Incense in medicine: an early medieval perspective
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The production, use, and meaning of incense represent relatively untapped areas of study within early medieval history. In this article, I present evidence for the medical use of incense in the Carolingian world. Using a sample of eighth- and ninth-century manuscripts, I analyse incense recipes, investigating their contexts and ingredients, as well as the use of incense itself as an ingredient in medical remedies. This evidence not only suggests that incense was understood as a multipurpose substance, but also offers a new window into exploring early medieval medical knowledge and practice and relates to the sacralization of medicine in this period.

An unexpected find: an incense recipe among medical remedies

Written in an insular script in c.800, Codex Sangallensis (csg.) 761 contains a variety of medical texts, including a collection of nearly fifty recipes and remedies covering pages 51–66 unattributed to a specific classical or late antique author.1 The final entry of this recipe collection

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1 Stiftsbibliothek St Gallen, csg. 761; A. Beccaria, I Codici di medicina del periodo presalernitano (Rome, 1956), pp. 386–7; B. Bischoff, Katalog der festländischen Handschriften des neunten Jahrhunderts (mit Ausnahme der wisigothen), 3 vols (Wiesbaden, 2014), III, p. 333. See Appendix 1 for more information on the manuscript. For an entry point into early medieval medicine, see, for example, L.C. MacKinney, Early Medieval Medicine: With Special reference to France and Chartres (Baltimore, 1937); J.J. Contreni, ‘The Study and Practice of Medicine in Northern France during the Reign of Charles the Bald’, Studies in Medieval Culture 6–7 (Kalamazoo, 1976), pp. 43–54; F.É. Glaze, ‘The Perforated Wall: The Ownership and Circulation of Medical Books in Medieval Europe, ca. 800–1200’, Ph.D. thesis, Duke University (1999); P. Horden, ‘What’s Wrong with Early Medieval Medicine?', Social History Early Medieval Europe 2020 28 (2) 219–255

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is entitled *Thimiama* (see Fig. 1). The recipe lists a handful of ingredients and quantities, but provides neither further instructions for its preparation nor information on its use:

*Thimiama*: cozumber – 3, aloeswood, ambergris – 3 denarii, *confita*, camphor – 1 denarius, musk – 1 denarius.²

The word *thymiama* is defined by Isidore of Seville as ‘incense’, a Greek-derived synonym for *incensum*, thereby suggesting that this entry is a recipe for incense.³ Since incense is intended to release fragrant smoke when burned, the recipe’s aromatic ingredients fit with this identification. As incense played an important role in early medieval Christian rituals, it might be expected that this recipe would be found among liturgical texts describing the proper application of the substance in religious contexts, or near writings explicating the meaning and significance attached to its use. Instead, the textual environment in which this recipe is found is entirely medical: the manuscript does not contain material relating to the use and significance of incense in the church. As noted above, the

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² My transcription of the *Thimiama* recipe (csg. 761, p. 66) is as follows: ‘cozzunbar ~ iii aloa arbor denarii iii confitum cafora denarius i musico denarius i’. I suggest that *arbor* should be interpreted as ambergris, paralleling other remedies’ use of *ambar*, as will be analysed below. Alternatively, this could be emphasizing the arboreal nature of aloeswood.

³ When discussing incense generally I use the standardized terms *thymiama* and *incensum*, but when addressing specific recipes I use the spelling that appears in the manuscript, including *thimiama*, *timiame*, *tymiama*, and so on.
Incense recipe forms the end of the recipe collection and is then followed by an excerpt of Oribasius’ *Synopsis*; the manuscript also contains extensive selections of Oribasius’ *Euporista* as well as excerpts from the Hippocratic and Galenic corpora. Is this a unique instance of an incense recipe located within a Carolingian medical manuscript? Was the recipe simply added to the end of a recipe collection, bearing no relation to the medical information contained within the codex?

**Incense and medicine – incense as medicine?**

The possibility that incense was a multipurpose substance has received relatively little attention with regard to a Christianized, medieval setting, though many of the individual ingredients involved in incense have been noted for their potential uses in other types of preparations, ranging from paints to medicines.\(^4\) Writing on early medieval pharmacy, Nicholas Everett has highlighted that the ingredients involved in remedies represent multipurpose substances and could also have had cosmetic, industrial, or artisanal applications.\(^5\) Although Everett did not comment on incense, Mary Thurlkill has noted that incense recipes ‘include the same basic components as those found in most medicines’.\(^6\) Furthermore, focusing specifically on camphor, Robert Donkin has highlighted the ingredient’s role in both medical and incense preparations.\(^7\)

Looking to earlier sources, a number of classical and late antique authors indicate that incense was considered a multipurpose substance with both religious and medical functions. In Dioscorides’ (*c.*40–90) *De materia medica*, a pharmacopoeia that describes the medical applications of hundreds of vegetable, animal, and mineral substances, Chapter 25 addresses *cyphi*, a type of incense. Dioscorides writes: ‘*cyphi* is an incense preparation that pleases the gods; the priests in Egypt use it lavishly. It is

\(^4\) Béatrice Caseau’s work on medical applications of incense, perfumes, and oils is an exception, but has tended to focus on late antique and Byzantine contexts. See, for example, B. Caseau, ‘Les usages médicaux de l’encens et des parfums. Un aspect de la médecine populaire antique et de la christianisation’, in S. Bazin-Tachella, D. Quéréuel and E. Samama (eds), *Air, miasmes et contagion: Les épidémies dans l’Antiquité et au Moyen Age* (Langres, 2001), pp. 75–85, and B. Caseau, ‘L’encens au 7e et 8e siècle: un marqueur du commerce en Méditerranée?’, in A. Kralides and A. Gkoutzioukostas (eds), *Proceedings of the International Symposium Byzantium and the Arab World: Encounter of Civilizations* (Thessaloniki, 16–18 December 2011) (Thessaloniki, 2013), pp. 105–16.

\(^5\) N. Everett, ‘The Manuscript Evidence for Pharmacy in the Early Middle Ages’, in E. Screen and C. West (eds), *Writing the History of the Early Medieval West* (Cambridge, 2018), pp. 115–30, at p. 122.

\(^6\) M. Thurlkill, *Sacred Scents in Early Christianity and Islam* (Lanham, 2016), p. 101.

\(^7\) R.A. Donkin, *Dragon’s Brain Perfume: An Historical Geography of Camphor* (Leiden, 1999).
also mixed with antidotes and it is given to asthmatics in drinks. While he presents these religious and medical uses of incense as distinct, there is no sense that their multiple functions are mutually exclusive or incompatible. The Alphabet of Galen, an anonymous, late antique Latin text that stems from the herbal tradition of Dioscorides, likewise connects cyphi to both medicine and religion, explaining that ‘the ancients used to burn [cyphi] for their gods. Doctors place it in other compound medicines.’ This comment suggests that the ancient Egyptian religious uses of this type of incense had not continued and that contemporary applications of cyphi were entirely medical. The recipes for cyphi presented by both Dioscorides and The Alphabet of Galen, though also based on aromatic substances, do not share specific ingredients with the recipe from csg. 761. Dioscorides’ recipe for cyphi contains galingale, juniper berries, raisins, pine resin, sweet flag, camelthorn, camel hay, myrrh, wine, and honey, while The Alphabet of Galen offers a slightly simpler recipe with galingale, juniper berries, grapes, sweet flag, camelthorn, myrrh, wine, and honey.

As noted above, the seventh-century Etymologies of Isidore of Seville, one of the most influential texts circulating in the medieval west, mentions both incensum and thymiama, and Isidore continues the connection between incense and medicine: the topic is discussed in Book IV, De medicina. Incense does not occur in Books VI to VIII, which concern various aspects of the Christian religion, or Book XVII, De agricultura, which includes a sub-chapter on aromatic plants (and even describes some of the ingredients listed above). Isidore’s categorization of incense as a medical topic simply a vestigial holdover from his classical and late antique sources? While the influence of his classical sources should not be discounted, I suggest that the linking of incense and medicine was not an anachronistic holdover. On the contrary, Isidore’s discussion of incense within De medicina fits with the medical context of the incense recipe in csg. 761 and

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8 Dioscorides, De materia medica, ed. and trans. L.Y. Beck (Hildesheim, 2005), pp. 22–3.
9 N. Everett, The Alphabet of Galen: Pharmacy from Antiquity to the Middle Ages (Toronto, 2012), pp. 204–5: ‘Hoc antiqui ad deos utebantur. Medici quoque illud in aliquas compositiones mittunt.’
10 Dioscorides, De materia medica, pp. 22–3 and Everett, The Alphabet of Galen, pp. 204–5.
11 Isidore of Seville, Etymologies IV.xii.2–3: ‘Thymiama lingua Graeca vocatur, quod sit odorabile . . . Incensum dictum quia igne consumitur, dum offertur.’ From Isidore of Seville, Isidori hispalensis episcopi: Etymologicarum sive originum, libri XX, ed. W.M. Lindsay, 2 vols (Oxford, 1911). See, too, J. Wood (ed.), Isidore of Seville and His Reception in the Early Middle Ages: Transmitting and Transforming Knowledge (Amsterdam, 2016); Isidore of Seville, The Etymologies of Isidore of Seville, trans. S.A. Barney, W.J. Lewis, J.A. Beach and O. Berghof (Cambridge, 2006).
Simultaneously adds greater significance to the comments made by Everett, Thurlkill, and Donkin. These connections suggest that the relationship between incense and medicine deserves further investigation.

The following article aims to be an entry point into this topic. Based on a sample of eighteen eighth- and ninth-century manuscripts containing medical recipes (see Appendix 1 for more information on the individual manuscripts), I have identified over a dozen instances of incense, including incense recipes, references to incense recipes in indices of recipe collections (though some of the recipes have not survived), and the appearance of incense as an ingredient within medical recipes. In this article, I shall concentrate on three aspects of incense’s medical connections: the contexts in which incense recipes occur, the medical uses of the ingredients listed in these recipes, and the inclusion of incense itself as an ingredient. This body of evidence has major implications for our understanding of incense, its use(s), and its meaning(s). The final sections of the article will build on this topic, exploring how the medical use of incense fits into a wider framework of healing and may serve as a new avenue for studying the relationship between religion and medicine in the Carolingian world. Before exploring the three aspects of medical incense use (incense recipes, their ingredients, and incense as an ingredient), I shall briefly review the current work on incense in the early medieval period to situate the present study.

Incense and the early Middle Ages

Scholarship on incense, in relation to the development of sensory studies, and specifically the increasing interest in the sense of smell, has expanded in recent decades.12 Much of this work has concentrated on the use of incense in religious contexts, exploring the adoption of incense in world religions, the evolution of practices and rituals involving incense, and the meanings associated with its use. This is particularly true of research that touches on early medieval incense. Two relatively recent, significant works on this topic are Susan Ashbrook Harvey’s 2006 Scenting Salvation: Ancient Christianity and the Olfactory Imagination and Thurlkill’s Sacred Scents in Early Christianity and Islam (2016), both of which focus on the sense of smell in a religious context. While

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12 See, for example, M. Bradley, Smell and the Ancient Senses (New York, 2015); C. Classen, D. Howes and A. Synnott (eds), Aroma: The Cultural History of Smell (New York, 1994); T. Engen, Odor Sensation and Memory (New York, 1991); S.A. Harvey, Scenting Salvation: Ancient Christianity and the Olfactory Imagination (Berkeley, 2006); A. LeGuérer, Scent: The Mysterious and Essential Powers of Smell, trans. R. Miller (New York, 1993); and Thurlkill, Sacred Scents in Early Christianity and Islam.
medicine does feature in these books, especially regarding the meanings attached to good and bad smells (health and purity versus death, decay, and disease), the potential application of incense in early medieval medical treatments receives less attention. Harvey does, however, mention classical and late antique medical uses of incense, and Thurlkill, as noted above, comments on the parallels between the ingredients used in the production of incense and medicines.

Given the religious framework around which research on smell, and by extension incense, has clustered, scholars have tended to overlook potential connections to medicine; sacred, liturgical, and hagiographical texts have instead been studied as sources on the topic. Exodus XXX.34, for example, gives a simple recipe for incense: ‘And the Lord said to Moses: Take unto thee spices, stacte, and onycha, galbanum of sweet savour, and the clearest frankincense, all shall be of equal weight.’

Eighth- and ninth-century theologians describe the use of incense in early medieval Christian ritual. Incense was essential to the proper performance of the liturgy, and liturgical correctness was a fundamental element of Carolingian efforts to reform and standardize religious practice. Amalarius of Metz, a somewhat controversial Frankish bishop and courtier active in the first half of the ninth century, comments on incense in his work on the liturgy, the _Liber officialis_. When detailing the entrance of the bishop at Mass, he writes, ‘the incense in its censer leads the way; this signifies Christ’s body suffused with a pleasing odour.’ On the _Teigitur_, Amalarius explains that ‘just as there were two altars in the tabernacle of Moses and in the temple of Solomon – one of incense, the other of the burned offering – so there are two sacrifices of the holy church’. He thus connects incense use to Old Testament precedent as well as to the performance of sacrifices, relating contemporary church practices to earlier traditions.

While evidence from liturgical sources may shed light on the role of incense in the Carolingian church, many questions remain unanswered. The production and preparation of incense is rarely noted in religious writings, though there are exceptions, such as the example from Exodus. Other types of textual evidence, including letters, wills, and charters, can offer insights into the purchase, donation, or import of

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13 Exodus XXX.34: ‘dixitque Dominus ad Mosen sume tibi aromata stacten et onycha galbanen boni odoris et tus lucidissimum aequalis ponderis erunt omnia’.
14 Amalarius, _Liber officialis_ III.5.11: ‘Praevenit in turibuli thymiama, quod significat corpus Christi plenum odore bono.’ From Amalar of Metz, _On the Liturgy_, ed. and trans. E. Knibbs, 2 vols (Cambridge, MA, 2014), II, pp. 36–7.
15 Amalarius, _Liber officialis_ III.23.7: ‘Sicut enim duo altaria erant in tabernaculo Moysi sive in templo Salomonis – unum thymiamatis, alterum holocausti – ita sunt duo sacrificia sanctae ecclesiae.’ From Amalar of Metz, _On the Liturgy_, pp. 150–1.
16 See also Amalarius III.21.6, III.44.2 and IV.7.19.
exotic spices and aromatics, the types of substances used to make incense (as seen in the varied examples above). Yet texts of this nature tend to provide only indirect evidence for potential incense production: the substances these sources document could have been used to produce incense, but also paint, ink, medicine, and perfume, and an explicit link to incense is not generally made. The will of Ursus, a bishop of Benevento in the first half of the ninth century, for example, lists sacks of various exotic products, such as pepper and a certain alivano.\textsuperscript{17} Alivano is probably an alternative spelling of olibanum, meaning frankincense.\textsuperscript{18} Records of the Abbey of Fontenelle document the annual purchase of pigmenta: the abbot allocated a pound of silver per year for this purpose.\textsuperscript{19} The term pigmenta can refer to a range of products including paints, pigments, and their composite parts as well as spices and medicaments.\textsuperscript{20} In contrast to the will of Ursus, the abbey records state the intended use of these ingredients, noting that the pigmenta were to be employed in medical remedies for the treatment of sick monks.

With this background in mind, it is possible to turn to the manuscript evidence: in what contexts are incense recipes found?

**Incense recipes in Carolingian manuscripts: the medical contexts reviewed**

While a single instance of an incense recipe located within a medical text could be an anomaly, the placement of this incense recipe appears to be part of a wider pattern: I have so far identified a further six incense recipes within medical contexts. According to Augusto Beccaria’s catalogue of pre-Salernitan medical manuscripts, roughly eighty codices containing medical texts have survived from the eighth and ninth centuries.\textsuperscript{21} There is a large variety in the types of medical writings preserved

\textsuperscript{17} San Lorenzo, ed. F. Gaeta, Fonti per la storia di Venezia 2, Archivi ecclesiastici, Diocesi Castellana (Venice, 1959), no. 1.

\textsuperscript{18} Michael McCormick discusses the term alivano in more detail in M. McCormick, Origins of the European Economy: Communications and Commerce AD 300–900 (Cambridge, 2002), pp. 708–9, n. 53.

\textsuperscript{19} Gesta sanctorum patrum Fontanellensis coenobii XIII.8, ed. F. Lohier and J. Laporte (Rouen, 1936), p. 122: ‘Ad infirmorum curam mel et pigmenta libram I’. See also McCormick, Origins of the European Economy, p. 709.

\textsuperscript{20} J.F. Niermeyer, Mediae Latinitatis Lexicon Minus, 2nd edn (Leiden, 1984), p. 796. For more on ink and paint production, see D. Cardon, Natural Dyes: Sources, Tradition, Technology and Science (London, 2007) and, for the early medieval context, R. McKitterick, The Carolingians and the Written Word (Cambridge, 1989), pp. 241–6.

\textsuperscript{21} Beccaria, I Codici di medicina del periodo presalernitano. While Beccaria’s catalogue is in need of updating, it provides a very useful starting point.
within these manuscripts, including works on pharmacy, diagnosis, dietetics and preventative medicine, surgery, and gynaecology.\textsuperscript{22} From a sample of eighteen manuscripts, representing a diverse collection of eighth- and ninth-century codices today found in the Stiftsbibliothek St Gallen, Bibliothèque nationale de France, and Biblioteca Apostolica Vaticana, references to incense appear in seven different manuscripts at least once. (In future work I hope to expand the number of the manuscripts under consideration, but a larger sample is beyond the scope of this article.) Given my initial results as well as personal communications with other researchers, I fully expect that a comprehensive review of early medieval medical manuscripts would reveal more incense recipes. Cologny, Cod. Bodmer 84, an early ninth-century manuscript composed in Fulda, for example, contains a preparation entitled \textit{Timiama apamei}.\textsuperscript{23} Non-medical contexts may also reveal additional incense recipes but this, too, must be addressed in future work.

Within the manuscript sample, I have identified seven incense recipes; all are located within manuscripts today held in the Stiftsbibliothek St Gallen (csg. 44, 752, 759, 761, and 878). Unfortunately, two further recipes are noted in an index in a manuscript in the Bibliothèque nationale de France, Paris BnF lat. 6882A, but the recipes themselves have not survived. While more information on the manuscripts can be found in Appendix 1, I shall briefly review the contexts in which the recipes are found before considering their composition. I have grouped them under two categories according to the textual environments in which they are located: a) incense recipes within collections of medical recipes, and b) incense recipes in other medical contexts.

\textbf{Incense recipes within collections of medical recipes}

Three of the seven incense recipes fall within the middle of recipe collections (with one recipe in csg. 44 and two in csg. 759), while one recipe comes at the end of a recipe collection (the opening example from csg. 761). Csg. 44 is a composite manuscript made up of two distinct halves: a Bible given to St Gall in \textit{c.780} covers pages 1–184 while a compilation of over twenty individual medical and pharmaceutical

\textsuperscript{22} For a full breakdown of the genres of medical writing and number of texts associated with each during this period, see F. Wallis, ‘The Experience of the Book: Manuscripts, Texts, and the Role of Epistemology in Early Medieval Medicine’, in D.G. Bates (ed.), \textit{Knowledge and the Scholarly Medical Traditions} (Cambridge, 1995), pp. 105–43, at p. 112, n. 30.

\textsuperscript{23} I am particularly grateful to Prof. Dr Klaus-Dietrich Fischer, who alerted me to the existence of this incense recipe.
The medical half of the manuscript has been dated to the second half of the ninth century. A collection of recipes covers pages 228–60, and a recipe for incense entitled Confectio timiame is situated in the middle of this collection on page 247. The recipe sits between two antidotes, one labelled Diaterson antidotum, the other, Antidotum diaprassiu (see Fig. 2).

The two incense recipes in csg. 759, a ninth-century manuscript containing a variety of medical texts, are similarly located within a recipe collection. The recipes, entitled Conpositio thymamatis and Tymiama simplex, represent entry numbers 338 and 340 in the collection, respectively (see Figs 3 and 4). The Conpositio thymamatis is preceded by the Confectio oxymellis, instructions for the preparation of oxymel (a mixture involving vinegar and honey), and followed by a remedy to treat the bite of a rabid dog, Ad canis rapidi morsum. The second incense recipe, Tymiama simplex, comes next, and is followed by another remedy, the Conpositio siromire.

While csg. 761 has been discussed above, its palaeography deserves a comment. Although the location of the incense recipe as the final entry of the collection on pages 51–66 might imply that it was a later addition, a single hand appears to be responsible not only for the entire recipe collection, but for all 290 pages of the manuscript. This consistency implies that the incense recipe, rather than being a later addition, was intentionally placed in this location, and thus represents the last entry in this recipe collection.

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24 Stiftsbibliothek St Gallen, csg. 44; Beccaria, I Codici di medicina del periodo presalernitano, pp. 364–8.
25 Bischoff, Katalog der festländischen Handschriften, III, p. 301.
26 For a published transcription of this recipe collection, see Sigerist, Studien und Texte zur frühmittelalterlichen Rezeptliteratur, pp. 78–99.
27 Stiftsbibliothek St Gallen, csg. 759; Beccaria, I Codici di medicina del periodo presalernitano, pp. 384–6; Bischoff, Katalog der festländischen Handschriften, III, p. 332.
28 For shorthand, I shall refer to Conpositio thymamatis as ‘csg. 759a’ and Tymiama simplex as ‘csg. 759b’.

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Incense recipes in other medical contexts

Although the three remaining incense recipes, located in csg. 752 and 878, are found independently of recipe collections, they are still situated within medical contexts. Csg. 752, like csg. 44, represents a composite manuscript made up of two distinct units. In this case, both textual units focus on medicine and have been dated to c.900.29 The first half of the manuscript, pages 1–159, contains the Medicina Plinii, a fourth-century compilation of remedies derived primarily from the medical sections of Pliny’s Natural History. Several other texts have been inserted within the Medicina Plinii, including a diverse group of medical writings added between the end of Book III and the beginning of Book IV (covering pages 80–3), such as a dietetic calendar, a group of remedies for lightening hair, and the Spera Apulei Platonici. As shown in Fig. 5, much of page 82 contains the latter, a medico-mathematical prognostic device used to predict the outcome of an illness.30 An incense recipe, labelled

29 Stiftsbibliothek St Gallen, csg. 752; Beccaria, I Codici di medicina del periodo presalernitano, pp. 381–3; Bischoff, Katalog der festländischen Handschriften, III, p. 332.
30 R.M. Liuzza, ‘The Sphere of Life and Death: Time, Medicine, and the Visual Imagination’, in K. O’Brien O’Keeffe and A. Orchard (eds), Latin Learning and English Lore: Studies in Anglo-Saxon Literature: Studies in Anglo-Saxon Literature for Michael Lapidge, 2 vols (Toronto, 2005), II, pp. 28–52, at p. 29.
Thymiama paltgrimi, is located just below the diagram of the sphere. Book IV, beginning on the following page, appears to be written in the same hand, thereby suggesting that these insertions between Books III and IV were not added at a later date, but deliberately included in this space as information intended to complement the...
text of the *Medicina Plinii*. The medical nature of the other inserted texts (the dietetic calendar, remedy group, and *Spera Apulei Platonici*), albeit of a different genre or style from the *Medicina Plinii*, reinforces the idea that incense recipes, too, were conceived of within this broadly medical framework.

Csg. 878, a manuscript thought to be Walahfrid Strabo’s *vademecum*, contains the final two examples of incense recipes from this manuscript sample.\(^1\) The codex includes a wide variety of writings, ranging from works on computus to Priscian’s *Institutiones grammaticae*, and medical texts are interspersed within the collection. Following several pages of miscellaneous recipes, two lists of ingredients appear on page 334. The first has no title while the second is labelled *Item aliter*.\(^2\) These lists, covering roughly two-thirds of the page, are the only written material on page 334 (see Fig. 6). The page immediately preceding the recipes, page 333, contains a handful of simple remedies, vernacular glosses, and a later addition. The remedies have several empty lines between them and glosses from the eleventh century provide the names of many of their ingredients in Old High German.\(^3\) Although a number of different hands can be seen within the manuscript, Bernhard Bischoff has suggested that the hand responsible for the widely spaced remedies of page 333 and for the incense recipes on page 334 is Walahfrid’s own; he dates the writing on these pages to the same period and the uniformity within this section of text may reflect the planned placement of the incense recipes within a medical context.\(^4\)

Without clear titles, it is the ingredients themselves, a topic addressed in more detail below (see Table 1), that indicate that these two lists are, in fact, related to incense. Although, as noted above, many of these ingredients also appear in medical remedies, I have only seen these particular combinations of ingredients within recipes with a *thymiam*-

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\(^1\) Stiftsbibliothek St Gallen, csg. 878; for more on csg. 878 and its connection to Walahfrid Strabo, see B. Bischoff, *Eine Sammelhandschrift Walahfrid Strabos (Cod. Sangall. 878)*, *Mittelalterliche Studien, Ausgewählte Aufsätze zur Schriftkunde und Literaturgeschichte*, 3 vols (Stuttgart, 1966–81), II, pp. 34–51. See also recent and forthcoming works by R. Corradini, including ‘Pieces of a Puzzle: Time and History in Walahfrid’s Vademecum’, *EME* 22 (2014), pp. 476–91; *Historiographie als Zeitdiagnose. Studien zum Kompendium des Walahfrid Strabo (St. Gallen, Stiftsbibliothek 878)* (forthcoming); and *ZeitNetzWerk. Karolingische Gelehrsamkeit und Zeitforschung im Vademecum des Walahfrid Strabo. Studien zur Überlieferungsgeschichte des Kompendiums* (forthcoming). For the medical sections, see Beccaria, *I Codici di medicina del periodo presalernitano*, pp. 391–3.

\(^2\) For shorthand, I shall refer to the top recipe of page 334 as ‘csg. 878a’ and the bottom recipe, *Item aliter*, as ‘csg. 878b’.

\(^3\) E. von Steinmeyer and E. Sievers, *Die althochdeutschen Glossen*, 5 vols (Berlin, 1879), IV, p. 455.

\(^4\) Bischoff, *Eine Sammelhandschrift Walahfrid Strabos (Cod. Sangall. 878)*, pp. 34–51 and personal communications with R. Corradini.
Fig. 6 Unnamed incense recipe (top) and Item alter (bottom), csg. 878, p. 334
[Colour figure can be viewed at wileyonlinelibrary.com]
| Group A | Group B |
|---------|---------|
| **Subgroup** | **Ingredients** |
| **Manuscript** | **Complex** | **Simple** |
| **Title** | **Timiamtis** | **Confectio** | **Thymiama** |

| | | | |
|---|---|---|---|
| **Group** | **Csg. 759a** | **Csg. 759b** | **[untitled]** |
| **Recipe** | *Compostito* | *Timiamtis* | *Timiamtis* |
| **Ingredients** | *myrrh* | *myrrh* | *cozumber* |
| | *storax* | *con* | *ungiculas* |
| | *ungellas* | *ungellas* | *aloeswood* |
| | *bdellium* | *camphor* | *musk* |
| | *cinnamon* | *musk* | *musk* |
| | *musk* | *musk* | *musk* |
| | *iris* | *saffron* | *saffron* |
| | | | *mastic* |
| | | | *wine* |
| | | | *honey* |
| | | | *spikenard* |
| | | | *saffron* |
| | | | *cinnamon* |
| | | | *galangal* |
based title. This striking similarity among very specific ingredients strongly suggests, therefore, that the two lists on page 334 are also recipes for incense.

The significance of medical contexts

Before considering the ingredients of the incense recipes and their medical uses, the significance of the medical environments in which these recipes are located must be stressed. While the medical contexts of all seven recipes is noteworthy, the appearance of four incense recipes within collections of medical recipes is particularly striking. The recipe collections analysed in this study have been attributed to neither classical nor late antique sources; I specifically targeted recipe collections and individual recipes labelled ‘miscellaneous’ by Beccaria since these have been less studied (in fact, in almost all cases, they have never been published). The recipes themselves exhibit considerable variation in their presentation and detail. A single collection of recipes may include instructions for preparing prescriptions intended to treat a specific condition, antidotes tackling a host of different ailments, ointments, plasters, and so on. Most significantly for this discussion, recipe collections often contain instructions for the preparation of complex ingredients, such as mixed oils or oxymel (as noted in csg. 759 above). These ingredients could have been prepared separately before being used in medical recipes (or may have been used as treatments themselves and as complex ingredients). The location of incense recipes within collections of medical material, and even alongside complex ingredients such as oxymel, strongly suggests that incense was similarly intended for such a use. The possibility that incense was a multipurpose substance and could have been used as an ingredient in medical recipes must therefore be kept in mind when considering the medical applications of its own constituent elements, the topic of the following section.

The ingredients of incense

In order to address the medical uses of the ingredients of the incense recipes highlighted above, it is first necessary to review the composition of the recipes themselves. An assessment of their ingredients points to many shared features and a heavy reliance on similar, if not identical,
substances, suggesting the existence of a number of related recipe traditions.

A comparison of the ingredients in the seven incense recipes

Table 1 presents the ingredients of each of the seven recipes. These ingredients have been rearranged from their original order to underline both similarities and differences between the recipes (see Appendix 2 for a comparison of their original order). Since incense depends on ingredients that produce a fragrant smell when burned, all of these recipes are unified by their almost exclusive reliance on aromatic, plant-based substances, and especially gums and resins, such as myrrh, frankincense, ladanum, storax, and camphor. Spices, such as saffron, cinnamon, and clove, also appear relatively frequently. Musk and ambergris, both animal products, are notable exceptions to the otherwise herbal ingredients, but as strong-smelling substances, they are not unlike the other components. The recipes in csg. 759 might also incorporate an animal product in the form of a mollusc (listed as unguiculas marinas in csg. 759a and onetus idest ungellas in csg. 759b), although additional research is needed to interpret these terms more precisely in this context.36 I suggest that ungellas may be linked to the term onycha, seen above in the quotation from Exodus. Onycha has traditionally been interpreted as a mollusc, although it has been suggested that it may represent ladanum, a gum resin.37 Finally, csg. 759a also includes two ingredients quite unlike the gums, resins, spices, and other dry substances involved in these recipes: wine and honey. The use of these ingredients would have altered the consistency of the end product, creating a liquid and suggesting that the standard way in which incense was used, by incineration, may not have been applicable in this case.

Although none of the seven recipes is identical, Table 1 reveals not only a large degree of overlap, but also suggests the existence of two families of recipes, Groups A and B. Both groups can be further subdivided into complex and simple recipe variants. Group A consists of the two recipes found in csg. 759. While these are most unlike the other recipes, they do appear to be related to each other: as its name suggests, Tymiama simplex is a simpler recipe, using only five ingredients in contrast to the eleven ingredients listed in the Conpositio thymamatis. Of these, the recipes share

36 According to Index de la pharmacopée du Ier au Xe siècle, these specific terms have been recorded only very rarely in early medieval medical contexts. Ungella marina occurs once in the Medicina Plinii, unguicula has been seen twice in the Lombard Dioscorides, and onetus is unrecorded. See C. Opsomer, Index de la pharmacopée du Ier au Xe siècle, 2 vols (Hildesheim, 1989).
37 For more on the debate over the interpretation of onycha, see H.J. Abrahams, ‘Onycha, Ingredient of the Ancient Jewish Incense: An Attempt at Identification’, Economic Botany 33 (1979), pp. 233–6.
three key ingredients, myrrh, storax, and unguiculas marinas or onetus/ungellas. It must be noted that they also share certain ingredients with some recipes of Group B (especially the more complex recipes), such as myrrh, storax, saffron, and mastic, but their mutual context within csg. 759 and inclusion of unguiculas/ungellas, an ingredient entirely unattested in other incense recipes, argues for a stronger link between these two recipes.

The five recipes of Group B represent a tightly knit cluster that can, like Group A, be broken into complex and simple variations. All five recipes share five core ingredients: cozumber, confixa, aloeswood, camphor, and musk. These ingredients are the primary components of the three simple recipes, csg. 752, 761, and 878a. Csg. 761 and 878a share one (ambergris) and two (ambergris and storax) additional ingredients with the longer recipes, respectively. The complex recipes of csg. 44 and csg. 878b share twelve of the same ingredients (the basic five listed above, plus ambergris, storax, frankincense, myrrh, mastic, spikenard, and saffron), though csg. 878b contains an additional three ingredients (clove, cinnamon, and galingale).

Across all seven recipes, it is important to note that many ingredients represent exotic products that would have travelled great distances to reach western Europe. Many of the plants that produce aromatic gums and resins, such as the trees bled for myrrh (genus Commiphora) and frankincense (genus Boswellia), can be found in the Arabian Peninsula and along the east coast of Africa. Even further afield, the laurels that produce camphor grow in south-east Asia, and particularly on the islands of Sumatra and Borneo, while the musk deer, which secretes musk, is native to mountainous regions of southern Asia, such as the Himalayas. The recipes in Group B are especially noteworthy in regard to their exotic nature. The precise identifications of cozumber and confixa remain unclear. In Origins of the European Economy, Michael McCormick classes cozumber as an ‘exotic substance’ without elaborating further. Both appear in few other sources from this period; to date, I have only found references to them in a letter from Boniface in the mid-eighth century and several other recipes from manuscripts involved in this study. Based

38 See McCormick, Origins of the European Economy, and especially pp. 708–19, for more details on the movement of exotic goods during the early medieval period. See, too, Thurkill, Sacred Scents in Early Christianity and Islam, p. 26 and J.M. Riddle, ‘The Introduction and Use of Eastern Drugs in the Early Middle Ages’, Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften 49 (1965), pp. 185–98.
39 Donkin, Dragon’s Brain Perfume; A.H. King, Scent from the Garden of Paradise: Musk and the Medieval Islamic World (Leiden, 2017).
40 McCormick, Origins of the European Economy, p. 708.
41 It is recorded, for example, that Boniface received four ounces of cinnamon, four ounces of costus, two pounds of pepper, and one pound of cozumber from Cardinal Deacon Gemmulus; Gemmulus, Epistula 62, Die Briefe des heiligen Bonifatius und Lullus, ed. M. Tangl, MGH Epistolae selectae 1 (Berlin, 1916), pp. 127–8. I have identified cozumber in a single recipe in both BAV pal. lat. 1088 and BAV reg. lat. 1143, and confixa in an additional recipe in csg. 44.
on their contexts in these recipes as well as later descriptions of the
substances, it appears that cozumber and confita are also gums or resins
imported from the Middle East or East Africa. Whatever their exact
origin, cozumber, confita, ambergris, and camphor all seem to be
substances newly introduced to the Latin west; these ingredients do not
appear in earlier Biblical, Egyptian, Greek, or Roman incense recipes or
medicines. There is, however, some debate as to when exactly a number
of these ingredients first arrived in western Europe: while certain
ingredients, such as cozumber and confita, are unattested before the
eighth century, other products may have been present in the late antique
Mediterranean. Musk, for example, is first noted in Jerome’s (d. 419)
Adversus Iovinianum, but does not reappear for at least a century and only
then is mentioned by Greek sources, such as Paul of Aegina (fl. seventh
century). The next Latin references to musk come from these very
incense recipes. The presence of these ingredients in Carolingian
manuscripts appears, therefore, to testify to the arrival (or, in some cases,
reintroduction) of new products from the east, highlighting not only the
existence of long-distance trade, but its continued development in the
early medieval period. Moreover, the fact that all of these new products
are found together in Group B adds further weight to the relatedness of
the recipes within this cluster, suggesting the spread of a shared tradition
alongside the arrival of these exotics.

With this more detailed understanding of the recipes and their
ingredients, it is now possible to return to Thurlkill’s observation that
medicines use many of the same ingredients as incense.

The use of incense ingredients in medical recipes

Carmélia Opsomer’s Index de la pharmacopée du Ier au Xe siècle, an index
of the ingredients found in the recipes of over fifty medical texts written
between the first and tenth centuries, presents a useful overview of the
frequencies with which particular products are named. Of the recipe

42 The terms confita and cozimbrum are both included in the thirteenth-century medico-botanical
glossary Alphita. According to this text, the two substances are related to each other (with
cozimbrum described as fex confite) and represent derivatives of storax. A. García González
(ed.), Alphita (Florence, 2007); confita is discussed on pp. 400–1 and cozimbrum on p. 403.
Cozimbrum is recorded six times in Index de la pharmacopée du Ier au Xe siècle (see
Opsomer, Index de la pharmacopée du Ier au Xe siècle, I, p. 222), while there is no entry for
confita. However, gomphita, a term that shares some orthographical features with a number
of the recipes reported here is recorded four times (p. 324).
43 King, Scent from the Garden of Paradise, see especially pp. 133–6 for late antique references to
musk.
44 McCormick, Origins of the European Economy, pp. 714–15; Caseau, ‘L’encens au 7e et 8e siècle:
un marqueur du commerce en Méditerranée?’, pp. 105–16.
45 Opsomer, Index de la pharmacopée du Ier au Xe siècle.

Early Medieval Europe 2020 28 (2)
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collections involved in the present study, only some remedies from csg. 44 are included in Opsomer’s detailed analysis; the recipe collections from the other manuscripts assessed here, lacking published transcriptions, were not part of the index. I shall highlight a handful of examples, concentrating on the exotic gums and resins, to give a sense of how often these ingredients occur in the texts. Storax, seen in five of the incense recipes, is listed in Index de la pharmacopée 336 times, while mastic, which occurs in three incense recipes, is recorded 484 times; both ingredients are widely distributed within the sample of medical texts and are found in classical, late antique, and early medieval material. Frankincense is a more complicated case because it went by several names, including thús and (o)libanum; while it only occurs in two of the seven incense recipes, a summation of the entries from Index de la pharmacopée for the multiple terms results in a total of 763 instances. Myrrh, found in four incense recipes, is listed as an ingredient 1017 times, and, similarly, the term resina, meaning an unspecified resin, is found 1016 times. In contrast, Index de la pharmacopée records only six occurrences of cozumbrium, cozumber, one of which is from the incense recipe in csg. 44. Ambergris is only noted once, and, again, the reference comes from the recipe in csg. 44. This, however, should be no surprise since the writings sampled for Index de la pharmacopée include many texts that pre-date the posited arrival of these exotic substances in the early medieval west. Furthermore, the majority of the manuscripts in which the incense recipes are found were not included in Index de la pharmacopée. Only those substances that were known since antiquity, therefore, such as myrrh and frankincense, reflect the full extent to which these types of products were included in medical recipes.

The sample of eighth- and ninth-century manuscripts consulted in this study conforms to the trends seen above: many of the ingredients listed in the incense recipes also occur frequently in medical remedies. Given constraints of space, only a small selection of remedies will be presented to illustrate some of the many ways in which these ingredients are recorded. The recipe collection of csg. 759 that produced two of the incense recipes analysed above also contains an entry to expel demons, Ad demonio expellendo. This

46 Opsomer, Index de la pharmacopée du 1er au Xe siècle, pp. 432–6, 746–9.
47 Opsomer, Index de la pharmacopée du 1er au Xe siècle, pp. 397–9, 530, 769–73.
48 Opsomer, Index de la pharmacopée du 1er au Xe siècle: for myrrh, see pp. 471–80; for resina, see pp. 641–9.
49 Opsomer, Index de la pharmacopée du 1er au Xe siècle, p. 222.
50 Opsomer, Index de la pharmacopée du 1er au Xe siècle, p. 48.
treatment on page 68 names myrrh and frankincense while also listing some ingredients not seen in incense recipes, such as sulphur and castoreum, the secretion from a beaver’s castor sac.\textsuperscript{51} The instructions, which direct that the ingredients be turned into a powder and then burned, indicate that this was intended to be a fumigation. This method of treatment, burning a mixture of dry ingredients, parallels the way that incense is most commonly consumed in a religious setting. While a connection to the Christian uses of incense and the symbolism attached to its use is never made explicit in this remedy, the question of religious elements in medical practice will be considered in more detail below.

Csg. 217 presents a remedy for ear pain, \textit{Ad aurem dolorem}, on page 267.\textsuperscript{52} The list of ingredients begins with myrrh and also contains aloe, poppies, water, and honey. Once combined, this mixture was applied directly to the ear, demonstrating that the ingredients found in incense recipes could be used in multiple ways and not exclusively as burned substances. Similarly, a treatment for liver and spleen problems, \textit{De epar et de spleno}, found on page 365 of csg. 751, makes no mention of fumigation, despite including a number of the ingredients frequently used in incense recipes, such as myrrh, frankincense, and mastic.\textsuperscript{53}

Overall, the textual evidence records the extensive use of aromatic plant-based substances in medical contexts. At times these ingredients were employed in a manner paralleling the religious use of incense, i.e. fumigation, while in many cases the treatments were administered in other ways. Given the medical uses of many incense ingredients, and their frequent use together (such as the combination of myrrh and frankincense listed in several of the selected recipes), it seems logical that incense preparations may have been similarly employed in healing practices on medical grounds alone; I shall return to the question of Christian influence below. Such a use supports the idea suggested above to explain the appearance of incense recipes in medical contexts: incense may represent a complex ingredient that could have been used in medical treatments. This raises the question, is incense listed as an ingredient in remedies?

\textsuperscript{51} My transcription of \textit{Ad demonio expellendo} (csg. 759, p. 68) is as follows: ‘Ad demonio expellendo lapide gagati castoreo sulpor uiuo aspalto murra libano equis ponderibus facis puluerem et sufumicas.’

\textsuperscript{52} My transcription of \textit{Ad aurem dolorem} (csg. 217, p. 267) is as follows: ‘Ad aurem dolorem murra aloae opiu cum aqua et melle spissum sit calefactum in calice de ponas in aqua calida sic in aure panno in ponis et mittis colando fis(icum).’

\textsuperscript{53} My transcription of \textit{De epar et de spleno} (csg. 751, p. 365) is as follows: ‘De epar et de spleno aloë - i mirra - i martice - i resina - i amoniaco - i agaci - i libano - i teris cum aceto agro quantum sufficit.’
Incense as an ingredient

A ninth-century manuscript located in the Biblioteca Apostolica Vaticana, BAV reg. lat. 1143, provides an answer to the above question. This manuscript, which contains several recipe collections unattributed to earlier traditions, includes a remedy for epilepsy titled *Ad cadiuo homine potionem probatam*. The treatment presents a list of twenty-four ingredients (see Fig. 7), recording both locally available herbs, such as pennyroyal, bettony, parsley, and lovage, as well as exotics. These include a number of the gums and resins seen in the recipes above, such as frankincense and myrrh, and fragrant, imported

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54 Biblioteca Apostolica Vaticana, BAV reg. lat. 1143; Beccaria, *I Codici di medicina del periodo presalernitano*, pp. 319–22.
spices, such as cinnamon and clove. Most significantly, however, the recipe lists *timiama* itself, thus indicating that a pre-prepared incense mixture, such as the product of one of the seven recipes discussed above, could have been used within a medical context. Looking at the rest of the remedy, its instructions direct that the ingredients should be made into a powder, mixed with wine, and then given to the patient to drink. That this remedy is to be liquefied by the addition of wine and then consumed by drinking fits with one of the recipes of csg. 759, the *Conpositio thynamatis*, the only recipe to include a liquid.

Returning to Opsomer’s *Index de la pharmacopée*, *thymiama* appears thirteen times as an ingredient within the selected medical texts, such as the works of a variety of late antique authors, including Marcellus of Bordeaux (fl. c.490–510), Oribasius (c.320–400), Caelius Aurelianus (fl. c.400), and Paul of Aegina (c.625–90). I am, however, unconvinced that all of these references actually reflect incense. The entry listed in Marcellus’ *De medicamentis liber*, for example, records not *thymiama* but *ammoniaci thynamatis*, or gum ammoniac. Indeed, of the 494 references to *ammoniacum* documented by Opsomer’s *Index de la pharmacopée*, sixty-three include the added descriptor *thymiama* or *thynamatis*. Moreover, *Index de la pharmacopée* does not record any references to *incensum* within its selected texts, whereas I have identified this term as an ingredient in the manuscript sample involved in this study. Specifically, a treatment for lethargy entitled *Ad litargigum qui nimis dormiunt* located on page 326 of csg. 44, a section of the manuscript transcribed by neither Sigerist nor Jörimann and therefore not included in Opsomer’s *Index de la pharmacopée*, recommends a fumigation with incense, *incense* (see Fig. 8).

With the inclusion of both *incensum* and *thymiama* in medical recipes unattributed to earlier sources, I suggest that a) many of the thirteen examples of *thymiama* noted by Opsomer should instead be listed under *ammoniacum*, b) the analysis of additional Carolingian manuscripts may reveal further examples of *thymiama* (listed

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55 My transcription of *Ad cadiuo homine potionem probatam* (BAV reg. lat. 1143, fol. 109r) is as follows (with *timiama* in bold): ‘Ad cadiuo homine potionem probatam aut in pectus sit aut in caput uertiginem mittit tus myrra et opio et gingiuer et euforbio et reupontico et spaltro et custo et piper et cynamo et gariofoli et *timiama* et petroselino saxifi ca cassia sigilada pulegio non fumicato rosmarino uetonica et agrimonia et saturegia et luuestici et apio hac omnia pulerem facis et cum miscis cum uiuo potui dabis ibere et ad sanitatem perducat mirifice prodest.’

56 Opsomer, *Index de la pharmacopée du 1er au Xe siècle*, p. 773.

57 Marcellus, *De medicamentis liber* XXII.19, ed. M. Niedermann, Corpus Medicorum Latinorum 5 (Leipzig, 1916).

58 Opsomer, *Index de la pharmacopée du 1er au Xe siècle*, pp. 49–53.

59 My transcription of *Ad litargigum qui nimis dormiunt* (csg. 44, p. 326) is as follows: ‘Ad litargigum qui nimis dormiunt aut extra mente sunt ferule incense fumus nare suffumica.’
independently of *ammoniacum*) and *incensum*, and c) that their use may represent a particularly Carolingian development and one linked to Christian influences, topics to be addressed below.

**Summary of manuscript evidence**

The evidence presented above indicates that incense must be understood as a multipurpose substance. The textual environments in which incense recipes are found and the appearance of individual components of these recipes as ingredients within medical remedies initially suggested that incense could have been used medicinally. The discovery of *timiama* and *incense* listed as ingredients within remedies, however, provides undeniable evidence for its application in medical contexts. This medical side to incense does not detract from its use in Christian ritual but adds another layer to our understanding of the ways in which it was used and viewed by early medieval individuals. The potential for multiple applications of incense connects to a wider study of health, healing, and spirituality during this period. The remaining sections of this article will aim to explore this area of intersection, first situating the use and production of incense alongside the users and producers of the manuscripts analysed above.

**Locating incense use and production: manuscripts, medicine, and incense**

The significance the Carolingian court placed on the correct performance of the liturgy would suggest that efforts were made to ensure that sufficient amounts of incense reached churches for use in Christian ritual. The wealth of the church, moreover, would have made possible the purchase of the exotic ingredients involved in incense production. The aforementioned records of the Abbey of Fontenelle documented...
that a pound of silver was allocated annually for the purchase of spices, reflecting the importance placed on importing foreign ingredients and the church’s ability to finance such purchases.\textsuperscript{60} A letter in the \textit{Collectio sangallensis} provides more details of the types of exotic goods in circulation. Attempting to appease Louis the German, a ninth-century bishop, probably Salomon II of Constance, sent the king exotic goods acquired overseas.\textsuperscript{61} The letter records some of these gifts, such as fine textiles, an ivory comb, and exotic fruits and spices.\textsuperscript{62} While the fruits and spices, including dates, figs, pomegranate, cinnamon, galingale, cloves, mastic, and pepper, all appear in medical texts, some of the products, such as cinnamon, galingale, and mastic, are also found in certain incense recipes. Although the letter makes no explicit connections to either incense or medicine, it is noteworthy that these \textit{exotica} were in the possession of a Frankish bishop and speaks to the evident wealth of the ecclesiastical elite (or at least of certain individuals). Ecclesiastical communities therefore represent sites that would have required incense for religious purposes and would have been able to finance its production. It must be remembered that royal residences, and perhaps even those of the leading aristocratic families, often had chapels, meaning that lay individuals, too, would have been involved in funding the supply of incense.

In addition to the funds, these overlapping elite environments would have offered not only the spaces in which incense would have been used as part of Christian ritual, but also the networks that sustained the intellectual traditions underpinning its multipurpose nature. Given that all extant early medieval manuscripts containing medical texts are ‘likely monastic products’, I shall concentrate on incense use in this context.\textsuperscript{63} Indeed, surviving manuscripts, including remarkable ninth-century library catalogues from both Reichenau and St Gall, indicate both the range of medical texts to which certain monastic communities may have had access, and their work in copying and adding to these writings.\textsuperscript{64} Additional textual evidence, such as \textit{The

\textsuperscript{60} Gesta sanctorum patrum Fontanellensis coenobii} XIII.8, p. 122.

\textsuperscript{61} McCormick, \textit{Origins of the European Economy}, p. 710.

\textsuperscript{62} \textit{Collectio Sangallensis}, ed. K. Zeumer, \textit{MGH Formulae Merovingici et Karolini aevi} (Hanover, 1886), letter 29, p. 415: ‘Palliolum coloris prasini et aliud polimitum, spatulas palmarum cum suis fructibus, cynamomi, calangani, cariofili, masticis et piperis fasciculum, caricas fielli, malogranata, pectinem elefantium, vermiculos, cicadas, aves psitacos, merulam albam et longissimam spinam de pisce marino.’

\textsuperscript{63} Glaze, ‘The Perforated Wall: The Ownership and Circulation of Medical Books in Medieval Europe’, p. 1.

\textsuperscript{64} For the St Gall and Reichenau library catalogues, see \textit{Stiftsbibliothek St Gallen}, csg. 728 and Stuttgart, \textit{Württembergische Landesbibliothek}, Cod. Don. 191, respectively. See also P. Lehmann, \textit{Mittelalterliche Bibliotheks-kataloge Deutschlands und der Schweiz}, 4 vols (Munich, 1918–2009), I, pp. 55–88, 222–65.

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Plan of St Gall, csg. 1092, suggests that herbal medicine was not simply copied but put into practice. Although the plan depicted in this early ninth-century manuscript looks much like an architectural blueprint, it is now thought to represent an idealized vision of a monastic centre.  

Detailed labels provide a wealth of information, specifying even the plants in the gardens and the livestock in the fields. Significantly for this study, it includes a medical area which contains a bloodletting room, physician’s quarters, infirmary, and infirmary garden. That the ideal monastic design features spaces dedicated to medical practice indicates the importance placed on medicine and the maintenance of good health and suggests engagement with medicine on both intellectual and practical levels. Monastic communities thus represent sites in which the duality of incense could have existed – environments in which incense could have been afforded, described, produced, and used to serve both spiritual and medical needs.

With this monastic and medical background in mind, the significance of the medical use of incense deserves consideration.

The significance of incense as a multipurpose substance

The identification of incense as a substance with multiple, overlapping uses is significant for a number of reasons. I shall highlight several aspects that are particularly important to consider, including the potential Christian influence on, and symbolism attached to, medical incense use as well as its specifically Carolingian dimension.

Sacralizing medicine? A consideration of the potential Christian influence on, and symbolism attached to, medical incense use

How should the religious significance of incense be understood when it is used medicinally? There are numerous ways to answer this question, ranging from an areligious interpretation on one end of the spectrum, to an application of incense that fully embraces and engages with Christian symbolism, on the other. First off, there appears to be a long tradition of healing practices that use incense. Consider, for example, the references to cyphi in Dioscorides’ De materia medica or The
Alphabet of Galen noted earlier. The medical uses of many of the individual incense ingredients have also been showcased above. Might the incorporation of incense as an ingredient itself simply represent an extension of the use of its constituent parts, without Christian overtones? While it is possible that a medical use of incense was devoid of any religious significance and was based entirely on contemporary medical knowledge or earlier traditions, this possibility seems highly unlikely, especially given the monastic environments in which many of these recipe collections were composed and housed. Indeed, the aforementioned cyphi examples appear to be entirely distinct from the Carolingian recipes for incense. In contrast, the reliance on incense in Christian rituals and its associated symbolic meanings may have encouraged its application in medical contexts during this period. Yet the degree to which contemporary liturgical uses of incense influenced its use in healing practices remains highly complex, as the following examples indicate.

a) Purification: an ancient blend of spiritual and medical practices
Incense has long been linked to purification.67 Indeed, the burning of particular substances may produce the desired cleansing, purifying effect. Citronella candles, for example, are well known to clear the air of insects. The burning of aromatics would have covered up or eliminated noxious odours, thereby appearing to purify the air.68 Ideas of purity are intrinsically linked to sanctity, and this relationship bridges the divide between spiritual and corporeal purification, crossing the boundaries of body, mind, and soul. The presence of sweet odours, particularly when inexplicable or unexpected, was regarded as a sign of sanctity.69 This is perhaps most frequently associated with the opening of tombs: a burial, a site of death and decay, would never, under normal circumstances, produce a sweet-smelling odour. Early Christian and medieval saints’ Lives, however, record many such tomb openings.70 The aromatic odour was interpreted as a confirmation of the individual’s sanctity and holiness (though it is likely that the heavy

67 E.G.C.F. Atchley, A History of the Use of Incense in Divine Worship (London, 1909), pp. 15–19, 76, 131–40; S.A. Harvey, ‘The Senses in Religion: Piety, Critique, Competition’, in J. Toner (ed.), A Cultural History of the Senses in Antiquity (London, 2014), pp. 91–113, at pp. 94–5.
68 Thurlkill, Sacred Scents in Early Christianity and Islam, p. 14.
69 Harvey, Scenting Salvation; E. Palazzo, ‘Art and the Senses: Art and Liturgy in the Middle Ages’, in R.G. Newhauser (ed.), A Cultural History of the Senses in the Middle Ages (London, 2014), pp. 175–94, at p. 192; Thurlkill, Sacred Scents in Early Christianity and Islam, p. xvii.
70 See, for example, stories concerning the bodies of St Maurilius, St Mallosus, St Geminian, St Friard, St Bavo, and so on (Atchley, A History of the Use of Incense in Divine Worship, pp. 108–10). Richard Newhauser notes that ‘the odor of sanctity is ubiquitous in medieval saints’ lives’ (A Cultural History of the Senses in the Middle Ages, p. 11).
use of incense in preparing the dead for burial resulted in these sweet smells, creating a self-fulfilling perfuming-cycle).\textsuperscript{71}

The association between good fragrances, sanctity, and purification was also recorded in other contexts, often making explicit connections to health. Gregory of Tours, for example, wrote that a paralytic brought to the tomb of St Albin was cured thanks to the intervention of St Martin and St Albin, whose presence was ‘manifested by a sweet odour in the church’.\textsuperscript{72} Conversely, devils, disease, and sinfulness were all associated with the smells of death, decay, and other putrid stenches.\textsuperscript{73} Given these relationships, it is understandable that the burning of aromatics was seen as a potential cure for many diseases, and especially those thought to be related to the supernatural or linked to spiritual causes, such as demon possession, the topic of the following example.\textsuperscript{74} Yet it must be remembered that the burning of aromatic substances, including incense, as part of purification and healing rituals has a long history and antedates the liturgical use of incense. However, while these deep-rooted traditions are essential to recognize, I argue that they are not directly responsible for the appearance of incense in Carolingian medical texts.

b) Christian influence: an explicitly Christian connection
The treatment in BAV reg. lat. II.43 that listed \textit{timiamata} as an ingredient, \textit{Ad caduo homine potionem probatam}, targets epilepsy, a condition that has ‘often been considered in premodern civilizations to be the work of indwelling, malicious spirits’.\textsuperscript{75} Similarly, one of the remedies noted above for its use of exotic aromatics, \textit{Ad demonio expellendo} of csg. 759, represents a demonifuge: the demon possessing the afflicted individual is to be smoked out. While incense is not listed as an ingredient in this treatment, some of its constituent parts, such as frankincense and

\textsuperscript{71} Atchley, \textit{A History of the Use of Incense in Divine Worship}, pp. 108–10; Thurlkill, \textit{Sacred Scents in Early Christianity and Islam}, pp. 14–17.

\textsuperscript{72} Atchley, \textit{A History of the Use of Incense in Divine Worship}, p. 109. For Gregory’s comments, see Gregory of Tours, \textit{Liber in Gloria confessorum} VIII.94, ed. B. Krusch, \textit{MGH SRM} 1.2 (Hanover, 1885), pp. 358–9.

\textsuperscript{73} Atchley, \textit{A History of the Use of Incense in Divine Worship}, p. 111; Harvey, \textit{Scenting Salvation}, pp. 202–3, 215; Thurlkill, \textit{Sacred Scents in Early Christianity and Islam}, pp. 87–94.

\textsuperscript{74} On demon possession and mental disorder in the Middle Ages, see, for example: N. Caciola, \textit{Discerning Spirits: Divine and Demonic Possession in the Middle Ages} (Ithaca, NY, 2003); P. Horden, ‘Responses to Possession and Insanity in the Earlier Byzantine World’, \textit{Social History of Medicine} 6 (1993), pp. 177–94; J. Kroll and B. Bachrach, ‘Sin and Mental Illness in the Middle Ages’, \textit{Psychological Medicine} 14 (1984), pp. 507–14; and C. Rider, \textit{Mental (Dis)order in Late Medieval Medicine} (Leiden, 2014).

\textsuperscript{75} P. Dendle, ‘Lupines, Manganese, and Devil-Sickness: An Anglo-Saxon Medical Response to Epilepsy’, \textit{Bulletin of the History of Medicine} 75 (2001), pp. 91–101. On the history of epilepsy, see O. Temkin, \textit{The Falling Sickness: A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology} (Baltimore, 1971).
myrrh, are used. Paris BnF lat. 9332, a manuscript from the sample that did not include any specific references to incense, does contain a treatment essentially identical to the demonifuge in csg. 759, listing the same title, ingredients, and instructions for its preparation and use.76 While the two remedies appear to stem from the same source, their textual environments are considerably different, showing that knowledge of this specific treatment circulated during this period. (The remedy in csg. 759 represents the ninety-first entry in a recipe collection, while the fumigation of Paris BnF lat. 9332 follows an excerpt of the Practica, a Latin translation of Alexander of Tralles’ (c.525–605) Twelve Books on Medicine.) Such examples highlight that many of the treatments that incorporate a fumigation of incense or its aromatic ingredients relate to conditions associated with spiritual, supernatural causes. I suggest that this is no coincidence: the incineration of aromatic substances (whether specifically incense or its ingredients) directly parallels the liturgical use of incense.

Would such overtly Christian elements have been expected to heighten the healing potential of a treatment? Or were they included primarily in the types of treatments seen above because of the contemporary understanding of the spiritual/supernatural causes of certain conditions? While a comprehensive assessment of the occurrence of Christian elements in early medieval remedies – such as the use of holy water, inclusion of prayers, as well as the incorporation of incense – would be needed to address these questions, it is important to note another feature of the demonifuge in Paris BnF lat. 9332. Unlike the version listed in csg. 759, Ad demonio expellendo of Paris BnF lat. 9332 includes an additional approach to expelling demons that can help our understanding of the issues at stake. Although this recipe involves neither fumigation nor incense ingredients, it does include a number of other Christian features, such as the Lord’s prayer.77 This suggests that those conditions associated with spiritual and supernatural causes may have been more likely to have been treated with preparations involving explicitly Christian elements.

76 Bibliothèque nationale de France, BnF lat. 9332; Beccaria, I Codici di medicina del periodo presalernitano, pp. 157–9. My transcription of Ad demonio expellendo (fol. 233va) is as follows: ‘Ad demonio expellendo suffugamentum lapide gagatem castoreo sulfor uiuo asfalto mirra libano aqueis ponderibus mitis et facis pulere et suffumigabis.’

77 My transcription of the second treatment from Ad demonio expellendo (BnF lat. 9332, fol. 233va) is as follows: ‘Item collegis odecum idest euolus apur oratone dominica et facis exinde ius uso pleno oleo ouo pleno uino uet us ouo pleno totum insimul mitis et super sacerdos missa cantat ante a qui patitur triduana faciat et sic ieiunus bibat probatissimum est.’
c) Counter examples?
Although the treatments listed above involve fumigations, not all recipes using the ingredients of incense follow this pattern. Some, such as *Ad aurem dolorem* of csg. 217 or *De epar et de spleno* of csg. 751, do not appear to have been burned (in the case of *Ad aurem dolorem*, the ingredient mixture was applied directly to the ear). While these types of examples indicate that medical incense (or at least its ingredients) may not have been consistently employed in the same manner as liturgical incense, it does not necessarily preclude an association between the two. In other words, symbolic meanings may have been attached to incense and/or its ingredients whenever they were used as part of healing practices, even when other Christian elements are not recorded or the disease in question was not as explicitly linked to spiritual, supernatural causes. On the other hand, however, the use of these aromatic substances may have been less influenced by contemporary Christian ritual and stem from traditional, pre-Christian medical knowledge. Further research is needed to investigate the contexts in which incense and its ingredients occur more precisely.

d) Summary: a Carolingian development
While it remains impossible to provide a single, standard interpretation of the inclusion of incense within early medieval healing practices, several key points can be made. Medical literature, religious literature, and their points of intersection have received increasing attention in recent years, as exemplified by the work of Frederick Paxton, Carine van Rhijn, and Meg Leja, providing a useful framework for situating medical incense use. While early medieval individuals working with incense in medical contexts may have conceived of its use and potential symbolic meanings differently, I suggest that it is likely that it was deployed with at least some level of sacred significance. Leja’s research on the sacralization of Carolingian medicine, although concentrating on different types of textual evidence, adds weight to this argument. In particular, Leja highlights ‘a vision of medicine in which the health of the body and the health of the soul ran together and reinforced each

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78 F.S. Paxton, ‘Curing Bodies – Curing Souls: Hrabanus Maurus, Medical Education, and the Clergy in Ninth-Century Francia’, *The Journal of the History of Medicine and Allied Sciences* 50 (1995), pp. 230–52; F.S. Paxton, ‘Signa Mortifera: Death and Prognostication in Early Medieval Monastic Medicine’, *Bulletin of the History of Medicine* 67 (1993), pp. 631–50; F.S. Paxton, ‘Power and the Power to Heal: The Cult of St Sigismund of Burgundy’, *EME* 2 (1993), pp. 95–110; A.C. van Rhijn, ‘Pastoral Care and Prognostics in the Carolingian period – The Case of El Escorial, Real Biblioteca di San Lorenzo, L III 8’, *Revue Bénédictine* 127 (2017), pp. 272–97; and M. Leja, ‘The Sacred Art: Medicine in the Carolingian Renaissance’, *Viator* 47 (2016), pp. 1–34.
other’, an expression of early medieval healing that aligns perfectly with the duality of incense.\textsuperscript{79}

Furthermore, Leja suggests that the absorption of ‘classical medical knowledge within a Christian tradition’ was an element of Carolingian correctio.\textsuperscript{80} It is essential to place the medical use of incense within this bigger picture. When Carolingian reform efforts are considered more broadly, including the importance placed on liturgical correctness as well as the growth of churches during this period, it seems likely that the trade in incense (or the raw ingredients used to produce it) also expanded. I suggest that the appearance of incense in medical contexts was specifically linked to this development and crucially supported by several other related changes. In particular, the arrival of new exotic aromatic substances from the east, such as cozumber, camphor, and ambergris, corresponds to the appearance of the recipes for thymiama. As these recipes represent among the earliest references to many of these ingredients (as noted above), it suggests the linked movement of the substances themselves and knowledge surrounding their use.\textsuperscript{81} Perhaps most notably, the recipes from Group B appear to share a common tradition and thus speak to the exchange of information and the movement of manuscripts fostered by the intellectual networks spanning Carolingian Europe.

Given that the appearance of incense within this study’s manuscript sample appears to be distinct from the earlier cyphi-based traditions, I suggest that the inclusion of incense recipes in medical writings and the use of incense as an ingredient in medical treatments is strongly linked to the aforementioned Carolingian developments. While the sacralization of medicine offered an intellectual environment in which incense could be incorporated, Carolingian incense requirements helped to expand the numbers of incense recipes available (and knowledge associated with them). Simultaneously, the exchange of information and texts supported the spread of the newly introduced thymiama recipes and their wider application.

### Conclusion

Ultimately, incense, as a multipurpose substance, offers a new perspective on early medieval attitudes towards healing, connecting physical, mental, and spiritual health in the broadest of terms. Incense should not be seen

\textsuperscript{79}\textsuperscript{79} Leja, ‘The Sacred Art: Medicine in the Carolingian Renaissance’, p. 30.

\textsuperscript{80}\textsuperscript{80} Leja, ‘The Sacred Art: Medicine in the Carolingian Renaissance’, p. 1.

\textsuperscript{81}\textsuperscript{81} McCormick, Origins of the European Economy, pp. 708–19; Riddle, ‘The Introduction and Use of Eastern Drugs in the Early Middle Ages’, pp. 185–98.
as a substance reserved exclusively for liturgical uses, but as one with multiple, complementary applications. Moreover, the production of incense and the significance of its use appear to be topics directly related to major developments in the Carolingian world. Incense thus represents an inroad into a much wider discussion of health, healing, and spirituality, as well as networks of exchange in this period, and one much deserving of future research.

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**Appendix 1**

The research presented in this article is based on a sample of eighteen eighth- and ninth-century manuscripts. This appendix presents a list of the eighteen manuscripts and information on their dating, place of origin, and contents. Manuscripts containing references to incense have been marked with an asterisk. The material presented here has been taken from B. Bischoff, *Katalog der festländischen Handschriften des neunten Jahrhunderts (mit Ausnahme der wisigotischen)*, 3 vols (Wiesbaden, 2014) and A. Beccaria, *I codici di medicina del periodo presalernitano* (Rome, 1956).

Note: manuscripts in the Stiftsbibliothek St Gallen are paginated rather than foliated.

**Stiftsbibliothek St Gallen**

| Manuscript | Date       | Origin       | Additional information                                                                 |
|------------|------------|--------------|---------------------------------------------------------------------------------------|
| *Csg. 44*  | Medical half (pp. 186–368): 2nd half of IX c. (probable) | Medical half (pp. 186–368): northern Italy (probable) | Composite manuscript made up of two distinct halves: a Bible given to St Gall in c.780 covers pp. 1–184, while a compilation of >20 individual medical texts is on pp. 186–368. Transcriptions of recipes on pp. 228–60 can be found in H.E. Sigerist, *Studien und Texte zur frühmittelalterlichen Rezeptliteratur* (Leipzig, 1923), pp. 78–99, while recipes on pp. 337–54 and 354–68 can be found in J. Jörimum, |

(Continues)
| Manuscript | Date       | Origin               | Additional information                                                                                                                                 |
|------------|------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frühmittelalterliche Rezeptarien | (Zurich, 1925), pp. 37–61. |
| Csg. 217   | IX<sup>in</sup> | Northern Italy Complex manuscript, some quires reordered, lost, etc. (see csg. 1396, below). Contains Gregory’s *Regula pastoralis* (pp. 1–249) followed by a varied collection of medical texts (pp. 252–341), including the *St Galler Botanicus* and *St Galler Bestarius*. |
| Csg 751    | 2nd half of IX c. | Northern Italy Massive codex containing several dozen different medical texts within its 500 pages, including medical glossaries, the *Liber esculapii*, prognostic and calendrical texts, excerpts from Pliny’s *Natural History*, passages from the *Herbariencorpus*, Galenic and Hippocratic texts, selections from Vindicianus’ writings, instructions for bloodletting, and ‘miscellaneous’ recipes and extracts. |
| *Csg. 752  | c.900      | St Gall Composite manuscript made up of two distinct units, both medical: pp. 1–159 contain the *Medicina Plinii* (with some insertions) while pp. 161–326 contain an excerpt from Isidore of Seville’s *Etymologies* and one of the few surviving copies of the *Oxea et chronia passiones Yppocratis*, *Gallieni et Urani*. |
| Manuscript | Date        | Origin  | Additional information                                                                                                                                 |
|------------|-------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| *Csg. 759  | IX	extsuperscript{in} | Brittany | Manuscript contains a variety of medical texts, such as extracts of Oribasius and Galen, dietetic calendars, information on weights and measurements; a collection of recipes makes up the second half of the codex (pp. 53–94). |
|            |             |         | Incense recipes (\textit{Conpositio thymamatis} and \textit{Tymiama simplex}) can be found on pp. 89 and 91, respectively (and are also listed in the collection’s index on p. 57b). |
| *Csg. 761  | IX	extsuperscript{in} | Fulda   | Manuscript contains extensive selections of Oribasius’ \textit{Synopsis} and \textit{Euporista}, excerpts from the Hippocratic and Galenic corpora, and a recipe collection (pp. 51–66). |
|            |             |         | Incense recipe (\textit{Thimiama}) is on p. 66.                                                                                                                                                               |
| *Csg. 878  | 2nd quarter of IX c. | Reichenau | Walahfrid Strabo’s \textit{vademecum}, includes a wide variety of writings, ranging from works on computes to Priscian’s \textit{Institutiones grammaticae}; texts relating to health and medicine are interspersed within the collection. |
|            |             |         | Incense recipes (the first unnamed and the second, immediately below, labelled \textit{item aliter}) are on p. 334.                                                                                       |
Csg. 1396 Folia in question: IX<sup>in</sup>  Folia in question: northern Italy (probable) Collection of fragments, including some pages from csg. 217 with medical recipes.

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**Bibliothèque nationale de France**

| Manuscript       | Date                  | Origin                  | Additional information                                                                                                                                 |
|------------------|-----------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paris BnF lat.   | 3rd quarter of IX c.  | France or Italy         | Manuscript contains a wide range of texts, from theological works of Alcuin to a small cluster of remedies.                                                 |
| 2849A            |                       |                         |                                                                                                                                                      |
| *Paris BnF lat.  | Folia in question: 1st half of IX c. | Folia in question: south-west France (probable) | Composite manuscript made up of medical texts written in the 9th, 12th and 13th centuries; the 9th-century material includes excerpts from the Pseudo-Galenic De succedaneis liber, hermeneumata, Isidore’s Etymologies, texts on weights and measures, instructions for phlebotomy, and ‘miscellaneous’ recipes. Incense recipes (Conpositio timiamatis and Timiama simplex) are listed in an index (fol. 7r), but the recipes have not survived. |
| 6882A            |                       |                         |                                                                                                                                                      |
| Paris BnF lat.   | 1st or 2nd quarter of IX c. | Paris region            | Manuscript consists almost entirely of Hippocrates’ Aphorisms (fols 1r–118r) with an unattributed recipe added to the final pages (fols 118v–119r). |
| 7021             |                       |                         |                                                                                                                                                      |
| Paris BnF lat.   | IX<sup>in</sup>       | Western France, probably Fleury | Manuscript contains excerpts from Oribasius’ Synopsis, Alexander of Tralles’ Therapeutica, and Dioscorides’ De materia medica as well as the Epistula vulturis and a handful of unattributed recipes scattered throughout. |
| 9332             |                       |                         |                                                                                                                                                      |

(Continues)
| Manuscript      | Date               | Origin              | Additional information                                                                                                                                 |
|-----------------|--------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paris BnF lat. 11218 | VIII\textsuperscript{th} or IX\textsuperscript{th} | Burgundy (possible) | Medical manuscript with a diverse range of texts, such as excerpts from the Hippocratic and Galenic corpora, several texts from Vindicianus, a selection of Isidore’s *Etymologies*, *Hermeneumata*, instructions on phlebotomy, a variety of prognostic and calendrical works, and unattributed recipes. |
| Paris BnF lat. 13955 | Mid- or 3rd quarter of IX c. | Corbie              | Manuscript concentrates on writings related to the liberal arts, and especially the quadrivium, though it also includes some medical material on fols 137v–147v, such as a selection from the *Herbariencorpus* and unattributed recipes. |

### Biblioteca Apostolica Vaticana

| Manuscript | Date           | Origin            | Additional information                                                                                                                                 |
|------------|----------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| BAV lat. 5951 | 1st quarter of IX c. | Italy (possibly Nonantola) or southern Burgundy | Manuscript contains Celsus’ *De Medicina*, recipes added as marginal notes, and, inserted in the 12th century, Muscio’s *Gynaecia*. |
| BAV pal. lat. 1088 | Mid- or 3rd quarter of IX c. | Lyon area         | Diverse medical collection including excerpts of Galen, Quintus Serenus, and Vindicianus, as well as several groups of recipes unattributed to classical/late antique sources. |
| BAV reg. lat. 598 | Folia in question: c.900 | Folia in question: not noted | Collection of fragments written at different times and covering a variety of topics; two sections of the manuscript concern medicine and have been dated to the Carolingian period (fols 26r–33r and 124r–125r) and include a selection of excerpts from known sources. |

(Continues)
| Manuscript          | Date | Origin          | Additional information                                                                 |
|---------------------|------|-----------------|----------------------------------------------------------------------------------------|
| *BAV reg. lat. 1143 | IX²⁵ | Mainz (possibly) | Manuscript has suffered some damage from humidity and at least four quires are missing; the surviving texts are all related to health and medicine and include a selection of Theodorus Priscianus’ *Euporiston*, the end of Book III of Alexander of Tralles’ *Therapeutica*, Vindicianus’ *Epistula ad Pentadium*, Hippocrates’ *Epistula ad Antiochum regem*, as well as a large number of ‘miscellaneous’ recipes and extracts. Incense listed in a recipe *(Ad cadiuo homine)* on fol. 109r. |
## Appendix 2

Table of recipes and ingredients with the ingredients listed in the order in which they are found in each recipe; original spelling maintained.

| Manuscript | Csg. 44 | Csg. 752 | Csg. 759a | Csg. 759b | Csg. 761 | Csg. 878a | Csg. 878b |
|------------|---------|---------|----------|----------|---------|---------|---------|
| Recipe title | Confectio | Thymiama | Conpositio | Tymiiama | Thimiama | [untitled] | Item aliter |
| Ingredients | timiame | palgrimi | thynamatis | simplex | thymiama | simplex | simplex |
| | paltgrimi | gozumbri | myrrae | storace | cozzunbar | storace | storace |
| | gumfiti | bidellio | storace | mastice | aloo | mastice | aloo |
| | storace | confiti | myrne | onetus | arbor | confitum | confiti |
| | musci | storacis | casia | fistola | musco | storacis | musco |
| | caffore | storacis | (idest ungellas) | rosin uridis | musco | storacis | musco |
| | ladane | musco | cinnamoni | amber | spici | croci | spici |
| | yrinilirici | croci | croci | croci | croci | croci | croci |
| | marinas | ungiculas | marinas | marinas | marinas | marinas | marinas |
| | amomi | uino ueteris | amomi | uino ueteris | amomi | uino ueteris | amomi |
| | uino ueteris | melis optimi | uino ueteris | melis optimi | uino ueteris | melis optimi | uino ueteris |

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