All Gathered Together: On the Construction of Scientific and Technical Books in 15th-Century England[1]

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ABSTRACT

In tliis paper I examine the construction of a corpus of scientific and teclinical books that contain many differeiit items of varied contents. This type of books may be considered as examples of *discourse colonies,* in tlie fashion of earlier studies carried out by Hoey (1986,2001) and Carroll (2003). Discourse colonies are cliaracterised by the preseiice of a number of features related to autliorsliip, textual ineaning, syntax and communicative function.

KEYWORDS

medieval scieiitific inanuscripts, discourse colonies, classification of manuscripts, audience, *ordinatio.* medieval coinpilations

I. INTRODUCTION

A dense issue in the study of Middle English scientific and technical books is the way in which they should be indexed as they normally contain more than one item, and not necessarily of the same nature. Thus, these books remain inadequately classified in the present taxonomies, since most of them may be ascribed even to all the entries in a classification. Another problematic area is the notion of a medieval text because more often than not scholars tend to filter early English pieces of writing in the scheme of present-day texts. From here, it follows that Middle English texts in compendia should be looked at in isolation rather than as a part within a whole. This is

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partially favoured by the lack of textual devices working as connectives among the different items given in the books.

The notion of text used in this article departs from this idea of working with items in isolation, and rather it focuses on the volume as a text, or better as an example of *discourse colony*. This term was coined by Hoey (1986; 2001) to refer to "cinderella discourses that get neglected in most discourse theories", as "these discourses form a relatively homogeneous class and can be described in terms that allow integration with conventional descriptions of mainstream discourses. They are homogeneous in respect of their discourse characteristics but highly heterogeneous in respect of their appearance and use" (1986:1-2). The words *text* and *discourse* will make no difference in this paper, as efforts to define this terminology by scholars have not been fruitful enough as to establish a clear-cut boundary between the two. Bonilla (1997: 9-10) shows how van Dijk shifts from the term *text* to *discourse* in studies from 1981 onwards, although referring to the same object of study. Beaugrande resolves the problem by using the expression *text* and *discourse* systematically (Bonilla, 1997: 10).

The application of the theoretical model of *discourse colony* is not new to medieval texts, as previous research has been carried out by Carroll (2003) on the Middle English collection known as *Directions for making many sorts of laces*. She demonstrates that this compilation of recipes may be treated as a text, rather than as multiple texts of identical forms and functions. With this, Carroll opens a new door for the investigation of medieval recipe compendia, showing that this sort of treatises must be studied considering not only linguistic aspects in general, but also palaeographic and codicological evidences. Following this idea in Carroll (2003), I will analyse a set of Middle English manuscripts in order to show that they represent examples of discourse colonies. The methodological implications of this approach are obvious, since larger textual entities (*i.e.* compilations) may be studied as single units. The structure of the paper is, as follows: Section II describes the manuscripts used as objects of study, and, also, the current systems for the classification of medieval manuscripts. Section III defines the concepts of *text* and *discourse colony* to be followed in this paper. Finally, I analyse the texts in terms of Hoey's framework of *discourse colony,* and summarise the conclusions drawn from this study.

II. THE MANUSCRIPTS

Bennett in his "Science and Information in English Writings of the Fifteenth Century" (1944: 1-8) offers a division of technical and scientific vernacular material, as follows: (a) treatises on hunting, (b) medical and plant treatises, (c) glosses, (d) geography, travel, (e) natural science, (f) miscellaneous pieces, (g) charms, (h) dream books, and (i) documents. Diverse as it may seem, this initial classification cannot account for all the types of manuscripts one comes across in libraries. One obvious drawback consists in Bennett's consideration of astrological texts, for instance, as belonging to the group of natural science treatises. Actually, a good number of astrological texts are concerned with medical therapies and advice for medical practice and not

only with astrological matters.[2] This demands a better criterion for classification so that texts with mixed contents can be fully categorised.[3]

Furthermore, a new taxonomical problem arises with manuscripts such as Yale University, Medical Library 47. This presents a varied number of topics ranging from medical remedies (more than two hundred remedies and charms) and gynaecology (a version of Gilbert of England's *Compendium* medicinue) to astrology (versions of De regimine *planetarum,* De diebus *nocuis per lunares menses,* De horis *planetarum,* De *canicularis* diebus, etc).[4] I wonder whether this manuscript should be indexed under the heading called *natural* science due to the presence of astrological material, or it should be rather indexed under the heading *medical and plant treatises* for better. It is clear that any of the two options remains unsatisfactory for the purposes of classification.

The *Index of Middle* English *Prose* (1992; henceforth IMEP) has its own indexing method. The procedures are given in a general introduction in all the volumes in the collection. Those guidelines are concerned with how material should be recorded in the IMEP, but also the type of information that should accompany the entry.[5] The arrangement of manuscripts is carried out following the library's shelfmarks, and items within each manuscript book are ordered by the use of Arabic numbers. This way of classification is very helpful in the sense that the material in a manuscript is presented altogether so that the researchers may come to more satisfactory conclusions as for the composition of a particular volume. However, the utility of this *Index* is undermined by the lack of association among similar items in different books, or items showing the same topic.

Another classification is found in volume ten of *A Manual of the Writings* in *Middle English 1050-1500* by Keiser (1998). This volume deals primarily with scientific texts and works of information. He classifies scientific and technical texts into ten groups, as follows: (a) encyclopaedias, (b) science, (c) medicine, (d) lapidaries, (e) cookery and household books, (f) technology, crafts, weights and measures, (g) agriculture and veterinary medicine, (h) hunting, hawking and fishing, (i) heraldry, and (j) education. As for the distinctions and motivations to draw this classification, nothing is overtly said in the book; it is suspicious that, for Keiser, astrology. astronomy, cosmology, alchemy, mathematics and music belong to the realm of science, whereas medical treatises in general, herbals, etc. do not form part of the scientific tradition as such.[6] Perhaps he is following here the medieval university quadrivium. He might be probably putting himself in the shoes of a medieval man trying to understand what they considered science. Sarton (1938: 51,) states that 15th century is different from nowadays science, and then, he declares referring to Klebs' list of scientific incunabula (1938)' what follows:

> It distresses me to find in Klebs' collection tlie *Secreta secretorum* but not tlie *Ethica,* tlie *Chiromantia* but iiot tlie *Logica*; tlie De pomo et *morte* but iiot tlie *Politica.* What distresses me, iniiiid you, is iiot so much tlie inclusion of the apocryplial rubbish, as tlie exclusion of soine of tlie inost profound of tlie Aristotelian books, books which deserve to be coiisidered as scientific on any

> standard. Tliey are scieiitific because of their objectivity and rationality, because
> eacli of thein –*e.g.* tlie Ethics aiid the Politics– was a deliberate aiid inagiiificeiit
> atteinpt to systematize objective knowledge on a difficult subject (p. 52).[8]

The material in *A Manual* has been carefully indexed by iteni, rather than by the library's shelfniark or call nuniber. Thus, Keiser relies on the text as a unit of content, with no relation whatsoever with the rest of booklets in the manuscripts in which it is embedded. The information compiled by Keiser (1998: 3598) refers only to material that has already been published or noted in previous studies.

Linda Voigts and Patricia Kurtz have designed a taxonomy with multitude of subject entries for their outstanding *Scientific rind Medical Writings in Old rind Middle English An Electronic Rejerence* (2000). This classification follows a functional criterion rather than formal, as shown in the following examples of entries: ages of man, ages of the world, agriculture, alchemy, anatomy, animals, deafness, dentistry, diagnosis, diet, eclipses, falconry, fishing, fistula, glass, hematoscopy, humours, hunting, lacemaking, niagic, measure and measurement, music, ointments, poison, prognostication, pulse, recipes, scarification, herb and herbal medicine, surgery, zodiac and zodiacal signs and so on.

A simple search by the subject entry *astrology*, for instance, retrieves 350 items written in Middle English; of these, 1 have selected two for illustration. The first one is Cambridge, Trinity College Cambridge 0.5.26, ff. 30-39v, which is an incomplete version of William of England's *Manner of Doing Medicine after Astronomy*. The assigned subjects to this text are all related to astrology, namely astronomy, astrology, nativity, astrological, planet and planets, zodiac and zodiacal signs; all this means that a search by any of these topics will offer this item too. The second example is London, Welcome Library 564. ff. 1 Ov-128, and contains many more other topics than astrology and related disciplines: astronomy, surgery. wounds, antidotary, astrology, deontology, humours, fracture, signs of life and death, and diet.[9] It is clear then that the importance of this classification lies in what the text is good for, rather than its formal aspect, that is, whether it is a treatise, a remedy, a gloss, etc. This way of classifying texts avoids the problem of indexing multifaceted texts, but, again, it disguises the physical context where the particular item is embedded. In other words, London, Welcome Library 564 contains more items than the one shown here, and then one has to consult the catalogue to obtain this information by inputting the query by manuscript.

11.1. *The data*
The manuscripts consulted for the present study are the following (in alphabetical order; abbreviations for ease of reference given in brackets):

> Cainbridge, Gonville & Caius 4571395 (GC457/395)
> Cainbridge, Peterliouse l 18 (P1 18)
> Cainbridge, Trinity College R.14.52 (TCC R.14.52)
> Glasgow, Glasgow University Library, Hunter 185 (H 185)

Glasgow, Glasgow Uiiiversity Library, Huiiter 307 (H307)
Loiidoii, Britisli Library, Egerton 2622 (E2622)
Loiidoii, Britisli Library, Egertoii 827 (E827)
Loiidoii, Britisli Library, Harley 3810, Volume I (Har3810)
Loiidoii, Britisli Library, Sloaiie 100 (S100)
Loiidoii, Britisli Library, Sloane 121 (S121)
Loiidoii, Britisli Library, Sloaiie 1315 (S1315)
Loiidoii, Britisli Library, Sloaiie 2027 (S2027)
Loiidoii, British Library, Sloane 2453 (S2453)
Loiidoii, Britisli Library, Sloaiie 2463 (S2463)
Loiidoii, Britisli Library, Sloaiie 76 (S76)
Loiidoii, Britisli Library, Sloaiie 96 (S96)
Loiidoii, Britisli Library, Sloaiie 983 (S983)
Oxford, Bodleiaii Library, Ashmole 1450 (Ash1450)
Yale Uiiiversity, Medical Library 27 (Y27)
Yale Uiiiversity, Medical Library 47 (Y47)

All of these manuscripts are written in fifteenth century hands with some sixteenth century additions. Various scribes have contributed in almost all of them, with the exception of S2453 written in one hand, and a letter in a later hand on the final fly-leave. The length of the books varies, being TCC R.14.52 one of the lengthiest with *ca.* 300 folios. The texts are largely given in English, although some Latin passages are also found. Marginal notes in English and Latin are present in nearly all the manuscripts; some titles are also rendered in Latin. There are few cases where a table of contents is given. and, whenever they appear, are generally intended for part of the manuscript book and not for the complete work. The contents of these manuscripts are varied, but they are mainly medical, astrological, herbal, alchemical, historical, mathematical and religious. Space does not allow here to list all the items in all manuscripts, but the reader may recourse to library catalogues on the Internet, the various volumes of the *IMEP,* the electronic catalogue by Voigts and Kurtz (2000; henceforward eVK), and the catalogues for Gonville and Caius Library (James 1907-1908 and 1914), for Peterhouse Library (James 1899), for Trinity College Cambridge (James 1900-1904), for Glasgow University Library Hunter Collection (Young & Aitken 1908), and for the Yale manuscripts (Faye & Bond 1962).

The targeted audience of the manuscripts covers both trained university people, as well as lay folk instructed in English and with some notions of the specialised areas treated in the texts.[10] Authorship is scarcely given, and one clear example appears in S76: *Thepractiues of M.[11] Iohn of Ardon... I Iohn of Ardon aforesaid fro the firste pestelens* (f. 143^r,).[12] For the time being, all this information must suffice to understand the nature of the manuscripts used in this study, and specific details will be given in due time for the analysis of the books in section IV.

III. TEXT AND HOEY'S DISCOURSE COLONY

My working definition of *text''* for the present paper, following the directions in van Dijk (1997), is: an act of linguistic expression that involves semiotic, social, cultural and cognitive elements. but also morphological, syntactic, semantic and pragmatic elements that altogether provide sense and unity to this linguistic expression. In the specific case of this study, the semiotic component of manuscripts includes codicological and palaeographic evidences, which are very often uncovered in the analysis of medieval texts and they serve as contextualising cues for the understanding of the construction of the medieval manuscript. The major problem we shall encounter in the study of Middle English scientific and technical books as texts is the diversity of items bound together that, apparently, show no cohesive devices allowing for the unity of the text.

Hoey (1986) proposes a new approach for the analysis of those types of discourse, such as shopping lists and encyclopaedias that are not normally covered in recent discourse theories. Hoey claims that these are heterogeneous in form and use, but they manifest homogeneity with respect to their discourse characteristics. He uses the metaphor of the beehive in order to describe how a ***discourse colony*** functions: "the beehive and ant hill are made up of many independent units, which are not interconnected in a physical sense, and the loss of one or more of them will not affect the viability of the colony". This cannot be obviously applied to narrative texts in which the loss of a paragraph may render the interpretation of the text difficult or senseless; but it works for the types of discourse mentioned above, as I shall demonstrate in my analysis in section IV.

The concepts of ***utility*** and ***meaning*** are essential in Hoey's definition of ***colony,*** as they provide the key for the understanding of certain types of text: "a colony is a discourse whose component parts do not derive their meaning from the sequence in which they are placed. If the parts are jumbled, the utility may be affected but the meaning remains the same" (1986: 4). In the case of the shopping list, its constituents may be altered in different orders, and one element can be also removed from the list without affecting its meaning and function. The utility differs, though, as, obviously, the list would not be the original one. Carroll (2003) has shown that the order of the recipes in a collection does not modify the meaning intended, and that some of the recipes in such a collection can be used in a new one, without the need to repeat the rest of the recipes given in the old collection. A further characteristic of colonies is that they may be formed by other colonies. The example given by Hoey (1986: 6) is the newspaper that contains sport pages. art pages, society pages, etc. The sport page may contain in turn football results, basket results, timetables of matches, and so on. The nine properties of a discourse colony are listed below (Hoey, 1986: 20):

1. meaning not deriving from sequence,
2. adjacent units do not form continuous prose,
3. there is a framing context,
4. no single author and/or anon,

5. one component may be used without referring to the others,
6. components can be reprinted or reused in subsequent works,
7. components may be added, removed or altered,
8. many of the components serve the same function,
9. alphabetic, numeric or temporal sequencing.

These features have been described by Hoey to identify discourse colonies, but not all discourse colonies show all of them. The first property means that the order of constituents, as has been noted above, does not involve a change of meaning. This implies necessarily the second characteristic, as the elements do not derive one from another in continuous prose. This aspect does not undermine the possibility that items in a discourse colony may show strong connections among them. The third characteristic, *i.e.* framing context, provides the context for the understanding and interpretation of the colony. Titles may be one way of supplying a suitable context for a colony, but also a preface. In some cases, colonies do not need a title or a preface, as in shopping lists and bibliographies. The fourth property refers to authorship. In this sense, colonies do not have one unique author, or they have various authors. Consider, for instance, a collection of articles where papers have been written by different people, no matter the presence of an editor, a queen bee in Hoey's words (1986: 12). who can never be regarded as the author of the book.

The fifth property deals with the way in which components relate to each other. One treatise may be used without relating it to the rest of items in the discourse. This does not convey the absence of cross-referential devices to associate some parts of the book. Properties six and seven are related in a way. Items can be added, removed, reused or altered. Number seven is especially useful for studies related to the evolution of texts. One component can be removed or modified in subsequent editions of a specific text without affecting the other components. This feature is possible because cross-referencing is absent or is kept to a minimum.

The eighth property implies that the majority of the components fulfil the same function within the colony. This is identified by Hoey as a weak matching relation. In matching relations, "statements are considered in respect of what they share or where they differ" in contrast to *sequence* relations in which "statements are seen as following one from the other temporally or logically" (1986: 14). The difference between the colony and the narrative discourse in the light of this distinction is as follows: the relations between proposition are matching in the case of the colony and sequence in the case of the narrative discourse; the cohesive ties show a sequence relation for the former and a matching relation for the latter. According to Hoey (1986:17), matching relations allow linear reading, as clauses and sentences are related by means of an array of lexical and/or grammatical linking devices. Lexical reiterations and pro-forms show what is considered by Hoey "the ultimate in Matching relations – that of identity". This is obviously lacking in colonies that exhibit a more simple associative system based at the most on time Sequence relations. A very weak matching relation is to be observed in colonies in the fact that

texts serve the same function, but this is not a claim to "relate colonies to 'mainstreams' discourses" (1986: 16).

Finally, the last property has to do with sequence relations as cohesive ties, which are realised by means of arbitrary (alphabetic, nurnerical) and non-arbitrary (time and date) systems. Colonies using an arbitrary system are considered "more marginal as examples of colony than those that rnake use of alphabetic and nurnerical ordering" (1986: 18). Arbitrary systems seem to impose a particular connectivity to the components, but Hoey clairns that "they are only cohesive because writer and reader connive in making thern so" (1986: 19). Apparently, this feature contradicts the first property, but this is for the sake of utility rather than for semantic purposes.

In the next section, 1 analyse the texts described in section II following Hoey's framework. For this, 1 apply the nine properties to all texts for their characterisation as *discourse colonies* The results of this study may have implications for a reworking of present taxonornies of Middle English scientific rnanuscripts.

IV. THE SCIENTIFIC AND TECHNICAL BOOKS AS EXAMPLES OF *DISCOURSE COLONY*

Before proceeding, I want to rnake clear that, because I consider the volurne as the first in the rank of the medieval text structure, I will examine all the items within its boundaries despite the fact that many are not traditionally regarded as scientific, *e.g.* household recipes, charrns, etc. My ultimate airn is to show that rnanuscripts of the type selected here forrn a unit of communication, and context stands as an essential aspect in the study of any of the items embedded within the book. In that sense, I will characterise thern as examples of *discourse colonies* following Hoey's framework.

A first approach to the manuscripts in section II.1 above, reveals a chaotic situation, where items follow one another, and not necessarily following a coherent order, at Ieast frorn a rnodern reader's perspective. That is in part due to the absence of titles and the apparent lack of internal organisation. Furthermore, the scribes do not always use all the techniques available to show visually the structure of their texts, such as rubrication, underlining, boxes and marginal notes; and tables of contents are intended primarily for the first item in the volume. Besides, very short texts (a recipe, a charrn or a prayer) ernerge in blank spaces, where one expects the continuation of the treatise that goes on afterwards. For this reason, researchers may feel that the reading of these rnanuscripts turns out to be uncomfortable and meaningless. With all this in mind, I shall apply the properties of discourse colonies in order to show that, despite this seeming formal inconsistency in the rnanuscripts described in section 11.1, rneaning remains unaltered and so does the utility of the texts.

The application of the nine properties to our texts reveals the following results (I will describe each one of thern below):

| | | | | | | Properties | | | | |
Manuscripts	1	2	3	4	5	6	7	8	9	Score
Cambridge, Gonville & Caius 4571395	+	+	-	+	+	+	**+**	+	-	7
Cambridge, Peterhouse 118	+	+	-	+	+	**+**	**+**	+	-	7
Cainbridgc, Trinity College R.14.52	+	+	?	+	+	**+**	**+**	+	-	7-8
Glasgow, Glasgow U. Library, Hunter 185	+	+	-	+	+	**+**	**+**	+	-	7
Glasgow, Glasgow U. Library, Hunter 307	+	+	-	+	?	**+**	**+**	+	-	6-7
London. British Library, Egerton 827	+	+	-	+	+	**+**	+	+	-	7
Londoii, British Library, Egerton 2622	+	+	-	+	+	**+**	**+**	+	-	7
London, British Library, Harley 3810, 1	+	+	-	+	?	**+**	**+**	-	-	5-6
London, British Library, Sloane 76	+	?	-	+	?	**+**	+	+	-	5-7
London, British Library, Sloane 96	+	+	?	+	+	+	**+**	+	-	7-8
London, British Library, Sloane 100	+	+	-	+	+	**+**	**+**	+	-	7
London. British Library, Sloane 121	+	+	-	+	+	+	+	+	-	7
Loiidoii. Britisli Library, Sloaiie 983	+	+	-	+	+	**+**	**+**	+	-	7
Loiidoii, Britisli Library, Sloane 1315	+	?	-	+	?	**+**	**+**	+	-	5-7
Loiidoii, British Libraiy, Sloane 2027	+	+	-	+	+	**+**	**+**	+	-	7
Loiidon, British Library. Sloane 2453	-	-	+	+	-	?	?	+	-	3-5
Londoii, Britisli Library, Sloane 2463	+	+	-	+	+	**+**	+	+	-	7
Oxford, Bodleian Library, Ashmole 1450	+	+	-	+	+	**+**	**+**	+	-	7
Yale University, Medical Library 27	+	+	-	+	+	**+**	**+**	+	-	7
Yalc Uiiiversity, Medical Library 47	+	+	-	+	+	**+**	**+**	+	-	7

Table 1: Analysis of iiianuscripts as text colonies

Key: + affirmative conditioii - iiegative coiidition ? unclear or both conditions apply; properties: 1: meaning not deriving froin sequence. 2: adjacent units do iiot form continuous prose, 3: there is a framing context, 4: no single autlior and/or aiioii, 5: oiie coinponent inay be used without referring to the others. 6: coinponents can be repriiited or reused in subsequent works, 7: components may be added, removed or altered, 8: many of the coniponents serve the samc function, 9: alphabetic, numeric or temporal sequencing.

IV.1. Meaning not deriving frotn sequence (feature one)

The first property. *i.e. meaning not deriving from sequence*, applies in all cases, save for S2453. This particular volume contains only a short astrological treatise, with no title, but with the following introductory preface on f. 1: *Here begynnyth the Bokr of Astronomye & of Philosofie contryuyd & made of the wisest Philosoferis & astronomyeris*. There is, however, a letter addressed to John Creke of Rickmansworth from his cousin on f. 14' in a different and later hand, on reverse order from bottom to top; its presence does not affect understanding and will not be taken into account in the evaluation of this property. The order of constituents in this specific manuscript should be kept in order to maintain meaning and utility. The preface, for example, should precede all the chapters compulsory, because it has been linguistically codified to be so by means of the string *Hrre begynnyth the Boke of Astronomy & of Philosofie* that serves as contextualisation for the complete manuscript.

This does not happen in the rest of the manuscript, as I shall exemplify with the case of S2463, whose contents are the following: (a) a copy of Guy de Chauliac, *Chirurgia magna*, ff.

2-51', (b) *Book of Operations*, ff. 53-151', (c) *ca.* eight medical recipes, ff. 151'-152', (d) a new collection of medical recipes, oils and preparations and, also, etiology, ff. 153'-188', (e) another compendium of medical recipes, 188'-193', and (f) a gynaecological treatise in the Gilbertus Anglicus's tradition (version 2 in Green's classification (1992); see the edition of this treatise by Rowland (1981)). The items in this specific manuscript are not related to one another, and each one contains its own prefatory material, except for (c), above, that does not present any introduction at all. There is one minor condition in the order of material, though. That is the case of (e), above, whose beginning makes a linguistic difference, as seen in the *incipits* below for each passage (*incipits* from eVK):

(1)
a. Galyene that was lanterne of fysiciens and of surgens seyth in the seuententh book de Vtilitate particulari in the last chapeter saue oon that ben foure comoditees ethir profytes Of the science ethyr of the connyng of the Anothomie (f. 2').
b. Here beginneth a treatise of lpocras Galen Avicenna Henricus de Amondavilla (f. 53).
c. Take all tliree consoudes aiid the yellow dock root as much as (f. 151').
d. There shall be seven chapters in this book the first is of repercussive medicines (f. 153).
e. Now I will shortly treat of proper medicines and divers members not as Galen (188).
f. Forasiiiuch as there been maiiy women that have many maladies and sicknesses (f. 194).

As seen above, all the examples mark off the beginnings of the items in the manuscripts in a general way by means of the linguistic units *here, take, there shall be, forasmuch as there been*. The word *take* very often identifies the beginning of a recipe as noted by Carroll(1999, 2004), Taavitsainen (2001), Gorlach (1992), Stannard (1982), and Alonso-Alnieida and Cabrera-Abreu (2002), and so it pragmatically functions exactly in the same way as *here hegins* in (b). We must agree, then, that these particles do not organise chronologically the passages in S2463. However, the presence of the adverb *now* in (e) truly identifies the treatise in a temporal space within the work. It must necessarily follow another item, although it is not in itself a condition for the specific piece it should be after. The rest of items can be located differently in the overall scheme of the manuscript, as nieaning would remain the same

Another example of this sort with a very limited restricting condition in the order of the manuscript constituents is given in H307. This volume contains (a) a treatise on elements, huniours, the ages of man, urine and uroscopy (ff. 1'-13'), (b) a version of Gilbertus Anglicus's *compendium medicinae* (ff. 13'-148'), (c) another excerpt of Gilbertus Anglicus's *compendium,* a gynaecological treatise (version 1 in Green's classification (1992); see the edition of this treatise by Vega-Déniz (2002)) (ff. 149'-165'), a blank page follows, (d) short treatise on hematoscopy (ff. 165'-165'), (e) an excerpt of Platerius's *Circa instans* (ff. 167-172'), and (f) table of contents for ff. 1-166 (iii'). The *incipits* for each item are listed as follows:

(2)
a. It is to vndirstonde that a nian is maid offour elements. And euery man hath iiij huniours (f. 1').
b. A inan that wole helpe inen in her syknesse hym bihoueth to knowe the enchesions aiid the kyndes ofthe syknesse yat is to seie wliey yei be hoote eiyer coold eiyer drye eiyer moiste , and this is by inony dyuerse toknes (f. 13').
c. Also we schulen vndirstonde that wymmen han lesse hete in Iierbody thaii iiien & more

moistnesse for defaute of hete that schulde drye her humours and her moistnesse (f. 149).
d. A phicisian behoueth to knowe three inanere inspecciouns in blod letyng that is to seie whether it be thicke or thinne or nieene whil aman bledith (f. 165).
e. Aloen Aloe is liote & druye in the secouiide degree & it ismaad of the iuys of an herbe that is clepid aloe & that herbe is foundcn in ynde in perse & in grece & in apuleie also (f. 167''').
f. Ache of tlie liead...foll 16 (iii').

As in S2463, thc absence of markcrs allows for a random organisation of the items, with the sole exception of the gynaecological treatise. This one begins with the particle *also* which shows a connection with the previous treatise in the manuscript. These two treatises share the same original author, and here lies the reason for the use of this connective. It may be argued that these two passages form a singlc treatise, and that is true. This idea is further supported by its inclusion in the table of contents on iii'. However, they have been visually separated by the presence of the blank space preceding thc gynaecological work, as if there is an intention to establish a differentiation between them. Furthermore this gynaecological treatise very often appears on its own. and sometimes following different versions of the *Compendium medicinae*. ln any case, the topics of the texts mark a definite difference, so much so that, even if we consider them as a single tract, they would form a textual sub-colony.

IV.2. Continuous prose (feature Iwo)

The second feature, *i.e. adjacent units do not form continuous prose*, follows from the first property. We have seen above that the items in S2463 and H307 may appear in the order they arc actually given, or conversely, they may be relocated in the volume without a change in meaning. Carroll (2003: 152) has shown that, in her technical recipes for lacemaking, specifically those in British Library, Harley 2341, this autonomy of items is further supported by visual devices. Such devices consist in beginning each recipe in a new line and rubricating the first initial. A similar cxample is found in the sub-colonies of recipes in H185, ff. 12'-68'. Here the scribes identify the remedies not only with rubrication, but also with dividing lines between one recipe and the following.

In H3810, handwriting and *ordinario* are helpful for the identification of items,[14] especially in a book with so many and diverse contents. An astrological piece appears on f. 52' *(In marche after the first* [drawing of the moon] . *loke the prime*) in the middle of the page without any further warning, save for a change in script that is tighter than the previous one. A calendar emerges on f. 59ᵛ and it begins with the following reference *Anno domini 1459* centred on the folio as a kind of content alert, then the text continues in English *ther is ij cicles of the son and oder of ye mone. A* regimen of health in verse is offered on ff. 13ᵛ-14ʳ. The layout of the page makes it visually attractive and easy to follow for readers, as every three lines a maxim is given in the right indicated by a sort of brace. Drawings also make a difference in this volume bccause a very short Latin tract on humours is complemented with some diagrams on humours (ff. 72'-73'). On 73' three rccipes in English appear in the same script as the previous item. The

only distinctive feature is the use of a box to identify the recipe title in the third remedy. The next passage in this manuscript on f. 74' shows a different hand (the same as in the Latin text ended on f. 71ʳ), and it has no apparent connection with the recipes: *I haue enyuired of diuerse and I kannot haue none so sekyr as this is save yt I vndirstaunde that who so euere shal proue itt he them yt haue kepid itt is bownde to sey daily dirge with ix li.*

IV.3. Framing contexts (feature three)

The third property in Hoey's description deals with the presence of a framing context that allows for interpretation of the complete colony. This can be done in two ways: a title and/or a preface. Apart from S2453 (see property 1, above), the rest of the manuscripts do not contain a title that covers the contents of the items embedded in them. This is not unusual in writings before the Renaissance period. and titles did not even have an autonomous entity, and were very often given as part of the text with no fixed, institutionalised position. Genette (1998: 699) describes the history of titles in the following way:

> For ceiituries the title, like tlie author's iiaine, liad iio specific locatioii except, occasioiially, in tlie aiitique voluiniiia, where it fuiictioiis as a sort of label (titulus) inore or less attached to tlie "umbilicus" of tlie roll […] If tlie first or last lines of tlie text itself did not inentioii it in sucli a way as to inake it iiiseparable froin tlie work's destiiiy […], its desigiiatioii was rather a inatter of oral traiisinissioii, of kiiowledge froin liearsay or tlie coinpeteiice of tlie literate. Tlie inventioii of the codex betweeii tlie second aiid third centuries did not significantly iinprove tlie material situation: tlie text used to begin at tlie very first page (or its verso after a blank first recto), iii tlie saine conditions as in aiitiquity. Tlie first printed books, wliicli iinitated to perfectioii tlie appearaiice of tlie manuscripts they reproduced, did iiot yet Iiave what we call a title page. One liad to searcli for tlie title at tlie eiid of tlie book, tlie coloplioii […] our preseiit ideal notioii of title gradually einerged froin tliis initial inagma, first textual, then paratestual, iii wliicli it was einbedded without specific status.

As said above, titles are not a general practice in the texts, and other codified linguistic variables may serve the function of marking their beginning, as shown in my commentary of examples in (1) above.

Sometimes the framing context is provided by a very later hand. Folio ii' H307 reads, as follows:

(3)
> An old systeiii of Physic in English; ofwhich I have another Copy. This is inore coinpleat by all tliat is said oii female disorders in the eiid. Tis is to uiidiistonde tliat a man is iiiaid of four Elements. And evry inan hath iiij humors &c.

This was written by William Hunter in the eighteenth century. His description is very vague but provides a suitable framing context for H307 with a special mention to the gynaecological tract on f. 149'. Then, he quotes the first lines in the manuscript in a following paragraph but I cannot guess the intention behind this, as this practice is not always fulfilled in all manuscripts in the

collection. The copy he makes reference to is Glasgow, Glasgow University Library, Hunter 509 (ff. 13^r-167^r). I have found though that many of the items are contextualised by means of prefatory material that alerts the reader of the contents included in the tract, as in the examples below:

(4)

a. Tliis was written fro Mounpileris to Quene Isabel of Ynglond at the preier of the kyng of fraunce hir brother (*Dietary of Queen Isabelle*, S100, f. 27').

b. It is to vndirstonde that euery iiian is inad of .iiij. eleinentis . that is that euery man hath iiij. huiiiouris lijk to the . iiij . eleinentis. / (SIOO, f. 38').

c. Right so women with owteii here flourys schulle lakke the office of concepcion // this inanere of purgacion falleth to women as be moche pollucion that falleth to man (Secreta *mulierum*, S121. f. 100').

d. Tliis is tlie booke offtlie gouernaunce Off Kyngis and Pryncis (*Secreta secretorum*, S2027, f. 53').

e. Also another treatice of the same frere Rogier Bacon drawen oute of the .vj. partie of coiiipeiidious studie of Theologie froin word to word whiche booke he made at the infraunce? of pope Clement and is the treatice of matiers before drawen and is drawen of the chapitre tliat lie entitled of scieiices experiniental (TCC R.14.52, f. 56').

f. Tliis boke is called ye boke of algorym or Augriin after lewder use. And yis boke tretis ye Craft of Nombryng ye quych crafte is called also Algorini (The *Craft of Numbering*, E2622, f. 136').

g. In tlie iiaiiie of god tliou shalt distyll a corosyve water oute of oone pounde of vitryall and do a pounde of sall petre and than dissolue in that corosyve water oon vnce of puer lune into clere water (Ash1450, f. 176').

It is clear from the previous examples that there is an intention to provide a background for the understanding of the tracts. The ways in which this is performed are varied. In the cases of S2027 and E2622, there is a direct presentation of the treatise by means of the formula *this hook is called* or *this is the hook,* in both instances the word *hook* appears as the term that gives unity to all the writing given afterwards and related in meaning. Vaguer ways for beginning a new treatise are also employed, but these are not so rare for the medieval reader, as expressions such as *it is to understand that/ you should understand that* and *unother treatise* were frequent as text introducers in tlie medieval period.

Prefatory material may consist in a few lines indicating what the treatise is about and why the text is nceded, but there are also more elaborated types of prefaces that include a description of the contents and their distribution in chapters, as shown in the following example from the gynaecological text in Y47 (f. 60^{r-v}):

(5)

Her be gynnes tlie sekenesse of wynimen wech is clepid the moder id est matrix ye schal vnderstonde tliat wyiiiiiicii Iiafe las Iieete yn tlieiii then men . Aiid mor nioystnesse for defaute of Iieete that schuld drye hyr humours and Iiyr moystenesse but neuer tlie lese kyiide Iiathe ordeyiied wymmen a purgacyon of bledynge at certain tymes . to make Iiyr bodyes cleiie and hole of sekenesse . the whycli purgacion of bledyiig they hafe froin tyine tliat they ar xij yeer of age iii to the tyine of fifty yeer . And soiiie hafe it lenger [. .] the iiiatrix ys a skyiiiie tliat the childe ys closed yn in his nioder wombe . and mony of the greuauiice tliat wymmen hafe ar caused of the moder that the we calle the matrix / Oon is niycli flooyiige oute of tyiiie of tliis blode and yt febuls wyniiiien mych / Another ys stoppyiige of tliis blode . be for sayde // Anotlier ys suffocacyon of the niatrice // Anotlier ys precipitacyoii / Aiiotlier when tlie matrix fleytlie withyn fortlie Aiiother is a posteme of

the matrice / Another is swellynge of the niatrix / Another is greuaunce yn bering of childe or Iiardiiesse or they may be delyuered / Aiiotlier ys goyiige oute of the moder beiietlie forthe A nother ys with haldynge of the secundyne / Aiiother is ache of the moder.

IV.4. Authorship (feature four)

The next property has to do with authorship. In the analysis of the manuscripts, I have found that the majority of the texts are norrnally anonymous and, occasionally, they are attributed to some authority, as in S96 that reads: *This hoke hi3t & c. Ipocras the best surgeon that ever was and galien his felowe & Socrates* [paraph mark] (f. 1'). This mention of authorities serves also the purpose of giving some credibility to the ideas developed in the treatise. More ambiguous references to authorities are also attested, as in S121: *Astronomours sayne that a cirurgione schulde* [scribal emendation] *not kutte ne kerue ne opyn no veyne ouer mannes hody* (f. 35'), but ambiguous as it were, it also seeks to reinforce the idea of authority and reliability.

IV.5. Use of components (feature five)

The next property, *i.e. one component may he used without referring to the others*, is fulfilled in the rnajority of the manuscripts analysed. However, there are some cases where some linkage among the items is manifested by means of connectives or by means of lexical deviccs. as in manuscripts S76, S1315, Har3810, and H307. In the case of S76, the linkage among some of its components consists in the use of *materia medica* drawn from the same author and, in few instances, from the same text. Thus, extracts from the *Liher medicinalium* by John Ardernc are given in ff. 19ʳ-29ʳ, 31ʳ-34ʳ, 49ʳ-143ʳ, and, finally, 178ᵛ-180ʳ. The same happens with *Practica de fistula in ano* also by John Arderne that is excerpted in ff. 19ʳ-29ʳ, 35ʳ-49ʳ, and 143ʳ-144ʳ. Other treatises by John of Gaddesden and John of Burgundy are also embedded within this volume, but with no connection whatsoever with their surrounding texts. Similarly, Har3810 contains many pieces attributed to the same author, namely Roger Bacon, and the link between the texts are realised by the string *also another treatice* or simply by the mention of the author, as seen in the following excerpts:

(6)
a.   Bacon is buitlieiied to sayne of mani godes but there is but one true god with do leue eueiy and all wayes (f. 52ʳ).
b.   Frere Rogier Bacon in the vj booke of sentences… (f. 53').
c.   Also another treatice of the same frere Rogier Bacon drawen oute of tlie .vj. partie of compendious studie of Theologie from word to word whiche booke lie iiiade at tlic infraunce of pope Clement and is the treatice of matiers before drawen of the chapitre that he eiititled of sciences experiinental (f. 56').

It is also noteworthy the reference the scribe makes to authorship of some of the elements preceding the new treatise on f. 56ᵛ, as it not only acknowledges the source where the texts have been drawn from, but also this rnention of authorship serves as a strong linkage among them, at least from a thematic standpoint. As for S1315, connection between two components is established linguistically:

(7)
a.   Lustenythe newe and 1 schall... (f. 50)
b.   But lustenythe new and ye schall... (f. 66ʳ)

These two items present the same contents and they refer to the same text, although they are separated in space one from the other by giving a new treatise, *i.e.* the *Storia lunae*, in the middle. The author has then solved the problem of identification of the two items by using a parallel structure in the two instances, and also by the addition of the connector *but* that marks a contrast between two texts necessarily related in meaning. This is also clear by the use of the string *lustenythe newe* in (7a) above that connects this text with what comes before. The case of H307 has been explained above, in the description of the third property; such linkage consists in the addition of the particle *also* in the starting line *Also we schulen vndirstonde*. This anaphoric device relates the gynaecological item with the preceding excerpt from the Gilbertus Anglicus's *Compendium medicinae*. Apart from that, internal referential devices are not very frequent among items embedded in the manuscripts, and they follow one another without evident linking particles connecting them.

IV.6. Manipulation of components (features six and seven)

The sixth property deals with the possibility that components are liable to be reprinted or reused in later works. Excerpting and copying from exemplars were common practices in the production of books during the medieval period, so it is not difficult to find several extant copies of the same treatise nowadays. This feature is very connected with property seven in Hoey's list, *i.e. components may he added, removed, or altered*. The only condition for this property is that meaning must remain unaltered, and also, the utility of the texts. The distinction between these two properties lies in the fact that the latter allows the modification of the item to fit in the purposes of the work. Keiser (1998: 3596-3597) illustrates this in the following way:

> John Wliittocksinead (1410-1482)[...] coinpiled tlie volume now known as Yale University, MS. Beinecke 163, duriiig tlie tliird quarter of tlie fifteenth ceiitury. Ainoiig tlie English writings tliat lie thought valuable enough to copy were *The Wise Rook of Philosophy and Astronomy. Medicines for Horses. An Ordinance of Pottage. The Vertues off Herbes. The Percy Poem un Falconry,* and *The Master of Game.* A geiieration earlier, in a somewhat remote regioii of Yorksliire, Robert Thornton of East Newtoii had inade copies of two medical texts –the reinedybook known as *Liber de Diversis Medicinis* and a herbal wliich coiiflated material froin *A Tretys of Diverse Herbis* and *The Hei-bol of John Lelamour of Hereford...*(Later iii tlie century a ineinber of tlie Tliortoii fainily copied into tlie family miscellany, iiow Lincoln Cathedral Lihrary MS. 91, a text of *Thunder Prognostications*, which coiitaiiis iiieteorological predictioiis) Thorton's text of tlie *Liber* contaiiis approval notices of a nearby rector, suggesting tliat a parisli priest who evidently practised healing, as many priests did, iiotwitlistanding ecclesiastical injunctions against such activities. In 1529, about a century after Thorton made his copy, another parisli priest carried a text of tlie *Liber* froin Yorkshire to tlie Midlands. where he made a copy for aiiotlier geiitry fainily (Bodleiaii Library, MS. Rawlinson A.393).

H185 offers some examples of recipes in ff. 12ʳ-68ᵛ that are repeated in other manuscripts. One instance is *For the tooth ache of wormes* (f. 30') in H185. A parallel text is given in Henslow (1972: 8) in the recipe entitled: *Si vermes corrodunt dentes*. There is a minor difference. though, that consists in the omission of the explanation of the string *pipe of lanten* used in the recipe which is described as "that the nether ende be wide" in H185. Another is the recipe *For hym that muy nou3t pisse* (H185, f. 39') that is also found in Ogden (1969: 44) and Henslow (1972: 15). In fact, we may track endless lists of similar recipes in existing medieval volumes, as recipes were largely copied and disseminated in this period for the obvious advantages of their immediacy of usage. This is different from recipes in large academic treatises in which consultation of remedies required time and patience to find out the appropriate solution for the illness.

As for texts being reproduced and altered in subsequent works, one good example is seen in the multiple copies of the gynaecological tract based on the *Morhis mulierum* of Gilbertus Anglicus. Some of these copies are found in Y47 and H307 in our corpus, but also in other copies dating from the fifteenth century, such as London, Wellcome Library 5650, ff. 41ʳ-58ʳ, and Oxford, Bodleian Library, Bodley 178, ff. 140'- 151ᵛ. Green (1992) offers a classification of the gynaecological texts in Middle English, mainly after Trotula and Gilbert of England.[15] Regarding the Trotula-based manuscripts, these are divided into five main groups: (1) Trotula translation A, (2) Trotula translation B, the *Liber Trotuli*, (3) Trotula translation C, the "Boke Mad [by] a Woman Nanied Rota", (4) Trotula translation D, *Secreta mulierum*, and (5) Trotula translation E, chapters from the *Trotulu mujor*. The first one either begins with the incipit *Oure Lord God when he stored the world* or contained it elsewhere within the text. The main sources for this group are the *Trotulu major* and the *Trotulu minor,* and women are directly addressed. Group 2 also deals with cosmetic, and there is no direct address to women. Treatments are regarded as drawn from Hippocrates and Galen. The third group are free translations of some chapters from the *Trotula mujor* and *Trotulu minor,* apart from the addition of some other extra material. The fourth group contains literal translations from the *Trotula major* and the *Trotulu minor,* with no direct address to women. Finally, group 5 presents literal translations from the *Trotula mujor.*

As for the gynaecological texts based on the *Compendium medicinae* by Gilbertus Anglicus, Green divides the existing copies into two main groups: Version 1 and Version 2. In the former, some parts of Anglicus's *Compendium* are not included; the text mainly deals with the womb. In the latter, the material from version 1 is included, and enlarged. Some pictures of *foetus-in-uterus* are also presented, and the use of Latin is widespread. The text is usually introduced by a prologue that justifies the need for having a manuscript of this type:

(8)

> For as moche as ther ben rnanye wornen that hauen many diuers rnaladies aiid sekeiiesses nygh to the deth and thei also ben shamefull to schewen and to tellen lier greauaunces unto eny wyght, therefore I schal suindele wright to herre rnaladies reiiiedye [...]And thowgh women have diuers evelles & inany greet greuauiices nio thaii men knowen of, as I seyd. hern scharnen for drede of repreving in tymes corning & of discuryng off vncurteys men

> that loue women but for her lustes and for her foule lykyng […] And therefore, in helping of women I wyl wright of women prevy sekenes the helping, and that oon wonian may helpe aiiother in Iier sykenesse & noght diskuren her previtees to suche vncurteys men (London, British Library, Sloane 2463, f. 194r; Rowland 1981: 58).

Green (1989) compares the text in S2463 that belongs to Version 2 in the Anglicus's tradition, and the text in Y47 that belongs to Version 1. In her study, she has found that some material in S2463 is lacking in Y47. Using the incipits of S2463 as edited by Rowland (1981) and confronted to the edition of Y47 by Hallaert (1982),[16] she lists the similarities and differences between them. This reveals the absence of the following items in Y47 (Green 1989: 455-456):

   (9)

    a.   For as rnoclie as ther ben iiiany woiiieii [preface].
    b.   Also a worschipfull serip.
    c.   Yff a wonian be with childe.
    d.   Grcuauiices tliat woiiieii Iiaue in bering [plus pictures of foetus iii uterus].
    c.   Mola matrices is in two iiianners.
    f.   Fyrst, yf she be repleted.
    g.   Woinan wliaii tliey beii with childe.

Green also found out two items that present a reduced form in the case of Y47, although both appear in the tracts. These are *Woundes of the marice* that offers one-tenth of the text, and *Cancring and festers of the marice* that is approximately one-third of the text.

    Another good example in this vein is the copy of a tract on physiognomy in Y47, ff. 105ʳ-109ʳ that is also attested in other volumes, such as Durham, University Library, Cosin V.V.13, Sf. 45ʳ-52ᵛ, and Cambridge, Gonville and Caius College 4571395, ff. 47-50. This 1 give as a matter of illustration, but I leave the analysis of this specific item for a future, more comprehensive study, of medieval variant texts in the vernacular and their construction. This scribal treatment of thc texts are noted in Keiser (1998: 3597) who claims:

> [S]cribes frequently modified what tliey found in their exeinplars, deleting apparently irrelevant or confusing inaterial, or at least abbreviating it, interpolating inaterial from elsewhere to expaiid uiideveloped or iiiore relevaiit subjects and to add iiew information, and revising and rearraiiging inaterial to serve a perceived need.

IV.7. The function of components (feature eight)

Property eight, *i.e. many of the components serve the same function,* indicates the utility of the items included in the manuscripts. Admittedly, we cannot claim that all the items in all the volumes convey a similar Sunction, but thcre is a general tendency of items of a similar nature and contents to concur in a volume; this suggests a matching relation rather than a sequencing one in the itcms contained within one manuscript. Thus, for instance, the majority of the itcms in Y47 refer to astrology and mcdical receipts; Y27 also contains medical receipts and a herbal. More specialised manuscripts arc GC457/395 whose contents deal with astrology, prognostication. humours, uroscopy, etc., and P118 that contains items concerning surgery, deontology as well as medical recipcs. It seems obvious that, in the corpus of manuscripts

covered in this essay, medical topics and related material were much in demand during the late medieval period; and this goes beyond the simple curiosity or desire to learn scientific matters, but it rises as a response for those who cared about welfare more than about instruction and recreation.

IV.8. Sequencing (feature nine)

The last property highlights the nianifestation of the order of constituents of the manuscripts by means of numerical, alphabetical or temporal sequencing. Savc for very noticeable cases, items do not follow any pattern of sequencing in the tracts. Those cases have been already mentioned and they consist in the use of the particles *now* and *also* that require the existcnce of a previous item, but this linguistic cue does not offer any other information so as to the type of element that should precede the text beginning with those two particles. Furthermore, these do not indicate a fixed position in the overall organisation of the volume. In fact. I wondcr whcther the scribe intended any specification of order within the work, even the idea that *also* would indicate that a previous item should be there preceding the new treatisc. We should not take expressions of this sort at face value, because they wcre common practice as text beginners.

V. CONCLUSIONS

The traditional notion of text is difficult to apply in medieval scientific and technical books, as they contained items covering a wide range of topics. This same varicty of topics renders the classification of medieval texts probleniatic and uncertain. Thc present study supports the idea that the medieval volume should be studied as a single unit, and, for this, I have applicd the notion of *discourse colony* following Hoey *(1986)* to a set of Middle English books in section III, above. This, in turn, allows us to draw some conclusions about the construction of the scientific and technical books in Middle English, their history and, also, their classification.

Thc cliaracterisation of a set of nianuscripts as discoursc colonies has rcvcaled the following conclusions:

(1) Meaning does not generally derive from the sequcnee of items in a manuscript. and thcse items do not form continuous prosc, although, as a whole, they serve the same communicative function. Furthermore, they do not present Iinguistic cues for indicating a fixed order within the nianuscript. From here, it follows that they can be reordered witliout affecting meaning and utility.

(2) The majority of the treatises show no franiing context for the interprctation of the itenis contained therein. However, prefatory material and somc linguistic evidences allow the contextualisation of specific parts of the volume. Connccted to this is the fact that authorship is rarely given, and, when it is, it forms part of the running text.

(3) Finally, the components of a manuscript manifest flexibility in the sense that they may be reused in later works. These items are also liable to modification, and they can bc

removed or added in a new compendium without altering the meaning of the volume. It is true though that, in this particular case, utility is affected because a four-item book is not the same as a five-item one.

These conclusions depict a medieval book seen as an artefact, and manipulated to fit the needs of the reader. Tlie analysis rcveals that therc is an initial intention in the construction of the manuscripts, and so they are largely written in the same hand, style and with similar contents. Nevertheless, new items are incorporated to complement the older ones, and these necessarily show some relation in nieaning and utility. The fact that later hands added circumstantial new related items confirms the idea of the volume as a flexible artefact. What was really intended when any specific medieval volume was firstly envisaged is difficult to ascertain; the only evidence we have is tlie books themselves and they rarely make reference to any programmatic editorial plan in thcir prefaces. We cannot deny, though, that the niajority of items are much related in nieaning. as the nuniber of niatcrials with similar contents tend to be grouped together in a volume.

Tlie analysis perfornied here has also revealed that, although it is normally agreed that *receptaria* are cliaractcrised by "adaptation" and "accretion" (Voigts, 1982: 44), these two conccpts arc not as defining of this type of *compendia* as of any other niedieval scientific and technical volunie. In fact, its process of creation finislied either when needs were fully satisfied, or when pliysical space had come to an end niaking new additions an impossible enterprise. In other words, volunies were tailored to suit the needs of iheir users, and when they failed to give what was needed, thc act of copying restarted until parchment was all used up.

Precisely all these interpolations of items in a volume render even more difficult the classification of nianuscripts. As I said in section ll.1 above, one item may fall under more than onc heading in a given taxononiy; coniplcte volunies would then be harder to classify, as they would necessarily fall in many of the entries in a classification in the light of the evidence given in this paper. In niy opinion, the classification method in Voigt and Kurtz's *Scientific and Medical Writings in Old and Middle English (2000)*proves to be the most adequate for medieval volumes and itcnis, considering our study of scientific books as examples of discourse colonies. A search by topic would retrieve the nianuscripts associated to our input; but a look at the *raw material* section offers tlie scientific and medical items in the order in which they appear in the volunie. A search by nianuscript gives the items in a specific volume without following the order in tlie original. The multiple cross-references make it ideal for research. The improvement of this software for the classification of medieval material requires the addition of all the items in a volume, so that contextual analysis could be made possible by simply consulting the raw material.

NOTES

1. Many thanks are due to the anonymous reviewers of *IJES* for their corrections and generous suggestions, and to Ms. Mary Fraiices Litzler for proofreadiiig a very early draft of this article.

2. A good exainple of the interplay of medicine and astrology is the *zodiac man* that shows the association of stars with the parts of the body. This type of pictorial representations was very useful for the practitioner to perform the needed celestial calculations before practisiiig on the patient. One example of an iiiiage of a zodiac man is included in Loiidoii, British Library, Sloane MS 2250, f. 12.

3. Robbins (1970: 393-415) divides medical manuscripts soniewhat further into (a) prognosis, (b) diagnosis: and (c) treatiiient. This subdivision of medical texts coines into conflict with Bennett's taxonomy in the sense that medical treatises, astrology aiid cliariiis fall into differeiit groups, and for the specific purposes of prognosis. botli charms and astrological texts are very helpful. For an example of a charm involviiigprogiiostication, see Glasgow University Libraiy, Hunter MS 185, f. 61' *Ffor to wete wader* a *man schal leue* or *deye that is* sek in Alonso-Alnieida (2000).

4. 1 ain now preparing an edition of the astrological itenis in MS Yale University, Medical Library 47 for publication.

5. For a summary of these guidelines together with the treatinent of iiiedical recipcs in *IMEP*, scc Raiid Schmidt (1994).

6. Pollock tries to analyse what topics should be labelled as *scientific*. After reviewing some definitioiis of science as a concept, he concludes that "a subject, to be scientific, must be aiiienable to rationalisation without recourse to that assumption" (1958: 132). This rationalisation also implies to remove religious motifs from scientific writings: "The definitions plausibly suggest that there is a certain unique econoniy in working assumptions in scientific iiiethod that produces what we call 'science'. This enables us to see precisely why it was necessary for the animistic assuiiiptioii to wither so tliat scieiice could take root iii its priiiiitive foriiis; and it explains also, why scieiitists at a inuch later date were obliged to resist the introduction of God as a methodological iiistruinent of explanation despite the blandishments and threats of theologians who were alarmed lest this scientific license should lead to the outright rejection of God as a factor to facilitate explanation in other fields of Iiuiiiaii interest" (1958: 131).

7. Apparently the date of publication is erroneous, as the list appeared in 1937 and not in 1938, wliich is a printing mistake on the issue cover. However I will keep the date 1938 here to avoid coiifusion.

8. Lindberg (1995: 65) follows the same trend of thought and he argues tliat "the need to expand our purview to include niarginalized subjects or disciplines requires emphasis. There is no justification for historians of scieiice excludiiig certain subjects simply because they Iiave been excluded froni the canon of nioderii scieiitific disciplines. We miss a critical opportunity if we do not explore the full range of niedieval approaches to the natural world".

9. Alonso-Almeida aiid Carroll (2004) Iiave receiitly described iiidexiiig procedurcs uscd for iiiedical manuscripts following Voigts's (1982) bipartite classificatioii ofiiiedical texts into leariied treatises and popular remedy books. as two poles of a continuum (regardingamanuscript origin and audicnce). Alonso-Almeida and Carroll (2004: 31) argue that "texts which are usually gathered in the group of popular [...] reiiiain inadcquately described under such a label. as this classification strongly suggests tliat such texts were tlie result of oral tradition rather tliaii a literary or classical one". For this reason, the following ncw tripartitc classificatioii is offered: (i) theory-only books, (ii) theory-practice books, and (iii) practice-only books.

10. For inore information on audieiice. see Carruthers (1990), Voigts (1989), and Glenn (1993)

11. Probably *magister*, or *maister* in Middle English

12. Abbreviations are silently expaiided in all tlie medieval examples. Spelling and punctuation are generally retained as in the original witli the exception of tlie letter thorn which is given as th. & is retained as in the manuscripts. Superscript *r* is used for folio recto and v for folio verso; as for columns, superscripts a and b apply. Occasionally a rendering in present day English is used, especially when the *incipits* quoted are contained in eVK. In any case, iio atteiiipt to iiiodemise spelling has been intended when the medieval text is offered as example.

13. Note that I do not toucli upon the concepts of *genre* and *fexf type* that are strongly connected to studies of historical discourse analysis (see Alonso-Almeida (2002), Carroll (1999), Görlach (1992), Jucker, Fritzand Lebsanft (eds. 1999), Taavitsainen (1997)). The following quote froin Taavitsainen (2001 : 89) will suffice toshow what I also understaiid by tliese two coiicepts: "genres are groupiiigs made on tlie basis of extcrnal features and functions of texts, wliereas text types are defined according to the intemal linguistic features of texts". For more on genre and text types, see Eggins and Martin (1997) and Bibcr (1988, 1995).

14. For tlie coiicept of *ordinatio*, see Parkes (1976)

15. This is iiot the place to list and describe all thc texts surveyed by Green (1992), and hence I advise the reader to refer to her study for information on this iiiaterial.

16. Rowlaiid (1981) erroiieously attributcs tlie text of S2463 to Trotula and not to Gilbertus Anglicus, as Green has pointed out in Iier essay "Gynaecological aiid Obstetrical Texts in Middle English" (1992). Her edition has been highly criticised for the large iiuniber ofreading niistakes and liistorical misconceptions, especially by Linda Voigts aiid Jerry Staiinard (1982). As for tlie cditioii of Y47 by Hallaert (1982), this is inarred witli reading errors on every otlier page. aiid slic also unjustifiably attributes thc text to Trotula in the following, unreliable and impressionistic. teniis: "It is beyoiid tlie scope of tlie prcseiit editioii to carry out aii iiiteiisive search for parallel versions orto traee a probable Latin or vernacular source [...] Fortunately, the most likely hypothetical source. the first tliat coines to my mind, proved to be tlie right one: the famous work of the niysterious Trotula". For another editioii of this text, sce Aloiiso-Aliiieida (1997) aiid the *corrigenda* in Alonso-Alineida & Rodríguez-Álvarez (1996).

KEFEHENCES

Aloiiso-Alineida, F. (1997). *Edition and Study of a Middle English Gynaecological Treatise. Yale Medical Library MS 47. ff. 60r-71v.* Uiipublislied Liceiiciate Dissertatioii, University of Las Palinas de Gran Canaria, Spaiii.

Aloiiso-Alineida, F. (2000). *Edition and Study of a Late Medieval* English *Medical* Receptariuin. *G.U.L. MS Hunter 185* (TcY.17). Uiipublislied Doctoral Dissertatioii, University of Las Palmas de Graii Caiiaria, Spaiii.

Aloiiso-Alineida, F. (2002). Puiictuatioii Practice iii a Late Medieval English Medical Reinedybook. *Folia Linguistica Historica*, 21.1-2, 207-232.

Aloiiso-Alineida, F. & M. Cabrera-Abreu (2002). The Forinulation of Proinise in Medieval English Medical Recipes: A Relevance-Theoretic Approach. *Neophilologus,*86, 137-154.

Alonso-Almeida, F. & R. Carroll (2004). A New Proposal for tlie Classification of Middle English Medical Texts. In A. Rodríguez-Álvarez & F. Aloiiso-Alineida (Eds.), *Voices on the Past. Studies in Old and Middle English Language and Literature* (pp. 21-33). Netbiblo: La Coruña.

Aloiiso-Alineida, F. & A. Rodríguez-Álvarez (1996). Tlie 'Sekeiiesse of Wymmen' Revised. *Manuscripta,* 49:3, 155-164.

Beiiiiett, H. S. (1944). Science and Inforinatioii iii English Writings of tlie Fifteenth Ceiitury. *Modern Language Review* 39, 1-8.

Biber, D. (1988). *Vuriution Across Speech and Writing.* Cainbridge: Cainbridge Uiiiversity Press.

Biber, D. (1995). *Dimensions of Register Vuriution: A Cross-cultural Comparison.* Cainbridge: Cainbridge Uiiiversity Press.

Bonilla, S. (1997). Estudio preliminar. In R. de Beaugrande & W. U. Dressler, *Introducción u la lingüistica del texto* (pp. 7-25). Barcelona: Ariel.

Carroll, R. (1999). Tlie Middle Eiiglisli Recipe as a text-type. *Neuphilologische Mitteilungen,* 100:1, 27-42.

Carroll, R. (2003). Recipes for Laces: An Example of a Middle Eiiglisli Discourse Coloiiy. In R. Hiltunen & J. Skaffari (Eds.), *Discourse Perspectives on English* (pp. 137-165). Amsterdam/Philadelphia: Joliii Benjamins.

Carroll, R. (2004). Middle Eiiglisli Recipes: Vernacularisatioii of a Text-type. In I. Taavitsainen & P. Palita (Eds.), *Medical and Scientific Writing in Late Medieval English* (pp. 174-191). Cainbridge: Cambridge Uiiiversity Press.

Carrutliers, M. J. (1990). *The Book of Memory. A Study of Memory in Medieval Culture.* Cainbridge: Cainbridge Uiiiversity Press.

Dijk, T. Vaii (Ed.) (1997). *Discourse as Structure and Process.* Loiidoii: Sage Publicatioiis.

Eggins, S. & J. R. Martiii (1997). Geiires and Registers of Discourse. In T. Van Dijk (Ed.), *Discourse as Structure and Process* (pp. 230-256). Loiidoii: Sage.

Faye, C. U. & W. H. Boiid (1962). *Supplement to the Census of Medieval and Renaissance Manuscripts in the United States and Canada.* New York: Bibliographical Society of America.

Geiiette, G. (1998). Structure and Functions of the Title iii Literature. *Critical Inquiry*, 14.4, 692-720.

Glenn, C. (1993). Medieval Literacy outside tlie Acadeiny: Popular Practice aiid Individual Technique. *College Composition und Communication* 44:4, 497-508.

Görlach, M. (1992). Text-types aiid Laiiguage History: The Cookery Recipe. In M. Rissanen, O. Ihalainen, T. Nevalaiiieii & I. Taavitsainen (Eds.) *History of Englishes: New Methods und Interpretations in Historical Linguistics* (pp. 736-76 l). Berlin and New York.

Green, M. (1989). Women's Medical Practiceaiid Health Care in Medieval Europe. *Signs*, 14:2, 434-473.

Green, M. (1992). Obstetrical and Gynaecological Texts in Middle Englisli. *Studies in the Age of Chaucer*, 14. 53-88.

Hallaert, M. R. (1982). The 'Sekenesse of wymmen'. A Middle English Treatises on Diseases in Wornen [Yale Medical Library, Ms. 47. fols. 60r-71v]. *Scripta*, 8.

Henslow, G. (Ed.) (1972). *Medical Works of the Fourteenth Century Together with u List of Plants Recorded in Contemporary Writings, with Their Identifications*. Repriiit of the 1899 edition. New York: Leiiox Hill.

Hoey. M. (1986). The Discourse Colony: A Preliminary Study of a Neglected Discourse Type. In M. Coulthard (Ed.). *Talking about Text: Studies Presented to David Brazil on his Retirement* (pp. 1-26). Birmingham: English Laiiguage Researcli, University of Birmingham.

Hoey, M. (2001). *Textual Interaction: An Introduction to Written Discourse Analysis*. Loiidon and New York: Routledge.

IMEP= Edwards, A. S. G. (Geii. Ed.) (1984-). *The Index of Middle English Prose*. Vols. 1-. Cainhridge: D. S. Brewer.

Jaines, M. R. (1899). *A Descriptive Catalogue of the Manuscripts in the Library of Peterhouse*. Cainbridge: Cainbridge Uiiiversity Press.

Jaines, M. R. (1900-1904). *The Western Manuscripts in the Library of Trinity College, Cambridge. A Descriptive Catalogue*. 4 vols. Cainbridge: Cainbridge University Press.

Jaines, M. R. (1907-1908). *A Descriptive Catalogue of the Manuscripts in the Library of Gonville und Caius College*. 2 vols. Cainbridge: Cainbridge University Press.

Jaines, M. R. (1914). *Supplement to the Catalogue of Manuscripts in rhe Library of Gonville and Caius College* Cainbridge: Cainbridge Uiiiversity Press.

Jucker, A. H., Fritz, G. and Lebsanft, F. (Eds.) (1999). *Historical Dialogue Analysis.* Amsterdam & Philadelphia: John Benjamins.

Keiser, G. R. (1998). *Works of Science and Information.* Volume 10 of A. E. Hartnung (Ed.). *A Manual of the Writings in Middle English. 1050-1500.* New Haveii, Coiiii.: Tlie Coiiiiecticut Acadeniy of Arts aiid Sciences.

Klebs, A. C. (1938). Incunabula scientifica et inedica. *Osiris*, 5, 1-359.

Liiidberg, D. C. (1995). Medieval Science and its Religious Coiitext. *Osiris 2nd series.* 10, 60-79

Ogdeii, M. S. (Ed.) (1969) [1938] *The 'Liber de diversis medicinis' in the Thornton Manuscript (MS. Lincoln Cathedral A.5.2)*, EETS, o.s. 207. Loiidoii: Oxford Uiiiversity Press.

Parkes, M. B. (1976). The Iiiflueiice of tlie Coiicepts of *Ordinatio* aiid *Compilatio* oii tlie Developineiit of the Book. In J. Alexander & M. Gibsoii (Eds.), *Medieval Learning and Literature: Essays Presented to Richard William Hunt* (pp. 115-141). Oxford: Clareiidoii Press.

Pollock, S. (1958). Wliat Makes a Subject Scieiitific? *The British Journal for the Philosophy of Science.* 9:34, 130-132.

Randt Scliinidt, K. A. (1994). The Index of Middle Eiiglisli Prose and Late Medieval English Recipes. *English Studies.* 75, 423-429.

Robbins, R. H. (1970). Medical inanuscripts in Middle Eiiglisli. *Speculum,* 45, 393-415

Rowlaiid, B. (1981). *Medieval Woman's Guide to Health: The First English Gynaecological Handbook.* Kent, Ohio: Keiit State Uiiiversity Press.

Sartoii, G. (1938). Tlie Scieiitific Literature Transinitted Through tlie Incunabula. *Osiris* 5, 41-123 & 125-245.

Stannard, J. (1982). Rezeptliteratur as Fachliteratur. *Scripta,* 6, 69-73

Taavitsaiiieii, I. (1997). Geiires aiid Text Types in Medieval aiid Reiiaissaiice English. *Poetica,* 47, 49-62.

Taavitsainen, I. (2001). Middle English Recipes: Geiire Characteristics, Text Type Features and Underlyiiig Traditioiis of Writing. *Journal of Historical Pragmatics.* 2:1, 85-113.

Vega Déniz, A. (2002). *A Middle English Translation of Gilbertus Anglicus's 'De morbis mulierum' G.U.L. MS Hunter 307 (ff. 149v-166v).* Unpublished Licenciate Dissertatioii, Uiiiversity of Las Palmas de Gran Canaria, Spaiii.

Voigts, L. E. (1982). Editiiig Middle English Medical Texts: Needs aiid Issues. In T. Levere (Ed.), *Editing Texts in the History of Science and Medicine* (pp. 39-68). New York: Garland.

Voigts, L. E. (1989). Scientific aiid Medical Books. In J. Griffiths & D. Pearsall (Eds.), *Book Production and Publishing in Britain*, 1375-1475 (pp. 345-402). Cainbridge: Cainbridge Uiiiversity Press.

Voigts, L. E. aiid Kurtz, P. D. (2000). *Scientific and Medical Writings in Old and Middle English: An Electronic Reference.* [CDROM] Ann Arbor: Michigan Uiiiversity Press.

Voigts. L. E. & Staiiiiard, J. (1982). Review of Beryl Rowland (1981). *Speculum,* 57, 813-826.

Young, J. & Aitkeii, P. H. (1908). *A Catalogue of the Manuscripts in rha Library of the Hunterian Museum in the University of Glasgow.* Glasgow: Jaines Macleliose.