

The Relationship of Brontology and the ‘Regimen of Health’ in the Later Middle Ages

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Introduction

The subject of this article is the contextual relationships of late-medieval brontologies (or thunder prognostics) to regimen of health texts, which is a notable occurrence in later manuscript examples. The brontology is a text of ancient origin which makes predictions from the timing of thunder events, surviving in several types of manuscript into the Late Middle Ages.¹ The ‘Regimen of health’ texts are treatises known by several names, including *Regimen Salernitatem*, *Conservanda sanitatis*, Governal of health and the Dietary, referred to hereafter as ‘the regimen’. The material is derived from Galenic teaching on the governing of health by the four elements from which the universe is made (earth, air, fire and water).² It advises for and against certain activities and practices of diet, exercise, even commerce and education according to the months of the year (on the supposition that they were differently affected by planetary influences). It was supplemented and developed through the Middle Ages, culminating in a large number of late-medieval English versions.³ Brontologies in English date from as early as the tenth century, but were little regarded until the late nineteenth century when they became subject to scrutiny by scholars of philology, Old English, and folklore, over a period of around fifty years.⁴ These writers approached the function of the brontology as naturally of interest to those involved in day-to-day responses to the weather, principally farmers or estate managers. Max Förster, writing on Middle English ‘thunder books’ in the early twentieth century, treated the brontology separately from the compilations of texts on broader

topics of astromedicine or practical science with which they are associated, terming them *kleinliteratur* (or ‘lesser writings’).⁵ However, with regard to the late-medieval manuscript contexts of brontologies and regimen in the same textual groupings, there is no association to agriculture.⁶ Latterly, Heinrich Henel, then Curt Bühler, realigned brontology to such groupings of astrological texts, particularly those in the field of medicine, and more recently, Roy Liuzza has written on the difficulty of categorising brontologies and identifying their sources.⁷ He suggests the great variety of the late-medieval brontology texts, and the manuscripts in which they are found, is evidence of individualised uses of the texts, rather than a large range of differently defined genres, in the same manner that Clare Lees defines homilies as unique speech events.⁸ It is in this textual environment that brontology was often grouped with regimen.⁹

The history of the regimen, prior to this point in time, also one of adaptation and revision, was investigated by Luis García-Ballester in the 1990s, in a study of the influences of Islamic physicians on the formation and interests of later-medieval regimen texts.¹⁰ Carole Rawcliffe has also written on the wide-ranging applications of the regimen texts, from the political sphere (in the context of wider works of governance), to the maintenance of the balance of mind and body and even public health, through advice on hygiene.¹¹ Marilyn Nicoud defines the thirteenth to fifteenth centuries as the apogee of the text’s popularity throughout mainland Europe, the different contexts there resulting in many attributions becoming attached to them. Christopher Bonfield’s PhD thesis deals with this phenomenon in England, in particular, its popularity at times of outbreaks of plague, or other dread diseases.¹²

In a definitive work on all types of Anglo-Saxon prognostic up to the twelfth century, Sándor Chardonnens shows that early brontologies and a single contemporary regimen text were grouped with other prognostics in manuscript compilations, but not with each other.¹³ He discusses the origins of these groupings in relation to Faith Wallis’ theory of ‘associative attraction’, in which the use of the lunar months as time markers for prognostication, or advice, explains the inclusion of the texts into groupings of *computus material*. This indicates that the appropriate rules and practices for the maintenance of one’s health

which the texts offer were to be applied on this monthly basis with the same expectations as a prognostic. Although they may have these origins in the regulation of time by computus, in the later-medieval texts the choice of months as time markers is more clearly integrated into astromedicine by skilfully delineating the fluctuating, physical influences of the moon upon health during its cycle. The 'Sphere of life and death' (also known as the 'Sphere of Apuleius') is another text closely associated with astromedical practice and the subject of Joanne Edge's doctoral thesis and recent article.¹⁴ The increasingly secular and applied, professional role of 'the sphere' which she discovered resonates with the manuscripts containing both brontology and regimen, and indeed, a number of manuscripts with 'sphere' texts also have both these texts within the same grouping (MSS A, B, E, H, I, K, L, P - see manuscript key at conclusion of this paper).¹⁵

Characteristics of the texts

Regimen texts prescribe seasonally appropriate food, drink, modes of living and medical treatment using a framework of monthly administration. This aimed to not only alleviate physical conditions, but actively improve the quality and length of an individual's life by preventing people from dying of something preventable, or strengthening their overall physical condition thereby improving their ability to fight disease or overcome injuries. The texts in question are now described in outline, firstly, with an examination of their dates and secondly, their use of language. The samples are difficult to date precisely, due to the composite nature of the manuscripts in which they are found, in some cases material spanning hundreds of years is contained within one volume.¹⁶ Where there is no firm dating evidence recorded by cataloguers over time, palaeography and references to the time of composition of associated calendar texts were referred to. The texts are all from the fourteenth and fifteenth centuries, a time of notable increase in the number of surviving brontology texts from England, from only handfuls previously. Before the end of the thirteenth century none of these texts were associated with regimen. The regimens survived in larger numbers, though there are still less than twenty dating from the thirteenth century; like the brontologies, there

was a steady increase in copying from the end of the fourteenth century. The dates are distributed as follows: of sixteen sample manuscripts, two have predominantly fourteenth-century brontology and regimen texts and one other has texts datable to the cusp of the fifteenth century. All of the remaining texts are fifteenth century, therefore the phenomenon of placing brontology and the regimen in the same textual groupings is very much of that century.

Middle English is by far the most common language for the texts, but Latin versions can be found in both the fourteenth and fifteenth centuries, as follows; fourteenth century brontology (2), regimen (1), all in the same manuscript; fifteenth century brontology (3), regimen (3), spread over four manuscripts. The fifteenth-century examples show that the Latinity of one of the texts does not mean the manuscript employs Latin universally, highlighting the probability of different sources within manuscripts, down to the level of individual texts in groupings. Overall, the selection of texts does not seem to rely on a preference for one language over another, but is most likely attributable to the availability of a chosen text in that form. For example, there are two regimens in a fourteenth-century manuscript (MS A), one is a form called the 'dietary', the other a 'governal of health', the first is in Latin, the other in English, but they are quite different – the English does not translate the Latin.¹⁷ Both MSS C and O have Latin brontologies, as does MS G, along with two English ones and each is different from the others.

This scope of readership in vernacular writing has been discussed by Päiva Pahta and Irma Taavitsainen, and Clare Jones, in relation to discourse communities.¹⁸ Pahta and Taavitsainen make the important point that, apart from the choice of language, the level of technical detail and didactic explanation are also significant in determining who was using texts and how and it is true that the sample textual groupings do display this sort of detail. Jones describes practices involving the collection of material (and ideas) by gift or exchange and a resultant interest in *experimenta*, in the sense of practical approaches to medicine, in response to epidemics, which fits very well with the use of regimen for prophylaxis. Similarly, Nancy Siraisi's assessment of the relative sophistication of English texts in medical books in the fifteenth century also aids understanding of this material, in diminishing the perception of vernacularisation as a simplification of learned material

for the less educated.¹⁹ We can see a glimpse of this sort of milieu in MS H, a sample providing rare evidence of the people involved in the book's production. It was written in a single hand, in Latin. The colophon identifies the scribe as Simon Wysbech, student of canon law at Cambridge, and states that he wrote the book for Robert Boxford, a local landowner.

To give an idea of the composition of a manuscript with brontology and regimen in their diverse textual contexts, vignettes of two of the samples follow: MSS C and G.

MS C is a good quality, composite volume from the late fourteenth century, too large to be easily portable (275 mm x 215 mm), with the appearance of a reference book. A semi-quadrata book hand is used and in the textual grouping of the brontology and regimen initials are embellished with red and blue ink and major initials burnished with gold. All the texts in MS C are in Latin - there are texts of university medical training, calendar and lunar and solar eclipse tables for the meridian of Oxford University with a date of 1380. The contents table groups the texts into two parts, firstly listing a medical treatise with attributions to the works of Islamicate scholars. The second part is on humoral theory, attributed to 'Johannes Mesue', with a focus on the effects of different climates on the body. The grouping of the brontology is part of this categorised under the heading '*signa astroligica*', it commences with a bloodletting text, based on astromedicine, i.e. the safety of the practice according to lunar activity, followed by the brontology. Two more major prognostics follow; the revelations of the prophet Ezra (predictions from Christmas) and Christmas Day prognostics per se, the latter concerned with predicting the weather for the year ahead from the day of the week on which Christmas Day falls. These prognostics are the precursor to a long regimen grouping dealing with the effects of diet and temperature on demeanour, interspersed with Petrus Hispanus' (who was to become Pope John XXI) *Thesaurus Pauperum*, ff. 87v-106r).²⁰

MS G is composed of two, long regimens. The book is very small (100 mm x 85 mm) and would have easily fitted into a pocket; it seems like a handy, personal manual. Its quality is good, it seems professionally produced, written in a very clear, semi-quadrata book hand. The large initials are missing (although the initial to be placed

there is marked in ink), which could be interpreted as an optional extra which the person who commissioned it decided against. Despite its appearance of a personal reference book and the fact that the majority of the texts are in English, a large amount of the regimen material is on astromedical skills. The extensive grouping of the brontologies includes an abbreviated regimen attributed to 'Johnne de Burdeue' (John of Burgundy). One of the brontologies is presented in Latin and it is assumed that the text was left so because it was the language of the original exemplar (e.g. a university textbook), but that this presented no obstacle to the owner or compiler of the book. The very dark and dirty end folios indicate that it had seen some use, also showing that it did not have a binding early in its life, rather was kept directly in a pocket or bag and frequently consulted.

Another important area of research is whether there is any evidence of intended, practical associations between the texts, or was their grouping together less deliberate than that? Further to this, a change or development had taken place in the use of the texts from ecclesiastical, calendrical contexts, to a more popular, yet professional, use. The actual term 'regimen of health' only occurs as a title in one of the manuscripts samples here (MS C), it is more common amongst the wider corpus of English regimen texts without brontologies. In most sample manuscripts the term comes from earlier manuscript cataloguers' alignment of the text to the structures and strictures of ecclesiastical (and later, university-based) medical training, in which a regimen is defined as a set of rules to be followed. The 'Governal of Health', an alternative and more common title in the sample, infers that good health is within the reach of the reader if precise governance of oneself is practised, resonating with popular, late-medieval guidance on wider governance in political or commercial spheres, it resembles works such as Thomas Hoccleve's *De regimine principium*, written in the 1410s and the later work of Niccolò Machiavelli, 'The Prince'.²¹ However, the regimen should not only be thought of as a self-help guide to better health, wealth and success for those without access to doctors or other advisers, but, equally, a part of the toolkit of medical practitioners, along with knowledge of astrology and humoral theory.²² A good example of this is MS J, consisting of two, long, technical regimens with brontology incorporated (ff. 1r-39r, 41r-56v).

The Sample Texts

The total of the surviving English regimen of health and brontology texts will now be assessed, along with the proportion of manuscripts with both brontology and regimen texts to understand the extent of the texts throughout the period in question. There are two hundred and twenty-three late-medieval regimen texts from England, considerably outnumbering the fifty-seven brontologies, a big increase from the early Middle Ages.²³ Brontologies existed in rather niche and specialised astromedical contexts compared with other kinds of prognostic texts which, by the late-medieval period, number in excess of one thousand.²⁴ The brontologies came into contact with regimen texts as a result of groupings of applied science texts in nineteen manuscripts, giving a total of twenty individual brontologies and twenty-five regimens.

The Brontologies

Are the brontology texts in these manuscripts similar to each other, or is a degree of individualisation evident? If so, to what extent? This query does not seek analogues or exemplars of the texts, but to identify areas of interest and practice to explain textual relationships to regimens. Bearing in mind that each brontology covers several matters of concern for the future, the texts can be categorised using the following broadly defined attributes;

- a) showing classical, or Mediterranean influences
- b) referring to medical or health matters
- c) having meteorological details
- d) referencing travel and merchant activities
- e) focused on agriculture

The sample manuscripts are listed below, according to these categories:

	showing classical or Mediterranean influences	referring to medical or health matters	having meteorological details	referencing travel and merchant activities	focused on agriculture
A	✓				
B		✓			
C			✓		
D					✓
E 1		✓			
E 2			✓		
F					✓
G					✓
H		✓			
I					✓
J				✓	
K					✓
L				✓	
M					✓
N	✓				
O					✓

Although medicine is not an overall preoccupation within these brontologies, they all incorporate some health issues (both mental and physical and especially in seasonal contexts), which makes them relevant to the concerns of the regimen. For example, the August entry in MS D (rendered in modern English); '(thunder in) August betokens great heart's envy and sickness and much pilgrimage' (f. 60r) and the September entry in MS E (2); 'Thunder in September signifies many men shall be sick, great winds, plenty of corn and much striving among the people and much envy' (f. 70r). The most individual of the brontology texts in the sample are found in MSS E and I, and

appositely, they are also regimen texts, the brontologies are incorporated into the regimen of health treatises themselves, thereby creating a multipurpose reference tool. This is demonstrated in the entries for January (Aquarius in the case of MS E) which consist of the following combinations of items:

MS E (1 of 2 brontologies)

- list of perilous days when the sun is in Aquarius (approximately, from the third week of January to the third week of February)
- brontology
- the humours of Aquarius
- the element of Aquarius (air)
- favourable activities for the period: build castles or houses, marry, let blood, begin long-term projects
- unfavourable activities: do not do medicine to the legs, from the knee to the ankle, do not go on a short journey or commence anything short-term, do not cut the thighs, or their sinews down to the last part of the ankle

MS I

- drink white wines
- forbear bloodletting
- list of perilous days in the month
- brontology
- mist prognostic (very rare)
- lunar, or moon prognostic

The respective scribes express quite different concerns, with few points of reference between the texts. Even the advice for bloodletting is contradictory, at least for some part of January (as they are not dealing with precisely the same month period). In MS E, bloodletting is advised throughout the zodiac period of dominance of Aquarius, but advised against throughout January in MS I. Other contrasting points are the very specific medical advice in MS E, explaining how to avoid unsafe cutting into the body, with the injunction to avoid bloodletting altogether in MS I and the lack of reference to dietary matters in MS E. Although

offering different approaches as regimens of health, the texts concur in the inclusion of brontology and its placement after the texts on perilous days. They speak of quite different practices, the second does not need to be applied by a medical professional, but the first certainly does, very probably a surgeon.

The other examples of brontologies in textual groupings with regimen share some basic prognostications with each other, forewarning of great winds, the state of the grain crop and the likelihood of battle if thunder is heard in the early part of the year. However, notably different elements arise in each grouping as the entries progress through the year, evincing the individual interests of their compilers. Starting with the two above manuscripts, MS E has a unique pilgrimage text and the mist prognostic in MS I is virtually unknown anywhere else.²⁵ MS A has an uncommon reference to large numbers of creeping creatures in Aries and given that the few current species of native British reptiles inhabit only the warmer parts of the country in small numbers, this prognostic speaks of the text's origins in the warmer, drier countries of the classical, or Mediterranean, world. The MS B entry for June contains the political hot potato of the likelihood of the equalisation of the balance of wealth between rich and poor. The MS J entry for August rather starkly evokes the realities of medical practice, 'sickness of many folk, there shall the common profit be done'. MS K is another brontology integrated with regimen, featuring, amongst other things, travel advice, for example, when the sun in Gemini, the traveller should undertake a journey as they will find a friend. In MS L, rhyming verse resonant of 'occupations of the months' texts (in which advice is given for seasonally appropriate activities) is incorporated, stating that if thunder is heard in February, the rich will lie low and (it will be) a good year to sow.

The Regimen

A high degree of individualisation is found in the brontologies grouped with regimen, including in the elements of combined brontology and regimen texts such as MSS E and I, above, so is it the case that the regimen texts are equally personalised? The first piece of evidence for this is in the naming of the texts. There is only one example originally called 'the regimen of health' and not so-termed by the cataloguers, in

the Latin version, '*De regimine sanitatis et de dieta*' in MS C (ff. 107r-123r). Three others are called 'governals', MSS A, G (1) and J, highlighting a concern with long-term care and maintenance of the body. The one example of a *conservanda sanitatis*, MS A (regimen 1) is similar in tone to this and there is one dietary, MS G (2), (which does not only refer to food and drink, but the regulation of health more generally). Otherwise, the scribe, or compiler of the work simply incorporated the text into longer health treatises of their own composition for their own use, as discussed above, without the need for a title. There is no set placement of the brontologies in regimen groupings, they appear both before and after the regimen texts. When this is the former, it could be argued that they were intended for reference before seeking advice in the regimen, if after, as a check and balance on the regimen and so reinforcing the favourability, or otherwise, of medical procedures such as bloodletting. In both cases, a dynamic interaction of the brontology with the regimen is indicated.

Regimen attributions provide further evidence of the individualisation of the texts. Thirteen of the twenty-five regimen texts have an attribution of some kind. Such attributions can be understood as devices to enhance the authority of the text and, at the same time, advertise the education and training of the scribe. The most frequently occurring are the three regimens attributed to Galen, a Greek physician active in the second and third centuries CE.²⁶ This attribution indicates a formal, medical training, as Galen's anatomical and medical works were part of the university medical curriculum.²⁷ The next most common attribution is to John Lydgate (mentioned twice). This is to be expected, as Lydgate, a prolific fifteenth-century writer, was the author of a popular Latin regimen of health (from which he made his own English translation), known in English as the 'Dietary'.²⁸ Lydgate's regimen concludes with a sceptical commentary about the commercialisation of medicine, at the expense of an apothecary and two medical masters.²⁹ One of the two regimens in MS H also has this title, without attributing it to Lydgate. A further attribution is to John of Burgundy, known by various Anglo-Norman sounding versions of his name, such as 'John de Bordeue'. He was another fourteenth-century writer on health matters, famous for a plague treatise and works on epidemiology.³⁰ Other attributions also refer to medical practice and

training, for example, MSS B and C are formed as a letter containing medical advice allegedly brought from Hippocrates' tomb by 'Caesar'.³¹ Like Galen's, the much earlier works of Hippocrates were a prominent feature of the medical curriculum. Similarly purporting to be a record of the medical advice of an ancient 'doctor' to a famous, historical figure, a letter is also attributed to Aristotle, writing to Alexander, on this occasion via the translation of 'John of Spain' which traces it back to Islamic Spain.³² An attribution to Arnaldus de Villa Nova in MS C also provides a putative connection to medical education as he taught for many years during the thirteenth and early fourteenth centuries at the University of Montpellier medical school, where he also translated medical works from Arabic. MS F has a much less common attribution to Thomas Forestier.³³ His fame came from his expertise with the sweating sickness, a disease first encountered in England as a virulent epidemic in the late fifteenth century. This piece of evidence, of course, places the composition of this regimen firmly at the end of the period. Fundamentally, then, these various attributions are advertising the medical credentials of the regimen and its compilers. Do the companion brontologies also display similar medical provenances?

Brontology attributions

Commencing with the title 'verse from Salerno' (the famous, medieval medical centre in Italy), the MS A brontology clearly belongs in a medical grouping, it has an identified patron (or renowned person) to endorse it, '*ad Countissam de Hermand*', with a further attribution to one 'Thomas'.³⁴ In addition to the attribution to John of Burgundy, as noted above, the MS G brontologies are part of a regimen grouping supplied with several attributions; 'after the description of many other diverse doctors, that is to say, Bernard, Austin, Plato, Ptolemy, Sydrac, Aristotle, Avicenna, Galen and Hippocrates'. MS I is also integrated into a regimen and has an explicit stating that the prognostics were found in 'books written and found by wise clerks to teach unlearned men and to make them wise'.³⁵ The explicit in MS J is very similar to MS G, in emphasising medical authorities, but without the reference to Hippocrates; 'following antique doctors. A worthy doctor made this little treatise after the description of diverse doctors, Saints Bernard,

Augustine, Plato and Ptolemy, Aristotle and Galen, Sydrac and Avicenna and many other doctors according with the same'.³⁶ The majority of the brontologies, however, are unattributed, which may, again, simply be because they were the personal compositions of various practitioners recording and expounding aspects of medical care and long-term wellbeing appropriate to their own practice or interests.

Since most brontologies do not have clear attributions to authoritative sources, should the reason for the text's inclusion in professionally focused regimen textual groupings be sought in its nature as a special, meteorological influence on the humours in their governing of health and wellbeing? If so, were other types of weather prognostic also referred to in this way? The balancing of the four humours was regarded as an important astromedical skill in the Late Middle Ages, essential for both long and short-term health. For some practitioners, an understanding of all aspects of weather influences (based on the four seasons, corresponding to the four humours) would have been an important part of this. In the sample manuscripts, this interest is demonstrated in MS K, which has a specialised text on dispositions and qualities of the weather within the regimen and brontology grouping and MSS B, C, F, G, O, which have further weather prognostics, with the brontology, based on either winds or sunshine.³⁷ What can be discerned about these groupings from the way the weather texts are used? Perhaps they represent a belt and braces approach, where multiple weather texts were available for comparison. As is usually the case in this sample of manuscripts, there is no set pattern to the weather texts' placement, although in each case the brontology takes precedence before other forms of weather. In MS B, the regimen is prior to the brontology and the brontology is followed by sunshine and wind. In MS C, the order is brontology, wind and sunshine, then regimen. In MS G brontology and a sunshine prognostic are part of a regimen grouping. A significant feature of this small subgroup with extra weather texts, however, is that they contain many apothecary and herbal texts, correlating the growth of plants, their resultant efficacy for medicinal purposes with knowledge of the weather. One reason for including a brontology in this is that the obvious ill-effects of plant damage from thunder storms would naturally have been of interest, but less well-known, is the fact that, although thunderstorms can be devastating, there

is also scientific evidence that the thunder event itself benefits plants, due to a large release of nitrogen compounds into the atmosphere afterwards.³⁸

Other texts

Finally, a brief survey of other material in the groupings. The most obvious texts to aid consultation of a regimen of health are other prognostics, forewarning of times of the year when health was endangered because of unfavourable planetary activity, for example. If this is the case in these groupings, which other texts were grouped together with brontology and regimen? The table, below, lists which diagnostic and prognostic texts are in the same groupings as regimen and brontology.

Manuscript	Texts grouped with, or part of, regimen, in addition to a brontology
MS A	zodiac prognostic, total of three different regimen texts (before and after brontology), 'Donet of Physic' (humoral theory for doctors), uroscopy, plague, several herbals, materia medica
MS B	zodiac prognostic, medical prognostic, Christmas prognostic, perilous days, charms
MS C	<i>Liber Almansoris</i> (medical textbook translated from Arabic by Gerard of Cremona) lunary, nativity prognostic, herbal, humoral theory, New Year prognostic, zodiac theory for medicine
MS D	herbals, Christmas prognostic, charms, uroscopy
MS E (1)	plague, zodiac theory, properties of planets, bloodletting
MS E (2)	perilous days, canicular days, onomancy, lunary, New Year prognostic, properties of planets, bloodletting
MS F	herbals, alchemy, humoral theory, practical case history guide, Christmas prognostic, solar prognostic, lunary

MS G	prognostic by dominical letter, Christmas prognostic, bloodletting
MS H	herbals, ophthalmology, New Year prognostic, perilous days, bloodletting
MS I	lunary, dominical letter, Yule, weather, perilous days, humoral theory, bloodletting, dentistry
MS J	the whole grouping is called the governal of health; Christmas prognostic, humoral theory
MS K	bloodletting, humoral theory, medical prognostic by the months, perilous days, computus, weather science
MS L	medical recipes, herbals, ophthalmology, dentistry, genital and urinary medicine, signs of life and death medical prognostic, onomancy
MS M	perilous days, bloodletting, physiognomy prognostic, onomancy, properties of planets, lunary
MS N	properties of planets, herbals, medical recipes, humoral theory, Esdras (prophet Ezra) prognostic, New Year's Day prognostic, physiognomy prognostic, perilous days, zodiac theory (how it affects the humours of the body), bloodletting
MS O	herbals, dental, genital and urinary, fevers, poisons, gynaecology and obstetrics

As expected, there are numerous prognostics and the Christmas Day and New Year's Day ones which determine the favourability for health and other matters for the year ahead are present, although their use is less frequent in astromedicine generally. The brontologies among them are usually the closest prognostics to the regimen itself, then to any herbals, perilous days and bloodletting texts. Only one manuscript context (MS O) does not display overt knowledge of the precepts of late-medieval astromedicine. The plurality of herbals is of interest in itself, displaying an academic approach in the presentation of several sources on aspects of herbs; their growth, treatment as medicines and even the best times to trade for them. Plague texts are also a feature of these groupings, bad weather was thought to have the potential to develop into bad humours in the air (known as 'miasma') which it was firmly believed caused infections. The wider groupings, therefore, are

applied prognostic sections in the sense of the early groupings of prognostics identified by Chardonnens, but now interlaced with much practical, medical theory and frequent references to apothecary practice. This also includes specialist knowledge of ophthalmology, dentistry, gynaecology and obstetrics, and medicine of the genital and urinary system. It is also notable that bloodletting texts are often the last items in the groupings, so it seems in these cases that the procedure was to be carried out after all the other texts in the grouping had been consulted.

In conclusion, whether brontology and regimen had continued their journey together in English contexts from the early Middle Ages, or the association came about as a result of a continuing interest in humoral theory, in particular the balancing of the humours to maintain health, stimulated by contemporary epidemics, the grouping of months brontology with regimen, in particular, is key to its wider development from the earlier Middle Ages to a companion text for practical medicine. Another important finding is that, in these groupings, where there is one regimen, often at least one other is found and packaged with them, more than one version of relevant, useful prognostic texts, like the brontology, and in some cases, further weather texts. This multiplicity of brontology texts and other prognostics exists to a greater extent than in manuscripts without regimen and only brontology. Practitioners were giving a range of information from which to make choices about diagnosis and prognosis for individual patients, in their particular circumstances. The foundations of these groupings lie in medical education, with a historic linking of regimen and prognostics for medical purposes first found in the works of Hippocrates. So, this, along with attributions for regimen, points to late-medieval, medical practitioners as the main driving force behind such composite manuscripts and compilations; in particular, when the groupings of astromedical texts incorporate brontology. Where there are attributions in the regimen, they display the sort of knowledge seemingly designed to impress patients, or for wider public transmission. The many regimen texts in groupings with brontology without attribution also show the compilers not simply copying standard medical texts, but creating their own works. Likewise, the lack of use of the term 'regimen' in these contexts indicates incorporation into the work of those who already

knew what the text was. This grouping practice culminated in the late medieval period with Swiss Army knife-style, intercalated texts, where mental boxes could be ticked during a consultation, secure in the knowledge that all areas had been covered in order to achieve the most thorough diagnosis and prognosis. The two new findings from this sample are firstly, that this type of textual grouping relates to the intricate humoral balancing required for medical specialisms and that brontology was regarded as significant in this.³⁹ Secondly, bloodletting texts are often closely associated, so, in terms of use, brontology is frequently positioned between the theoretical care and long-term approach of the regimen and the everyday practice of letting blood as the quickest, most practical way of balancing the humours.

MS short Reference	Manuscript
MS A	Oxford, Bodleian Library MS Digby 95
MS B	London, British Library, Sloane MS 2584
MS C	London, British Library Sloane MS 282
MS D	Cambridge, St. John's College MS K.49
MS E	London, Wellcome Library MS 8004
MS F	London, British Library, Additional MS 27582
MS G	London, British Library, Sloane MS 989
MS H	San Marino, Huntington Library MS HM 1336
MS I	San Marino, Huntington Library MS HM 64
MS J	Oxford, Bodleian Library MS Radcliffe Trust e30
MS K	Oxford, Bodleian Library MS Bodley 591
MS L	New Haven, Yale University, Beinecke Rare Book and Manuscript Library, Takamiya MS 61
MS M	London, British Library, Sloane MS 213
MS N	London, British Library, Sloane MS 1609
MS O	London, British Library, Egerton MS 2852
MS P	Cambridge, Gonville and Caius College MS 457/395

Notes

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- 1 *Vade mecum* (or physicians' portable reference books), university textbooks, household books, folded almanacs.

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- 2 'the regimen from Salerno', 'the conservation of health'. Medieval doctors were concerned with the four elements' control of the four bodily humours: black bile, yellow bile, blood and water.
 - 3 Additional Moses Maimonides etc., English - for example, that of John of Burgundy, a fourteenth-century physician from Liège, author of *De epidemia*.
 - 4 Commencing with B. Assman, 'Eine Regel Über den Donner', *Anglia* 10 (1888), 185.
 - 5 Max Förster, 'Die Kleinliteratur des Aberglaubens im Altenenglischen', *Archiv für das Studium der Neueren Sprachen und Literaturen* 110 (1903), 346-58 (p. 350), see also 'Beiträge zur Mittelenglischen Volkskunde', 120 (1908), 45, 128.
 - 6 Apart from a few instances of classical or mediterranean world-sounding reference to viticulture in brontologies.
 - 7 Roy Liuzza, 'What the Thunder Said: Anglo-Saxon Brontologies and the Problem of Sources', *The Review of English Studies* 55 (2004), 1-23 (pp. 22-23).
 - 8 Heinrich Henel, 'Altenglischer Mönchsaberglaube', *Englische Studien* 69 (1934-35), pp. 329-349.
 - 9 See C.F. Bühler 'Astrological Prognostication in MS. 775 of the Pierpont Morgan Library', *Modern Language Notes* 56 (1941), 351-355. Bühler notes the brontology's astrological focus, it is part of a booklet dedicated to applied astrology, with two full-page diagrams, a zodiac man and planetary alignment chart.
 - 10 Luis García-Ballester in Sheila Cambell, Bert Hall and David Klausner (eds.) *Health, Disease and Healing in Medieval Culture* (Centre for Medieval Studies, 1992), pp. 119-131.
 - 11 See Carole Rawcliffe, 'The Concept of Health in Late Medieval Society' in *Le interazioni fra economia e ambiente biologico nell'Europa preindustriale secc. XIII-XVIII* ed. by Simonetta Cavaciocchi (Florence, 2010), pp. 317-334, (pp. 317, 319, 320, 325).
 - 12 See Marilyn Nicoud, *Les régimes de santé au moyen âge: naissance et diffusion d'une écriture médicale en Italie*, I-II, *Ecole Française de Rome*, (Rome, 2007); Christopher A. Bonfield, *The Regimen Sanitatis and its Dissemination in England, c. 1348-1550*, University of East Anglia, Unpublished PhD, 2006, pp. 36-44. There were three major outbreaks in England from 1360 to 1479 (also other epidemic diseases, such as sweating sickness, or *sudor anglicus*, arriving in 1485), *Maria A. Spyrou et al*, 'Phylogeography of the second plague pandemic revealed through analysis of historical *Yersinia pestis* genomes', *Nature Communications* 10 (2019-

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- 10-02), p. 4470. Also, note the sweating sickness (or *sudor anglicus*) of 1485 as a major contender for the later texts.
- 13 László Sandor Chardonnens, *Anglo-Saxon Prognostics, 900-1100: Study and Texts*, (Leiden, 2007), p. 30.
 - 14 Joanne Edge, *Nomen Omen: the 'Sphere of Life and Death in England, c. 1200c. 1500*, Royal Holloway, University of London.
 - 15 In sample MSS A, B, E, H, I, K, L, P – see, p. 17, for manuscript key.
 - 16 Sloane 282, for example, material from the thirteenth to the seventeenth centuries.
 - 17 The first commonly attributed to John Lydgate, the second to John of Burgundy.
 - 18 Päiva Pahta and Irma Taavitsainen, 'Vernacularisation of scientific and medical writing in its sociohistorical context' in Irma Taavitsainen and Päiva Pahta (eds.) *Medical and Scientific Writing in Late Medieval English* (Cambridge, 2004), pp. 15-17; Clare Jones, 'Discourse communities and medical texts', *ibid.*, *passim*.
 - 19 Nancy Siraisi, *Medieval and Renaissance Medicine: An Introduction to Knowledge and Practice* (Chicago, 1990), pp. 52-53.
 - 20 Arnaldus de Villa Nova, *De regimine sanitatis et de dieta*, ff. 107r-123r; Aristotle's letter to Alexander the Great, *Epistola de sanitate tuenda ad Alexandrum*, translated by John of Spain, f. 123r.
 - 21 Morgan 775 does contain a regimen of health text, but not in association with its brontology.
 - 22 The range of people engaged in this is quite wide and the terminology for, and definition of, medical and paramedical practitioners at this time is varied and obscure, fully university-trained doctors were physicians, surgeons received their education from a craft guild, some were interested in both aspects (see the renowned, late-fourteenth-century surgeon John of Arderne, see Oxford Dictionary of National Biography entry <https://www.oxforddnb.com/view/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-636?rskey=N4ja2n&result=2>) and there were others who practised a combination of these skills (along with astrology) and who may have received some university tuition, but not a full degree, simply calling themselves 'doctor', or 'leech'. Also, some apothecaries did not limit themselves to the preparation of medicines, but took a more hands-on approach.
 - 23 From the eTKeVK2 database of medical and scientific works.
 - 24 This is the count of those listed in the eTKeVK2 database for the period, in English and Latin.
 - 25 An early, twentieth-century reference gives a provenance for this text in Islamic learning, but it was clearly not well-known or used in England;

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- Edward Robertson, 'Arab Weather Prognostics', *The Journal of the Royal Asiatic Society of Great Britain and Ireland*, 2 (1930), 377-389 (p. 384).
- 26 MSS I, K, L
- 27 Michael McVaugh, 'Galen in the Medieval Universities, 1200-1400' in Petros Bouras-Vallianatos and Barbara Zipser (eds.), *Brill's Companion to the Reception of Galen* (Leiden, 2019), 381-392 (pp. 382-383).
- 28 See Jake Walsh Morrissey, 'To Al Indifferent': The Virtues of Lydgate's 'Dietary', *Medium Ævum*, 84 (2015), 258-278 (p. 258).
- 29 Ibid.
- 30 Lister M. Matheson, 'Médecin sans Frontières? The European Dissemination of John of Burgundy's Plague Treatise', *ANQ*, 18 (2005), 19-30 (p. 19). Another instance of concern for public hygiene.
- 31 See Pearl Kibre, 'Hippocratic Writings in the Middle Ages' *Bulletin of the History of Medicine*, 18 (1945), 371-412 (p. 392).
- 32 This is probably John of Seville (*Joannes Hispalensis*) sometimes mistranslated as 'John of Spain' (from a reading as '*Johannes Hispanus*', or '*Hispaniensis*'), a twelfth century scholar who translated works from arabic into Latin and produced a version of the *secreta scretorum*, which deals with regimen matters, see Lynn Thorndike, 'John of Seville', *Speculum*, 34 (1959), 20-38.
- 33 See Christie's auction catalogue for the first edition of his work in French, this has details of regimen recommendations in the book: <https://www.christies.com/lot/lot-le-forestier-thomas-d-before-1513-contre-5573361/>
- 34 'From the Countess of Hermand', possibly a reference to the popular work of Thomas le Forestier on epidemic illness, see above.
- 35 Here in modernised English.
- 36 f. 39v
- 37 Twenty-four manuscripts.
- 38 D.G. DeCoursey et al, 'Thunderstorm in Agriculture and in Forest Management' in *Thunderstorms: The Thunderstorm in Human Affairs*, ed. by Edwin Kessler (Norman OK, 1981), pp. 85-112.
- 39 See MSS A, H, I, L, O.