Introduction

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This edited collection grew out of the desire to explore how knowledge was preserved and reinvented in the Middle Ages. Writings from throughout the medieval period reveal, in both secular and religious contexts, a concern with the establishment, transmission and appropriation of knowledge, whether for practical purposes or out of academic interest in learning. Bede, the great Anglo-Saxon scholar, praises the appetite for 'wholesome learning' of the early English church;[1] for him *scientia* is a gift of God to be nurtured and disseminated. Chaucer's ideal scholar is the clerk whose life is devoted to learning: 'gladly wolde he lerne and gladly teche'.[2] For Dante, humankind was created to follow virtue and knowledge ('seguir virtute e canoscenza').[3]

Bede's intellectual setting is a monastic one but from the twelfth century onwards universities became the new centres of learning, where people like Chaucer's clerk would have been trained and *canoscenza* cultivated. Universities formed part of an intellectual network that promoted the dissemination of knowledge, and they boosted the popularity of scientific disciplines across the later medieval world. Inherited knowledge was passed on in monasteries and universities but it was also adapted and extended. Throughout the period writers respectfully altered sources to heighten their relevance to certain events or to a particular readership. In the Preface to *De temporum ratione*, for example, Bede declares that he has created a new work out of 'what can be found scattered here and there in the writings of the ancients'.[4]

Recent years have seen a number of publications reflecting increased and ongoing interest in areas of the vast topic of medieval knowledge. Notable contributions have included the publications resulting from the Italian 'Leornungcræft' and Dutch-Italian 'Storehouses of Wholesome Learning' projects, which have added a wealth of knowledge on instruction, learning and textual

traditions from early medieval manuscripts. Rolf H. Bremmer and Kees Dekker's *Transfer of Encyclopaedic Knowledge* series, which resulted from the 'Storehouses' project, has enhanced our understanding of how 'the study of texts and manuscripts combined opens up windows on the early medieval world of learning as represented by glossaries, proto-encyclopaedias, biblical companions, hagiographical guides, didactic verse'.[5] *Foundations of Learning* was followed by Sándor Chardonnens's and Bryan Carella's edited collection, *Secular Learning in Anglo-Saxon England*, which as the title suggests, explores secular learning in the vernacular in the following disciplines: law, encyclopaedic notes, computus, medicine, charms and prognostication.[6] The outcome is a fascinating book, which brings together a corpus of writings in Old English, which are very often neglected. As for the later medieval period, Rita Copeland's *Pedagogy, Intellectuals, and Dissent in the Later Middle Ages*, which aims to 'make visible certain forms of medieval cultural knowledge which historiography has suppressed', is of particular importance in understanding the role of intellectuals and knowledge in an age of dissent.[7]

The present collection emanated from the same desire to explore how knowledge was preserved and reinvented, but with different objectives in mind. Unlike previous publications, which are predominantly focused either on a specific historical period or, as in Rita Copeland's case, on precise cultural and historical events, this volume, which includes essays spanning from the eighth to the fifteenth centuries, is intended to eschew traditional categorisations of periodisation and disciplines and to enable the establishment of connections and cross-sections between different departments of knowledge, including the history of science (*computus*, prognostication), the history of art, literature, theology (homilies, prayers, hagiography, contemplative texts), music, historiography and geography. As suggested by its title, the collection does not pretend to aim at inclusiveness or comprehensiveness but is intended to highlight suggestive strands of what is a very wide topic. *Aspects of Knowledge* seeks to establish a forum of multi-disciplinary and multi-cultural collaboration between different branches of medieval studies and to stimulate further work in areas that are here opened out.

Medieval perspectives

Medieval scholars wrote much about knowledge at a theoretical and theological level, understanding it as an ambivalent and

wide-ranging concept. A sense of its complexity is suggested by the vast semantic range of the Latin terms commonly translated as 'knowledge', which include *scientia*, *cognitio*, *notitia*, *eruditio* (among others), together with their respective verbal cognates, *scire*, *cognoscere*, *noscere* and *erudire*. Apart from the general meaning of knowledge, *cognitio*, for instance, mainly denotes knowledge acquired through perception or through the exercise of one's mental powers, *notitia* commonly refers to knowledge of a concept or an idea, and *eruditio*, knowledge obtained by instruction, is more akin to learning and can occasionally be used as a synonym for *doctrina*, *disciplina*, *scientia*, *intelligentia* and *cognitio*.

As observed by Steven Livesey, Christianity displayed an ambivalent and cautious attitude towards knowledge from the beginning.[8] In his condemnation of idolatry in 1 Corinthians, Paul writes, 'We know we all have knowledge [Vulgate *scientia*]. Knowledge puffeth up, but love edifieth. And if any man think that he knoweth any thing, he hath not yet known as he ought to know' (1 Corinthians 8:1–2).[9] The apostle stresses that heathen knowledge, a misguided type of *scientia*, inevitably leads to greed and arrogance, while *caritas* or love of God is a prerequisite for acquiring true knowledge, which is directed towards God. For Paul knowledge is a concept that acquires a positive or negative value depending on purpose and circumstance: it can be good or bad. This double aspect is reinforced by Augustine who, borrowing from the passage in 1 Corinthians,[10] differentiates between useful and useless forms of *scientia* and reprimands humankind for pursuing 'a fallaci nomine scientiae' ('what is falsely called knowledge').[11]

For Augustine people should be learned in the knowledge of things which tend to edification ('scientia qua aedificamur'), and ultimately to the understanding of God, as clearly elucidated in one of his *Soliloquies*, where to Reason's question, 'Quid ergo scire vis?' ('What then do you want to know?'), Augustine replies, 'Deum et animam scire cupio' ('I wish to know God and the soul').[12] Thus, all knowledge is a gift from the Holy Spirit (John 14:26) and as such cannot be separated from love and faith.[13]

The relationship between love of God, truth (acquired through vision) and knowledge as inseparable entities is explored more fully by Augustine in *De trinitate*, where he discusses the doctrine of knowledge mainly as a theological concept rather than a theoretical subject. What is understood cannot be separated from the object of love: 'verbum est igitur, quod nunc discernere ac insinuare

volumus, cum amore notitia' ('the word, therefore, which we now wish to discern and study is knowledge with love').[14] Here Augustine uses the word *notitia*[15] to denote an embedded form of awareness or *intelligentia* (perception) which can be achieved through self-knowledge and divine illumination rather than through intellectual understanding or *scientia*. The epistemological dichotomy of *sapientia* (wisdom) and *scientia* (knowledge) is at the core of book XII of *De trinitate* where the noblest type of knowledge, *sapientia*,[16] is concerned with the contemplation of eternal things ('aeternorum contemplatione'), while *scientia* is linked to the way in which we act upon temporal things ('actio qua bene utimur temporalibus rebus').[17] Paige E. Hochschild explains that in *De trinitate* '*scientia* is properly understood as the life of faith: it is the temporal ordering of all things to the truth of God. *Sapientia* is the wisdom of God himself. Both are combined in the twofold nature of Christ'.[18] As a consequence, both *genera* of knowledge are indispensable in attaining true happiness and *amor Dei*.

In Book II of the *De doctrina christiana*, a work that greatly contributed to the understanding of philosophy, theology, rhetoric and semiotics in medieval Europe, Augustine offers a disquisition on the appropriation of classical learning and the liberal arts (*disciplinis liberalibus*)[19] for the understanding of Sacred Scripture. Some kinds of *scientia* are deemed unnecessary and luxurious and ought to be utterly rejected but certain other disciplines, if subordinated to the love of God and to the study of the Scripture, constitute a valuable exegetical aid to Christians. Among these useful disciplines Augustine particularly highlights *scientia* acquired from the senses linked to objects ('vision'), and experimental or intellectual *scientia* embracing experiments and the mechanical arts (medicine, agriculture and navigation), the sciences of reasoning and of numbers, history and natural science.[20]

The importance of re-appropriation of learning and knowledge from the past had already been emphasised in *De ordine*, where Augustine encouraged students to be instructed in 'disciplinis omnibus' ('all branches of learning'). Among those, the verbal disciplines of grammar, language and writing are regarded as *utilia* (useful) and 'nec discuntur illicite' ('not unlawful to learn') and of great service in biblical hermeneutics.[21] However, Augustine's guarded approach towards *profana scientia* is evident in his discussion of dialectics, a branch of learning that he acknowledges to be 'in litteris sanctis sunt, penetranda et dissolvenda, plurimum valet' ('of very great service in searching into and unravelling all sorts of

questions that come up in Scripture') but one that can also foster 'libido rixandi et puerilis quaedam ostentatio decipiendi adversarium' ('the love of wrangling, and the childish vanity of entrapping an adversary').[22] Still, *eruditio* (instruction) in the liberal arts, if pursued in moderation and with determination from childhood, 'intellectum efferent ad divina' ('leads the mind to God'), enhances the spirit and shapes excellent teachers of philosophy.[23]

Augustine's view of the usefulness of secular learning in Christian education is echoed by Cassiodorus in the preface to his *Institutiones*, where he explains that 'Divine Scripture […] will be better understood if one has prior acquaintance (*notitia*) with [the arts and disciplines of liberal studies]'; these are *de grammatica*, *de rhetorica*, *de dialectica*, *de arithmetica*, *de musica*, *de geometrica*, *de astronomia*. Cassiodorus goes on to discuss these disciplines in greater detail in Book II.[24] His aim, refuting the teachings of Church Fathers like Caesarius of Arles, who criticised the liberal arts as leading to doctrinal heresy,[25] is to demonstrate that these arts are embedded universal forms of knowledge, which were in existence long before pagan authors learnt and taught them. For Cassiodorus, as for Augustine, arithmetic, geometry, music and astronomy, given their shared concern with numbers, are part of mathematical theory: 'mathematicam uero latino sermone doctrinalem possumus appellare' ('what in Latin indeed we can call the mathematical art').[26] The term *quadrivium* is used for the first time by Boethius[27] in the Preface to his treatise on numbers, *De arithmetica*, in relation to a four-part study, including arithmetic, music, geometry and astronomy, the knowledge of which is subordinated to the 'the highest perfection of the disciplines of philosophy'.[28]

The debt of Isidore of Seville, the great organiser and classifier of knowledge for the Middle Ages, to Cassiodorus's and Boethius's taxonomy of the *artes liberales* reframed within a Christian context is evident in the first three books of his encyclopaedic work the *Etymologiae* (I. *de grammatica*; II. *de rethorica et dialectica*; III. *de quattor disciplinis mathematicis*).[29] As explained by Mark Amsler, Isidore perceives knowledge or *cognitio* as 'fixed rather than transitory because it is structured in language'.[30] Language, specifically etymology, is the structure upon which knowledge of all things is built, 'nisi enim nomen scieris, cognitio rerum perit' ('for unless you know the name, the understanding perishes').[31] Book I, on *ars grammatica* (grammar being, in Isidore's view, the governing principle of knowledge together with etymology), opens with a

clear etymological distinction between *disciplina* and *ars*, which the author attributes to Plato and Aristotle.[32] For Isidore, *disciplina* and *scientia*, both deriving from *discere* (learning), imply something that ought to be learned in order to be known, whereas *ars*, derived from the Greek ἀρετή (virtue), is rather a faculty of the mind or manner of thinking consisting of strict principles and rules,[33] in effect a technique.

'Encyclopaedic' works such as Isidore's *Etymologiae* and, long before that, Pliny's *Historia naturalis* (an anthology of sources on the natural world), can be described as (to borrow Mary Franklin-Brown's terminology) '"heterotopias" of knowledge, that is, spaces where many possible ways of knowing are juxtaposed', and whose main goals are 'to provide a comprehensive overview of knowledge, to organize it, and to propagate it'.[34] In the preface to the *Historia naturalis*, Pliny describes his *libellus* as a work that includes all those subjects that the Greek call *enkuklios paideia* (*iam omnia attingenda quae Graeci* ἐγκύκλιος παιδεία [*enkuklios paideia*] *vocant*).[35] Scholars identify Pliny's enigmatic reference to ἐγκύκλιος παιδεία with a comprehensive advanced programme of study the aim of which, as Umberto Eco puts it, 'is to produce a type of complete man, versed in all the disciplines'.[36]

Based on Isidorean practice and butressed by Augustinian theologically inspired thinking, encyclopaedic knowledge was transmitted to the medieval world, where it provided a foundation of monastic and, later, university education. In one of the most quoted passages from the *Historia ecclesiastica gentis anglorum*,[37] Bede zealously praises the ambitious and 'encyclic' educational programme offered at the school of Theodore (Archbishop of Canterbury, 668–90) and his colleague Hadrian, which recruited monks ready to learn Greek and Latin, Christian and pagan works, alongside the study of grammar and metrics, and of other subjects such as astronomy, arithmetic and computus, which were linked to the study of the Scriptures.[38]

Faith Wallis maintains that for Bede *scientia* 'simply denoted "knowledge"' and was not to be intended as 'an end in itself', but, as for Augustine, 'was directed to knowledge of God' (*doctrina christiana*).[39] In chapter XXV of *De temporum ratione*, designed as a scientific textbook for teaching and learning, covering diverse subjects including medicine, mathematics, astronomy and natural science, Bede refers to *naturalis ratio* in the sense of 'factual knowledge about the natural world, and rational inferences drawn from this knowledge'.[40] According to Wallis, Bede understood

ratio as embracing 'both "reckoning" and "reasoning"' and that 'time-reckoning and the study of the natural world [were] not to be intended as self-contained and self-explanatory disciplines, but subordinate elements of *Doctrina christiana* or erudition useful for Christian preachers and exegetes'.[41] Studying the *computus* might be useful for daily needs and it might expand human knowledge, but it had first to aid the understanding of God. In the *Historia ecclesiastica*, Bede narrates the story of the arrival of the Irish Bishop Aidan, who was summoned by King Oswald as a spiritual guide for his people. Aidan is described as a saintly man 'of outstanding gentleness, holiness, and moderation, having a zeal in God', but not 'secundum scientiam' ('according to knowledge'), for he kept Easter, mistakenly, 'in accordance with the customs of his own nation'.[42] Bede here seems to be separating faith from *scientia*; knowledge of God does not suffice when it comes to the study of *computus*, which Bede sees as a form of applied knowledge, 'a vision of science as a problem-solving activity'[43] more in line with the *naturalis ratio* of the *De temporum ratione*, than implied *scientia*.

Bede's reverential attitude towards ancient writers and inherited knowledge is explicated in the Preface to *De temporum ratione* where he claims that he has created a new piece of work out of 'quare de his quae sparsim in veterum scriptis inveniri potuerant ipse novum opus condere studuerim' ('what can be found scattered here and there in the writings of the ancients').[44] Bede's scientific works, which were widely disseminated in Carolingian schools and *scriptoria*, made their way back into England with the Benedictine Reform. An example of the great intellectual ambition associated with this renewed scientific interest and computistical knowledge is the elaborate treatise on the reckoning of time, written (in English) by Byrhtferth of Ramsey and composed to help parish priests in their regular duties. Byrhtferth's aim is to introduce the science of *computus* to the *iunge men* of the monastery and teach them more about the Easter mysteries, including the cycles and the twelve tables.[45]

The intellectual setting of the early medieval period was predominantly confined to courts, a good example of which is Charlemagne's, and monasteries, but from the twelfth century onwards universities became the new centres of learning, where people like Chaucer's clerk would have been trained and Dante's *canoscenza* cultivated. Universities formed part of an intellectual network, which promoted the dissemination of knowledge and boosted the popularity of scientific disciplines across the later

medieval world. The epistemological paradigm established by Augustine in Book II of the *De doctrina christiana*, which set the foundations for the medieval understanding of knowledge, was both complemented and theoretically challenged in the later period by the proliferation of classical scientific, philosophical and mathematical materials from the Greek, Jewish and Islamic traditions, made accessible to the West through the works of Latin translators and commentators, including Gerard of Cremona, Michael Scotus and Alfred of Sareschal as part of the cultural and educational programme promoted at the Cathedral School of Toledo.[46]

Aristotle's treatises on dialectic (logic) in particular (*Prior* and *Posterior Analytics*, *Topics* and *Sophistical Refutations*), which came to be incorporated into the university curriculum, offered a reconceptualisation of the nature of *scientia* and scientific knowledge (Gr. ἐπιστήμη, 'episteme') and a new philosophical framework of investigation based on a 'carefully crafted logical methodology that surveyed everything that was humanly knowable about the natural world, its ultimate principles and causes, as well as man's destiny in this universe – all this without the aid of divine revelation'.[47] For early medieval thinkers 'both faith and *scientia* depend[ed] ultimately on the same indirect first principles that must be accepted, not proved',[48] and subjected to the *doctrina christiana*, whereas, for Aristotle, instruction was mainly an inductive process given or received by way of argument and which proceeds from pre-existent knowledge,[49] which is of two kinds: 'in some cases admission of the fact must be assumed, in others comprehension of the meaning of the term used, and sometimes both assumptions are essential'.[50] The mathematical sciences and all other speculative disciplines, which, for Aristotle, were mainly independent entities, are learnt in this way, and the same can be said for the two forms of dialectical reasoning, syllogistic and inductive, 'for each of these latter make use of old knowledge to impart new, the syllogism assuming an audience that accepts its premises, induction exhibiting the universal as implicit in the clearly known particular'.[51] Thus scientific knowledge must be demonstrated (demonstrative syllogism or *apodeixis*)[52] through its cause (*scientia ex causis*): 'we think we understand something if we possess a deduction from some true and primitive items',[53] for grasp of a reasonable conclusion is the primary condition of knowledge.

The new theoretical and scientific models offered by both Aristotle and the works of Averroes, which were in circulation at the same time, posed a considerable threat to the supremacy of

theology as a science within the university organisation: 'only the proof of the strictly scientific character of theology could secure its place at university'.[54] Of particular significance for the theologians of the thirteenth and fourteenth centuries was Aristotle's theory of subalternate sciences, which he extensively discusses in the first book of *Posterior Analytics*, arguing that each science possesses its own field of enquiry, arguments and application. Subalternate sciences derive their principles from higher sciences, as is the case with optics, which infers most of its concepts from geometry.

Thomas Aquinas's familiarity with Aristotle's disquisition on sciences is evidenced in his *Expositio libri Posteriorum Analyticorum*.[55] In his answer to the *questio* of whether the *sacra doctrina*, based upon divine revelation, is a science, Aquinas distinguishes between two kinds of *scientiae* ('duplex est scientiarum genus'): 'lumine naturali intellectus', that is those which proceed from a principle known by 'the natural light of the intelligence' and those which proceed from a principle known by 'lumine superioris scientiae', 'by the light of a higher science':

> So it is that sacred doctrine is a science [*sacra doctrina est scientia*], because it proceeds from principles established by the light of a higher science, namely, the science of God and the blessed [*scilicet est scientia Dei et beatorum*]. Hence, just as the musician accepts on authority the principles taught him by the mathematician, so sacred science is established on principles revealed by God.[56]

Indeed *scientia Dei* ('knowledge of God') is the cause of everything, for we acquire knowledge of natural things through God, from whom they originate. Aquinas places theology as a subalternate science, which is subjected to the higher knowledge that is revealed or inspired directly by God.[57]

The developing understandings and applications of knowledge sketched briefly above – we are well aware that a full account of medieval theories of knowledge remains to be written – provide a conceptual background for the specific 'aspects' covered in the present collection. Our overview has focused on attitudes to knowledge in learned Christian tradition but it is also important to attend to secular strands of knowledge, such as those deriving from Germanic culture and from folk practice, which existed in relationship to the learned 'Christian' knowledge that this book also explores.

'Christian' knowledge was generally unproblematic in the medieval period, of course, and most thinkers, following the lead of the fathers, considered that it should be actively cultivated. Knowledge

of the apostles, knowledge of the power of the name of Jesus and knowledge of saints and their devout practices, to mention examples examined in chapters here (see chapters 4, 6 and 9), needed no defence; literacy and learning for religious purposes, including on the part of holy women, as in the case of Queen Margaret of Scotland (see chapter 9), were to be embraced. As mentioned above, however, with reference to Bede's Aidan, sanctity could be achieved without true knowledge. Langland's Will in *Piers Plowman* goes further and asks what good is knowledge at all in saving one's soul, a radical question discussed in one of our contributions below (chapter 7).

Secular, pagan knowledge needed stronger justification. Secular knowledge included not only the classical heritage appropriated by Augustine, Cassiodorus and others but also knowledge of Germanic mythology and legend and other later secular traditions, as in chivalric romance. Referring to a Germanic hero, the Anglo-Saxon churchman Alcuin famously asked, 'Quid Hinieldus cum Christo?' ('What has Ingeld to do with Christ?').[58] This issue of knowledge of and from the pagan Germanic world is taken up here in the chapter on the Jellinge Stone (chapter 10) and in the chapter on the use of *Beowulf* in the Old English verse saint's life *Andreas* (chapter 8). *Beowulf* itself, like the Jellinge Stone, views Germanic tradition positively though bringing a Christian perspective to its understanding, while *Andreas* is shown to reject the heroic world as vanity, re-appropriating *Beowulf* in mock-epic terms to do so.

Secular academic knowledge, stemming ultimately from pagan antiquity and developed particularly under the influence of Isidore, was generally agreed in the Middle Ages, as it had been by the most authoritative fathers, to provide useful foundations for Christian study. Examples of such knowledge discussed in this book are the widely found literature of the interpretation of dreams (the corpus is surveyed analytically here for the first time, chapter 1) and that of weather forecasting (chapter 2), shown to be based on learned inheritance rather than on practical experience, though interestingly in the particular manuscript studied here an instance of practical forecasting, deriving presumably from folk tradition, is also incorporated. Also included below (chapter 5) is a cartographical contribution that studies a particular twelfth-century map of Jerusalem to demonstrate a combination of Christian symbolism and real urban topography, as learning and experience are integrated in a doubly useful image of the city. Practical and inherited *utilia* are also combined in the music collection discussed in the chapter on the Cambridge Songs (chapter 3).

The transmission of such useful knowledge was a continuing concern for scholars and educators throughout the period. As explicitly stated by Bede (see above p. 7), many writers saw it as their job to transmit knowledge, often also organising and extending it as they did so; Isidorean taxonomies are reworked in riddle collections, for example (and Isidore himself was an organiser and extender par excellence);[59] translators and adapters modify their source texts as they render them in the target language, most famously, perhaps, as in the writings of Chaucer but also, to refer to a text discussed in a chapter of this book (chapter 8), in *Andreas*. As shown in other chapters here, copies of collections of weather forecastings (chapter 2) and dream interpretations (chapter 1) tend to have individual features rather than pass on their exemplars unchanged and new and old are combined in music anthologies (chapter 3).

And transmission has a material dimension as well as an intellectual one. This material dimension is brought out in the present volume in the attention given to specific manuscripts and other artefacts: as well as the carved stone of the Jellinge monument (see chapter 10), studies here focus on particular manuscripts containing a religiously inspired map (chapter 5), a series of weather texts (chapter 2) and a collection of music writings (chapter 3), while the chapter on dream interpretation (chapter 1) offers an analysis of specific examples. The theme of materiality is expressed most strikingly in the book's closing chapter (chapter 11), which gives an account of the actual size and layout of Anglo-Saxon manuscripts, considering the manuscripts so essential to the transmission of all knowledge – religious, secular or a combination of the two – as physical objects.

Outline of the chapters

The chapters in this volume are grouped into four parts: I, Anthologies of Knowledge; II Transmission of Christian Traditions; III, Past and Present; and IV, Knowledge and Materiality. As illustrated in the preceding paragraphs, common concerns are also widely reflected across these parts but the groupings are intended to provide the reader with a further thematic framework for approaching aspects of knowledge.

The first part, Anthologies of Knowledge, considers the transmission of learning in anthologies and collections of texts that not only preserve existing knowledge but also develop and add to or modify that knowledge. The first chapter, by Sándor Chardonnens,

takes the reader into the world of dreams. In an ambitious and wide-ranging study Chardonnens argues that alphabetical and thematic dream books, dream lunaries and mantic alphabets belong to the same branch of divination, that of oneiromancy, but that they were rarely anthologised in clusters within the same collection. He investigates patterns of transmission of dream divination in manuscripts and early printed texts in order to understand whether the ways in which those three types of dream divination were clustered together may give us an indication of genre awareness.

In the second chapter Marilina Cesario addresses the subject of weather forecasting in the Middle Ages as revealed in the meteorological prognostics that survive abundantly from throughout the period but particularly from the eleventh century onwards. This chapter focuses in particular on one fifteenth-century medical manuscript from Germany containing an anthology of seven Latin weather texts. Cesario edits and translates the texts for the first time and offers detailed discussion of them. She finds that these treatises contribute to their manuscript's overarching interest in natural philosophy and that they were mostly given theoretical rather than practical usage, having their place in a context of *eruditio* (academic learning). One item stands out from the others, however, a puzzling salt prognostication found uniquely here. This text relies not, it is argued, on erudite knowledge but on knowledge acquired empirically and appears to have been designed for practical use. The chapter throws new light on prognosticatory literature, a branch of medieval learning that has recently emerged from the margins to become a significant object of scholarly concern.

The final chapter in this part, by Ann Buckley, presents an appraisal of the collection known as 'The Cambridge Songs', found in a mid-eleventh-century English manuscript but derived from a German source, which also included material from the international clerical court culture of the period. Buckley suggests that the collection can be viewed as an example of an 'anthology of musical knowledge', which informs on genres, techniques, performance practice and the types of repertory that would have been usual in the eleventh century among learned audiences. The chapter focuses firstly on the collection's song texts as a source of information on musical knowledge and musical practice in German court culture of the eleventh century but takes account too of the wider European clerical and intellectual framework, interrogating the *raison d'être* of such a collection in the context of anthologies of knowledge of the time.

Questions of transmission are addressed even more directly in the second part, Transmission of Christian Traditions, which examines how aspects of Christian tradition are constructed and then appropriated and used over time. The theme of the interpretation and application of Christian knowledge is central to Hugh Magennis's survey of treatments of the apostles in vernacular writings in Anglo-Saxon England. The *acta* of the apostles originated in the East but were transmitted and reworked by Western writers, not least in pre-Conquest England. Examining depictions of the apostles in Old English, Magennis's chapter emphasises the definitive place that the apostles occupy within Christian systems of knowledge and understanding but also considers how traditions of the apostles are appropriated and reconceived by Anglo-Saxon writers (including the poet of *Andreas*, whose reworking of his source is considered in greater detail in the chapter by North).

Suzanne Conklin Akbari and Asa Simon Mittman's chapter 'Seeing Jerusalem: schematic views of the Holy City, 1100–1300' brings us into the realm of cartography and medieval perceptions of geographical space, specifically in relation to Jerusalem. The chapter pays particular attention to the map of the city in a manuscript from twelfth-century Flanders, doing so in the context of an overview of medieval map-making, which stresses the symbolic function of maps within a Christian view of the physical world, with Jerusalem the ideal city at its centre. For the composer of the map examined here, however, Jerusalem is not just an ideal, but a real city. Thus theological understanding is strikingly combined with practical knowledge.

Denis Renevey's contribution examines the ways in which writers in the Greek world and, later, Western religious teachers used the name of 'Jesus' in contemplative practices, and offers answers as to the way in which knowledge of the power of the name 'Jesus' was appropriated for different purposes in the two differing Christian traditions, and according to distinct spiritual ideologies. Renevey discusses the influence of Origen in the development of knowledge about the powerful potential of the name of Jesus and goes on to highlight the attachment to the name in Orthodox liturgical practice from about the ninth century, an attachment that in the fervency of its language anticipates Western traditions of affectivity. Among Western writers, Renevey focuses on Anselm of Canterbury and Bernard of Clairvaux, the former promoting affective use of the name in personal devotion, the latter in a communal monastic context, as part of a well-conceived devotional scheme.

As analysed in the chapter by Kath Stevenson, traditions of Christian knowledge are an abiding preoccupation for William Langland in *Piers Plowman*, with Langland exploring fundamental questions about the pre-eminence or otherwise of abstract learning, textually mediated and transmitted ('clergie'), over experiential knowledge ('kynde knowynge') and about the role of learning in Christian salvation. What good is knowledge? In an age of abstruse academic discourse, in which Langland himself was deeply versed, Langland's protagonist Will searches urgently for the knowledge that is truly valuable, that is, the knowledge that will enable him to save his soul. Stevenson locates Langland's ambivalence concerning the efficacy of textually mediated learning within the wider contexts of vernacular theology in the late fourteenth and fifteenth centuries and in particular shows Langland's treatment of the Passion in the central *passus* of his poem to be informed by the developing traditions of affective piety. For Langland the Passion can function as a site in which textual and experiential knowledge are united, with abstract intellectual knowledge becoming transfigured as it is fused with 'kynde knowynge'.

Part III, Past and Present, illustrates how the past interacts with the culture and politics of the period to fit the needs of contemporary writers and audiences. This part opens with Richard North's chapter 'Meet the pagans: on the misuse of *Beowulf* in *Andreas*', which argues that the Old English poem *Andreas* (on St Andrew) appropriates *Beowulf* for mock-epic purposes, turning knowledge of *Beowulf*, a poem that by implication must have been famous in Anglo-Saxon England, to a new Christian purpose. *Andreas* is seen to offer through its mock-epic style a satirical commentary on the heathen nostalgia of *Beowulf*. In *Andreas* knowledge of secular literature and its version of the past is astutely re-appropriated for religious purposes, being absorbed into and transcended by a Christian celebration of the true heroism of the saint. This chapter adds a new dimension to the understanding of Anglo-Saxon literary history and the place of secular tradition within it.

Emily Wingfield's chapter examines treatments of Queen Margaret of Scotland (d. 1093), beginning with the *Life* written by Turgot, prior of Durham, at the request of Margaret's daughter the English queen Matilda, a work that highlights Margaret's literacy and learning; Margaret's role as reader and writer is shown to be emphasised also in later treatments. The subject of this chapter is thus not a branch of knowledge but the perceived learning of an important female individual and the significance of that learning

in constructions of her as a saint. The chapter examines the way in which books function as vehicles for Margaret's sanctity and political power and suggests that the *Life* itself is designed to model the life of a learned and holy queen for Margaret's daughter, Matilda. Wingfield then considers how later verbal and visual accounts of Margaret develop this tradition so that she comes to function as an advisor of princes as well as princesses, her sanctity being shown to inhere 'quite specifically, in her literacy'.

The final part, Knowledge and Materiality, explores ways in which material objects were instrumental in the preservation and circulation of knowledge. Michelle Brown's contribution represents an instance of the integration of Christian and pre-Christian Germanic knowledge in the early Middle Ages. Brown explores the context and meaning of the distinctive late-tenth-century runestone carved at the royal burial ground of Jellinge in Denmark, viewing the monument as a book in stone and a symbol of conversion and of changing political agendas in Scandinavia in the tenth century. Ranging widely across early medieval art, Brown explains that the stone draws upon both Christian and pagan Norse traditions 'to form a new, integrated iconography that formed a distinctive expression of the Scandinavian experience of cultural synthesis and conversion'.

Materiality is writ large in what is the final chapter of the volume, by Donald Scragg. Scragg focuses on the very practical issue of the size and the layout of Old English manuscripts from the eighth century to the first half of the twelfth, in order to explore the role of books in the transmission of thought, knowledge and practical experiences of the age. The chapter considers how the dimensions of surviving books can give clues 'about their intended use, about how they were created and about what that may tell us about the role of the written vernacular in the society of early England'.

Notes

1 *Bede's Ecclesiastical History of the English People*, ed. and trans. B. Colgrave and R. A. B. Mynors (Oxford: Clarendon Press, 1969), IV.2.
2 Chaucer, *General Prologue*, line 308, ed. L. D. Benson, *The Riverside Chaucer* (Oxford: Oxford University Press, 1989), p. 28.
3 Dante Alighieri, *La Divina Commedia, Inferno*, ed. M. Chiavacci Leonardi (Milan: Mondadori editore, 1991), xxvi.120, p. 189.

4 *Bede: The Reckoning of Time*, trans. F. Wallis (Liverpool: Liverpool University Press, 1998, repr. 2004), p. 4.
5 R. H. Bremmer and K. Dekker (eds), *Foundations of Learning: The Transfer of Encyclopaedic Knowledge in the Early Middle Ages* (Leuven: Peeters, 2007), p. x. See also R. H. Bremmer and K. Dekker (eds), *Practice in Learning: The Transfer of Encyclopaedic Knowledge in the Early Middle Ages* (Leuven: Peeters, 2010); C. Gilberto and L. Teresi (eds), *Limits to Learning: The Transfer of Encyclopaedic Knowledge in the Early Middle Ages* (Leuven: Peeters, 2013); and R. H. Bremmer and K. Dekker (eds), *Fruits of Learning: The Transfer of Encyclopaedic Knowledge in the Early Middle Ages* (Leuven: Peeters, 2016). See also P. Lendinara, L. Lazzari and M. A. D'Aronco (eds), *Form and Context of Instruction in Anglo-Saxon England in the Light of Contemporary Manuscript Evidence* (Turnhout: Brepols, 2007).
6 L. S. Chardonnens and B. Carella (eds), *Secular Learning in Anglo-Saxon England: Exploring the Vernacular* (Amsterdam: Rodopi, 2012).
7 R. Copeland, *Pedagogy, Intellectuals, and Dissent in the Later Middle Ages: Lollardy and Ideas of Learning* (Cambridge: Cambridge University Press, 2001), p. 1. See also, Copeland's *Rhetoric Hermeneutics and Translation in the Middle Ages* (Cambridge: Cambridge University Press, 1991); and D. G. Deanery, K. Ghosh and N. Zeeman (eds), *Uncertain Knowledge: Scepticism, Relativism, and Doubt in the Middle Ages* (Turnhout: Brepols, 2014).
8 T. Glick, S. J. Livesey and F. Wallis (eds), *Medieval Science, Technology and Medicine: An Encyclopaedia* (Abingdon: Routledge, 2005), s.v. 'Scientia', p. 455.
9 Modern English Bible translations are from the Douay-Rheims version, online at www.drbo.org/.
10 *Sed hoc modo instructus divinarum Scripturarum studiosus, cum ad eas perscrutandas accedere coeperit, illud apostolicum cogitare non cesset: 'Scientia inflat, charitas aedificat'* (*Sancti Aurelii Augustini Hipponensis Episcopi Opera Omnia, De doctrina christiana*), opera et studio Monachorum Ordinis Sancti Benedicti e Congregatione S. Mauri (Paris: Gaume Frates, 1836), II.xli.62, cols 75–6. 'When the student of the Holy Scriptures, after being instructed in this manner, begins his examination of them, he should not fail to reflect upon that observation of the apostles: 'Knowledge puffs up, but charity edifies'. The translation is from J. J. Gavivan, *Saint Augustine, Christian Instruction* (Fathers of the Church, vol. 2 Washington, DC: The Catholic University of America Press, 1947, repr. 1966), p. 114.
11 *Confessionum Libri Tredecim* (*Opera Omnia*), opera et studio Monachorum Ordinis Sancti Benedicti e Congregatione S. Mauri (Paris: Gaume Frates, 1836), XIII.xxi.30, col. 396.
12 T. F. Gilligan, *Soliloquies* (New York: Cima Publishing, 1948), *Soliloquy* I.ii.7, p. 350.

13 For a study of Augustine's epistemology, see L. Gioia, *The Theological Epistemology of Augustine's De Trinitate* (Oxford: Oxford University Press, 2008).
14 *Cum itaque se mens novit et amat, iungitur ei amore uerbum eius. Et quoniam amat notitiam et novit amorem, et verbum in amore est, et amor in verbo, et utrumque in amante atque dicente* (*De Trinitate*, *Opera Omnia*, IX.x.15, col. 1348). 'Hence, when the mind knows and loves itself, its word is joined to it by love. And because the mind loves its knowledge and knows its love, then the word is in the love and the love in the word, and both are in him who loves and who speaks'. The translation is from S. McKenna, *Saint Augustine: The Trinity* (Fathers of the Church, vol. 45; Washington, DC: The Catholic University of America Press, 1963, repr. 1972), p. 285.
15 See M. J. B. Gardin Dumesnil (ed.), *Latin Synonyms, with their Different Significations, and Examples Taken from the Best Latin Authors*, trans. by J. M. Gosset (London: Whittaker, 1819).
16 'For it is the duty of good education to arrive at wisdom by means of a definite order; without order this is a matter of chance hardly to be relied upon […]'. Gilligan, *Soliloquies*, *Soliloquy*. I.xiii.23, p. 374.
17 *De Trinitate*, XII.xxii.16, cols 1400–1.
18 P. E. Hochschild, *Memory in Augustine's Theological Anthropology* (Oxford: Oxford University Press, 2012), p. 218.
19 S. Borruso (trans.), *St. Augustine, On Order* (South Bend, IN: St. Augustine's Press, 2007), Book II, Second Debate, ix.26, p. 86.
20 *De doctrina christiana*, II.xxix.58, col. 74.
21 *De doctrina christiana*, II, table of contexts, chapter xviii, cols 41–2.
22 *De doctrina christiana*, II.xxxi.48, col. 69.
23 Borruso, *On Order*, Book I, First Debate, viii.24, pp. 30–1.
24 W. Halporn (ed. and trans.), *Cassiodorus Institutions of Divine and Secular Learning, On the Soul*, with an introduction by M. Vessey (Liverpool: Liverpool University Press, 2004), p. 107.
25 G. Morin (ed.), *Sancti Caesarii Arelatensis Sermones*, CCSL 103–4 (Turnhout: Brepols, 1953), Sermo XCIX.
26 *Iam in musica, in geometria, in astrorum motibus, in numerorum necessitatibus ordo ita dominatur ut si quis quasi eius fontem atque ipsum penetrale videre desideret, aut in his inveniat aut per haec eo sine ullo errore ducatur* ('take now music, geometry, the motion of the heavens, number theory. Order is so overpowering in these, that anyone seeking its source will either find it there, or will be led to it through them without error'). Borruso, *On Order*, Book II, First Debate, v.14, pp. 68–9.
27 For a thorough study of education and culture from the sixth to the eighth centuries, see P. Riché, *Education and Culture in the Barbarian West, Sixth through Eighth Centuries*, trans. from the 3rd edn by J. J. Contreni (Columbia, SC: University of South Carolina Press, 1976).

28 M. Masi (trans.), *Boethian Number Theory* (Amsterdam: Rodopi, 1983), p. 71. Both Boethius and Cassiodorus drew on Martianus Capella's order of discussion of the liberal arts in *De nuptiis philologiae et mercurii*. By the sixth century classical learning and study of pagan authors had already entered Irish monasteries where particular relevance was given to the *quadrivium* as applied to computistical studies.
29 S. A. Barney (trans.), *The Etymologies of Isidore of Seville* (Cambridge: Cambridge University Press, 2006), I.xxix.2, p. 55.
30 M. Amsler, *Etymology and Grammatical Discourse in Late Antiquity and the Early Middle Ages* (Amsterdam: John Benjamins Publishing, 1989), p. 136.
31 Barney, *Etymologies*, p. 42.
32 *Disciplina* and *ars* were often used interchangeably. Augustine uses *disciplina* to refer to *disciplinis liberalis*, and *ars* to denote the branch of learning as in *artes mechanicae*, *de arte rhetorica et dialectica* (*De doctrina*, II. xli.62).
33 J. Oroz Reta and M. A. Marcos Casquero (eds), *Etymologias* (Madrid: Biblioteca de Autores Cristianos, 1994), I.i.1, p. 25.
34 M. Franklin-Brown, *Reading the World: Encyclopaedic Writing in the Scholastic Age* (Chicago, IL, and London: University of Chicago Press, 2012), pp. 7–8. See also J. North, 'The art of knowing everything', in P. Binkley (ed.), *Pre-Modern Encyclopaedic Texts* (Leiden: Brill, 1997), pp. 183–200.
35 H. Rackman (ed. and trans.), *Pliny Natural History*, vol. 1 (Cambridge, MA, and London: Harvard University Press and W. Heinemann, 1967), Preface.14, pp. 10–11.
36 U. Eco, *Interpretation and Overinterpretation* (New York: Cambridge University Press, 1992), p. 149. On the interconnectedness of knowledge and the importance of learning different subjects, Vitruvius states that *Architecti est scientia pluribus disciplinis et variis eruditionibus ornata, cuius indicio probantur omnia quae ab ceteris artibus perficiuntur* ('The science of the architect depends upon many disciplines and various apprenticeships which are carried out in other arts'). F. Granger (ed. and trans.), *Vitruvius on Architecture*, 2 vols (Cambridge, MA, and London: Harvard University Press and W. Heinemann, 1970), I.i, pp. 6–7.
37 Colgrave and Mynors, *Bede's Ecclesiastical History*, IV.2.
38 For a detailed analysis of Theodore's and Hadrian's period, see B. Bischoff and M. Lapidge (eds), *Biblical Commentaries from the Canterbury School of Theodore and Hadrian*, CSASE 10 (Cambridge: Cambridge University Press, 1994).
39 F. Wallis, 'Bede and science', in S. DeGregorio (ed.), *The Cambridge Companion to Bede* (Cambridge: Cambridge University Press, 2010), pp. 114 and 116.

40 F. Wallis, 'Si naturam quæras: reframing Bede's "science"', in S. DeGregorio (ed.), *Innovation and Tradition in the Writings of the Venerable Bede* (Morgantown, WV: West Virginia University Press, 2006), pp. 65–99 (pp. 88–9).
41 Wallis, 'Bede and science', p. 114.
42 Colgrave and Mynors, *Bede's Ecclesiastical History*, III.3, p. 256.
43 Wallis, 'Bede and science', p. 125.
44 C. W. Jones (ed.), *Bedae opera de temporibus* (Cambridge, MA: The Medieval Academy of America, 1943), p. 175. The translation is that of Wallis, *Bede: The Reckoning of Time*, Preface, p. 4. Bede's debt to both divine inspiration (*amore Dei*) and ancient documents (*litteris antiquorum*) is explicitly acknowledged in the final passage of the *Historia*, which opens with: *Haec de historia ecclesiastica Brittaniarum, et maxime gentis Anglorum, prout uel ex litteris antiquorum, uel ex traditione maiorum, uel ex mea ipse cognitione scire potui, Domino adiuuante digessi Baeda famulus Christi, et presbyter monasterii beatorum apostolorum Petri et Pauli, quod est ad Uiuraemuda, et Ingyruum*. (I, Bede, servant of God and priest of the monastery of St. Peter and St. Paul which is at Wearmouth and Jarrow, have, with the help of God and to the best of my ability, put together this account of the History of the Church of Britain and of the English people in particular, gleaned either from ancient documents or from tradition or from my own knowledge). Colgrave and Mynors, *Bede's Ecclesiastical History*, V.24, p. 293.
45 M. Lapidge and P. S. Baker (eds), *Byrhtferth's Enchiridion* (EETS, SS 15; Oxford: Oxford University Press, 1995), pp. 120–1.
46 For a detailed discussion on this topic, see S. Brown, 'The intellectual context of later medieval philosophy: universities, Aristotle, arts, theology', in John Marebon (ed.), *Medieval Philosophy* (History of Philosophy, vol. III; London: Routledge, 2004), pp. 188–203.
47 See G. Klima, F. Allhoff and A. Jayprakash Vaidya (eds), *Medieval Philosophy: Essential Readings with Commentary* (Oxford: Blackwell, 2007), p. 8.
48 Glick, Livesey and Wallis, *Medieval Science*, p. 455.
49 J. Barnes (trans.), *Aristotle: Posterior Analytics* (Oxford: Clarendon Press, 2nd edn, 1994), I.1, p. 1. 'The object of knowledge would appear to exist before knowledge itself, for it is usually the case that we acquire knowledge of objects already existing', in E. M. Edghill (trans.), *Aristotle, Categories*, Works of Aristotle Translated into English, 1 (Oxford: Clarendon Press, 1928), p. 7; R. McKeon, *The Basic Works of Aristotle* (New York: Random House, 1941).
50 Barnes, *Posterior Analytics*, I.1, p. 1.
51 Barnes, *Posterior Analytics*, I.1, p. 1.
52 'We do know things through demonstration. By a demonstration I mean a scientific deduction; and by scientific I mean a deduction

by possessing which we understand something'. Barnes, *Posterior Analytics*, II.2, p. 2.

53 Barnes, *Posterior Analytics*, I.9, p. 14.

54 U. G. Leinsle, *Introduction to Scholastic Theology* (Washington, DC: The Catholic University of America Press, 2010), p. 131.

55 *Expositio libri Posteriorum Analyticorum*, ed. R. Spiazzi (Turin: Leonine Press, 2nd edn 1964). Jerkins notices that in Aquinas's commentary to Aristotle's *Posterior Analytics*, *noscere* and *notitia* are employed as 'near synomyms of *cognoscere* and *cognitio*, but the former pair of terms seem to be used in a more restricted sense. They seem to signify only intellectual *cognitio* and *cognitio* which successfully apprehend its object. That is, *notitia* seems to be true belief with positive epistemic status, and *noscere* seems to be to have such a belief. Aquinas uses *innotescere* as the passive form of *noscere* (to become known)'. J. I. Jerkins, *Knowledge and Faith in Thomas Aquinas* (Cambridge: Cambridge University Press, 1997), p. 17. See also R. Pasnau, *Theories of Cognition in the Later Middle Ages* (Cambridge: Cambridge University Press, 1997).

56 *The Summa Theologica of St. Thomas Aquinas, part I. QQ I.XXVI*, trans. by the Fathers of the English Dominican Province (London: Burns Oates & Washbourne, 1992), I^{a}.Q.1.art.2, p. 4; for Latin text, see P. Caramello (ed.), *Sancti Thomae de Aquino Summa theologiae* (Turin: Marietti, 1952), I^{a}.Q.1.art.2, p. 15.

57 *Summa Theologica of St. Thomas Aquinas*, Q.15.art.9, p. 199.

58 *Alcuini sive Albini Epistolae*, *Ep*. 124, edited by E. Dümmler, MGH, Epistoli, IV (Epistoli Karolini Aevi, II) (Berlin: apud Weidmannos, 1895), pp. 181–4; for a Modern English translation, see D. A. Bullough, 'What has Ingeld to do with Lindisfarne?', *Anglo-Saxon England*, 22 (1993), 93–125.

59 See M. Salvador-Bello, *Isidorean Perceptions of Order: The Exeter Book Riddles and Medieval Latin Enigmata*, Medieval European Studies, 17 (Morgantown, WV: West Virginia University Press, 2015).