	2vb, 20
cŏld, a	/	Norþenewynd	•	þat	is	coold	•	and	driȝe	//	Þese	2vb, 20
cŏld, a	and	driȝe	•	West	is	coold	•	and	moist	/	Northe	3r, 1
cŏld, a	and	moist	/	Northe	is	coold	•	and	driȝe	//	Colrik	3r, 1
cŏld, a	regnþ	malencolie	•	þat	is	coold	•	and	driȝe	•	and	3r, 25
cŏld, a	regnþ	fleume	•	þat	is	coold	and	moist	and	so	is	3v, 1

Table 3. Concordances generated for adjective *cold* (arranged by *Keyword* column)

Lemma	-5	-4	-3	-2	-1	Keyword	+1	+2	+3	+4	+5	Reference
cŏld, a	•	and	þat	age	is	<coold·>	and	moist	//	Sanguyn	folk	2rb, 20
cŏld, a	old	folk	duel//lyng	/	in	colde	cuntrees	•	namely	in	wyntres	5r, 10
cŏld, a	And	•	bi cause þat	þei	[ben]	coldere	•	of	brayn	•	þan	1vb, 5
cŏld, a	•//	ffleu//me	•	js	•	coold	•	and	•	moyst	of	1r, 15
cŏld, a	siche	maner	of	dietyng	as	coold	þinge	and	driȝe	•/	Be	5v, 20
cŏld, a	hold	[it]	•	for	here	coold	•	dredful	hert	/•	And	1vb, 5
cŏld, a	leene	old	folkes	•	in	coold	and	driȝe	tymes	•	þat	5v, 15
cŏld, a	kynde	•	Malencolie	•	is	coold	•	and	dry	•	of	1r, 20
cŏld, a	•	and	kyndly	he	is	coold	•	and	moist	of	nature	2v, 10
cŏld, a	þe	watyr	þe	wyche	is	coold	•	and	moist	/	in	2v, 10
cŏld, a	þe	erþe	•	þat	is	coold	•	and	driȝe	•//	þe	1rb, 10
cŏld, a	•	þat	age	•	is	coold	•	and	driȝe	•	Elde	2rb, 1
cŏld, a	•	and	þat	age	is	coold	•	and	moist	/	Þese	2rb, 5
cŏld, a	driȝe	•	heruest	/	is	coold	and	driȝe	•	Wynter	•	2vb, 10
cŏld, a	driȝe	•	Wynter	•	is	coold	•	and	moist	/	•	2vb, 10
cŏld, a	•	Westwynd	•	þat	is	coold	and	moist	/	Norþenewynd	•	2vb, 20
cŏld, a	/	Norþenewynd	•	þat	is	coold	•	and	driȝe	//	Þese	2vb, 20
cŏld, a	and	driȝe	•	West	is	coold	•	and	moist	/	Northe	3r, 1
cŏld, a	and	moist	/	Northe	is	coold	•	and	driȝe	//	Colrik	3r, 1
cŏld, a	regnþ	malencolie	•	þat	is	coold	•	and	driȝe	•	and	3r, 25

Data can also be arranged according to the *-1* column (Table 2), which shows that the most typical construction is the third person singular of the present indicative of the verb *ben* plus the adjective *cold*, or ordered by the *Keyword* column (Table 3), thus grouping all the different variants alphabetically.

4. EDITION

Once the processes of transcription, lemmatisation and morphological tagging of *H509* were completed, the next step was the editing of the text. Two types of edition have been produced: an electronic one and another on paper.

4.1. ELECTRONIC EDITION

The electronic edition of the manuscript forms part of several research projects carried out at the University of Málaga in collaboration with the Universities of Murcia, Jaén and Oviedo (Spain), and Glasgow (United Kingdom).[2] The aim of this series of projects is to transcribe and edit hitherto unedited Middle English medical texts, mainly from the Hunterian Collection at Glasgow University Library. The transcriptions have been used to compile a corpus of scientific prose which at the moment amounts to approximately 1,200,000 tokens, although it is being expanded.

The results of these projects are available at the webpage <http://hunter.uma.es>,[3] which has been designed to bring the user as close as possible to the different manuscripts, since their high-resolution digitised images can be consulted online. Thus, when turning the page, for instance, the feeling experienced is similar to that of doing it in the original book, sound effects included. The transcription of a folio can be viewed next to its digitised image; if it is a recto, the transcription appears to the left, whereas if a verso, it appears to the right (figure 25).

This electronic edition follows the conventions of the diplomatic or semi-diplomatic editorial method, in which a single manuscript is selected and there is not an attempt to establish the "best" reading of the original work from which the witnesses derive. The manuscript is transcribed and reproduced closely so that the outcome is as faithful to that particular witness as possible. Therefore, the layout has been preserved, with the only exception of the insertion of the number of lines, which has been indicated to the left. The original punctuation

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[2] The research projects are the following: "Compilación de un corpus electrónico de manuscritos ingleses medievales de índole técnica" (HUM2004-01075), from 2004 to 2007; "Corpus de referencia de inglés científico-técnico en el período medieval inglés" (P07-HUM02609), from 2008 to 2012; "Desarrollo del corpus electrónico de manuscritos medievales ingleses de índole científica basado en la Colección Hunteriana de la Universidad de Glasgow" (FFI2008-02336/FILO "Grupo consolidado"), from 2009 to 2011.

[3] Also accessible at: <http://hunter.filosofia.uma.es/manuscripts>. 2007-2008. University of Málaga.
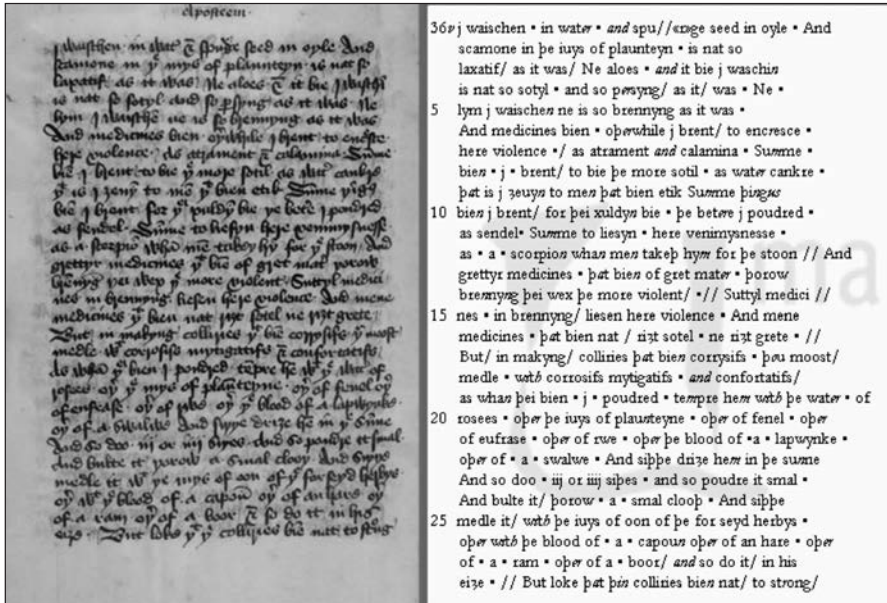
Fig. 25. Digitised image of folio verso with transcription

has been kept, as well as capital letters and spelling variants. Scribal errors, such as cancellation or expunction, are maintained and the same has been done with word-division. Letters or words which are written above or below the line as a form of scribal correction are marked by means of angular brackets in the edition. Notes in the margins and heading titles are shown by passing the cursor or mouse pointer over them.

Abbreviations and apothecaries' weights have been expanded and the expansion indicated by italics. Some letter-forms, for instance <s> or <r>, have different graphs depending on the position that they occupy within the word. This distinction, however, has not been preserved in the transcription, which is graphemic rather than graphetic. Obsolete spellings, such as the runes *yogh* and *thorn*, have been retained however. In the manuscript, as said previously (section 2), a similar graph is used for both þ and *y*, but they have been distinguished in the edition.

4.2. PRINTED EDITION

The main characteristics of the printed edition, which differs from the electronic one, will be presented in this section.[4] This edition takes elements from both

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[4] This edition forms part of the author's Ph.D. dissertation (Esteban-Segura 2008a).

the diplomatic and critical editorial methods. It is diplomatic in the sense that only one manuscript has been considered. However, MS Hunter 307, also in Glasgow University Library, and an edition of MS Wellcome 537 (Getz 1991) have been consulted when there were illegible words in *H509* in order to help reconstruct the missing information. Aspects of the critical method are that there is editorial interpretation in the modernisation of punctuation, the correction of scribal mistakes or the modification of the layout, for example.

One of the difficulties when editing the text was once again punctuation. The use of marks is heavy, frequent, and sometimes confusing, so a deep analysis and comprehension of the text was essential in order to punctuate it according to modern practice.[5] Punctuation, therefore, has been modernised together with the use of capital letters. Word-division has been altered, but it has been indicated by means of hyphens or in the apparatus if elements of the same word have been disjoined. Scribal mistakes have been corrected but also signalled in the apparatus. As with the electronic edition, the transcription for the printed one is also graphemic.

The layout has been altered and is presented in running text and not line by line. This is more convenient both for publishing, as it saves paper, and for readers accustomed to traditional books.

Two apparatus references are given at the foot of the page. In the first one, scribal errors are included, as well as editorial corrections, which have been indicated in the text by means of square brackets. Heading titles found at the top of each folio have also been included in this apparatus reference, in addition to catchwords. The second apparatus comprises the marginalia. However, not all pages have the two of them; the second one in particular is sometimes missing, since marginalia is not present in all folios.

5. GLOSSARY AND LIST OF LEMMAS

Middle English editions of texts are normally accompanied by glossaries, which may gather all lexical and function words found in them (only the former have been included in this case) and provide the equivalent in Present-Day English. Due to the multiple spellings of a single word, the entry in the *MED* has been adopted (which is also the method employed in the electronic editions for the research projects above-mentioned). For translation, the *MED* and the *Oxford English Dictionary* (Simpson and Weiner 2004) have been taken as references. If the term exists in Present-Day English but is labelled as an obsolete one, a synonym for it has been furnished on most occasions. In addition, when the term is not clear or has changed its meaning with regards to Present-Day English, a brief

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[5] The punctuation system found in H509 is analysed in Esteban-Segura (2009).

definition is supplied. For botanical terms, the equivalent is given first and then, where possible, their botanical family, genus and species are included. Finally, the edition of *H509* is also provided with a list of lemmas in which lexical as well as function words and all their variants with the number of occurrences are listed.

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