

## The Closed World?:

# Finding the Innumerable in Medieval Encyclopedism

***E.C. Ronquist***

Those who think both about early encyclopedism and the Middle Ages may find themselves stalled at the beginning of the title of Alexandre Koyré's classic study in the history of science, *From the Closed World to the Infinite Universe*. It is not, however, the history of the conception of empty space that concerns me here so much as the notion that if intellectual history has a first or early chapter picturing the "Middle Ages," it is likely to speak of closed systems, since modernism has to have something less modern—less progressive, reformed, scientific—to start from—a seed that has not yet sprouted, a nutshell with a kernel of allegorical claim to a simple truth. Those of us assigned to make representations of that or those Middle Ages say early on every year that people then did not necessarily think the world flat, and, if there is time, we go on to talk about voyages of exploration or we attempt a dialogue about sects and religions.<sup>1</sup> But there still may be a claim that a desire for closure typified the Middle Ages—dated 500-1500, according to the Medieval Academy of America. Then again, "medieval" may be the term for a certain mindset and need not be fixed within dates: thus for closure of time, rather than of space, the Middle Ages have been found to predominate into the eighteenth century.<sup>2</sup>

The genre of encyclopedia would also seem to imply closure, since an encyclopedia is generally a representation of knowledge-already-known (Ribemont), and thus

its selectivity and systematisation is acute and evident. And certainly there was thinking in the Middle Ages that seems to have promoted a closed system: salvation history has a beginning and an ending (and then a new heaven and a new earth), the sun runs through the cycle of the zodiac with no cold summers, and creation set the classes of earthly beings in order within a week. There are medieval encyclopedias that respond to such conceptions of completeness. But I shall search here for encyclopedias and encyclopedistic texts that may have had more varied and open ways of arraying their data.

As in a tradition of *Geistesgeschichte*, C.S. Lewis more boldly supposed there was:

the medieval synthesis itself, the whole organisation of their theology, science, and history into a single, complex, harmonious mental Model of the Universe. The building of this Model is conditioned by two factors I have already mentioned: the essentially bookish character of their culture, and their intense love of system (p. 11).

Lewis claimed the capitalised model was "a work to be set beside the *Summa* and the *Comedy*," or perhaps he was vaunting his own considerable gifts as an expositor, since the "work" was also described as "the imagined universe which is usually presupposed in medieval literature and art" (p. 13). Lewis' elegant imagining did not come to rest on any one of the encyclopedias actually produced, since he said of Isidore of Seville and Vincent de Beauvais that they are "later in time and very much inferior in rank," adding that "they are not, like those whom I have been describing, contributors to the Model, but they sometimes supply the handiest evidence as to what it was" (p. 90). He preferred cosmologies—Cicero's "Somnium Scipionis," Chalcidius' *Timaeus*, Boethius, Pseudo-Dionysius—and noted their consistency. Thus, Lewis posited a synchronic structure external to actual texts that "remained stable" throughout philosophical quarrels, and which to be modified had to be "discarded," as the title has it, and "totally and confidently abandoned."<sup>3</sup> As it was for Thomas Kuhn, "when changes in the human mind produce a sufficient disrelish of the old Model and a sufficient hankering for some new one, phenomena to support that new one will obediently turn up" (p. 221).<sup>4</sup>

I would like to encourage a fresh challenge to such a stable model and its "Closed World." However, Lewis had what seems like a strong argument against the Infinite Universe:

Hardly any battery of new facts could have persuaded a Greek that the universe had an attribute so repugnant to him as infinity; hardly any such battery could persuade a modern that it is hierarchical" (p. 222).

What, then, about atomistic physics in the way that Lucretius accounted for it?<sup>5</sup> Yet Koyré, too, rejected a simple argument for continued accessibility to Epicurean hypotheses of unclosed physical eventfulness.<sup>6</sup> Moreover, a preference for infinity seems improbably "medieval," because if we started to imagine such a mentality, we would be moving onward to different period concepts, up to the postmodern. For instance, describing "the postmodern encyclopedia," David Perkins makes a distinction between "narrative" and "encyclopedic" accounts of the history of literature. For Perkins, the encyclopedic is like the *Oxford Companion to English Literature*, with its entries arranged from A to Z:

We might even say, encyclopedic form does not distort the past at all, for in it the events that make up the past are not interrelated in a determined way.... Encyclopedic form can be an attempt to embody our sense of the overwhelming multiplicity and heterogeneity of the past (any tract of the past), of the points of view that can be brought to bear, of the hypotheses that can structure the same events, and of the morals that can be drawn from them. This sense of history characterises postmodern theory but it is not necessarily new. It was already present in Germany during the romantic period and was expressed in England by Carlyle, who had a quasi-mystical perception of the infinite interrelations, transcending all possibility of knowledge, of one event with another (p. 55).

Such thinking yields the sheerly infinite as a pleasure, like chaos theory and the fire-light of fractals.<sup>7</sup>

It is admittedly hard to come up with situations in the medieval period that so carefully would succeed in dis-relating instances, that is, a mindset avid for so doing. We might thus be tempted to say that if the postmodern is chaotically open, the medieval, as a category, should be closed. But we may still debate what medieval ways of thinking might actually be capable of, even granted their "alterity." There were quite varied modes of consolidation and experience in the Middle Ages, as there have been responsive accounts of it.<sup>8</sup> Consider Ruskin's romanticist account of what he called the Gothic:

The vital principle is not the love of *Knowledge*, but the love of *Change*. It is that strange *disquietude* of the Gothic spirit that is its greatness; that restlessness of the dreaming mind, that wanders hither and thither among the niches, and flickers feverishly around the pinnacles, and frets and fades in labyrinthine knots and shadows along wall and roof, and yet is not satisfied, nor shall be satisfied (2.6, p. 165, author's italics).

Round such a dusky castle of lore I suggest continuing to shine the exploratory flashlight. I propose here two lines of enquiry. One is to look for the Infinite, or, failing that, the Innumerable. I propose for this search a method that encourages innumerability, because it uses topics of enquiry with questions that can always be asked rather than a linear history of model and departure. Secondly, the material on which I propose to focus these topics is the encyclopedic form. Like Lewis, I will not limit myself to easily-identified encyclopedias, but rather will also consider various encyclopedia-like texts—a body of constructions we may call encyclopedism.

Having now run some of these proposed experimental studies, I find surprisingly varied practices, and even some practices that encourage the pursuit of difference. Let us explore the expanding frames. Unfortunately, between Lewis' sort of exposition of the "medieval mind" and what may here seem to be a hypertext which is zooming in many directions, there is not sufficient space for a descriptive history of medieval encyclopedism (see Binkley "Bibliography"). The topics worked with here may, however, suggest new combinations for old data. This is a paper of learning and trial runs, which I hope may encourage more comprehensive and accurate methods of approaching encyclopedic structures.

If we take up Koyré's challenge, how can we get from Closed World to Infinite Universe, especially if we are avoiding direct research into theories of space, not least that of the Kabbalah (for which, see Jammer)? Koyré himself provided the hint I shall follow: in place of the absolutely infinite, look instead for the Innumerable. The Innumerable is, if you like, a transitional stage, for which he suggested one author as example: Nicholas of Cusa in his treatise on *Learned Ignorance*. The rest of my discussion will thus be a search for evidence of the Innumerable in the Middle Ages. Even the paths down which to look are many. I propose twenty-two topics in Aristotle's sense of places for searching and enquiry (not the sense given to *topoi* by E.R. Curtius). These topics are quasi-mathematical and concerned with the non-finite and unlimited. They may be stated in terms that were generally accessible and debated by medieval writers themselves.

We will begin with Koyré's suggestion, with the Scepticism that was the method of his author Nicholas of Cusa, and we will apply his notion of "learned ignorance" to collections of lore that remain without resolution. In the questioning of complacent certainty there is the challenge of **What Is Beyond the Finite Intellect (A)**, and **What Is Not Certain Right Here (B)**—both ranges of **What We Do Not Yet Know (C)**. As to the Innumerable itself in a relatively arithmetical sense, I would distinguish the **Not Yet Counted or Included (D)**, the **Divisible (E)**, the **Number Larger Than One Cares to Count (F)**, the **Additional or Amplified (G)**, and the **Irrational, that is, the Incalculable (H)**. Further among factors difficult to count, or account for, and outside the circle of what is simple, clear, and distinct, there is the **Sublime (I)**, the **Fantastic (J)**, the **Unforeseen (K)**, the **Possible (L)**, the **Experiential Test (M)**, the **Developmental (N)**, the **Simultaneous (O)**. There is also, as for Perkins, the **Scattered (P)**, and the **Rejected and Marginalised (Q)**. Atomic combinations, which provided a way of thinking that had stimulated Lucretius to projecting a certain kind of indefinitely infinite space, continued to haunt lists of cosmological principles, even when they were rejected as false and inadequate as an account of creation (Pépin). And so we are reminded of the possibilities of **Combinatorial Multiplication (R)**, and of the **Spin or Method of Combination and the Disciplinary Field (S)**, which allows differentiation even for the same initial set of items.

What follows is a prospective sketch of how these varieties of the Innumerable can open up our understanding of the Middle Ages, thereby widening the picture of pre-modern encyclopedic totalities, and consequently of the memory and imagination of the medieval mind. Present here only are some initial and exemplary instances I have found, culled from the surprisingly capacious medieval hat. The range of texts is too broad for any kind of thorough discussion, even when limited to the encyclopedic and encyclopedistic. Those more learned than I are likely to supply many more categories and examples than I have had experience of, not least from philosophical theology and vernaculars other than English, and they will find counter-instances of closure too. In the pursuit of a wider encyclopedism, I include literary compilations such as Chaucer's *Canterbury Tales* as well as arrays of information. What we are looking for is a broader repertory of ways to collect and dispense information, to help us learn to work better in this mode of communal reciprocity. Because we live together, we are bound to be encyclopedic, and one reason for listening to the past is to find augmented possibilities of how encyclopedism may proceed. This preliminary survey and taxonomy will not address the content and derivation of encyclopedic

texts, for which there are already useful historical accounts, but will address methods and procedures. The topics have allowed me to find new collocations for a considerable number of texts; consequently, I fear it has not been possible to provide a very ample description of any single item. The list of topics I am working from may seem to some Borgesian, but even its playfulness may free us from rehearsing the same episteme in long continuity with C.S. Lewis. We have had many accounts of system and order in the Middle Ages. I here propose instead some techniques for further enquiry, testing them in the finding of encyclopedistic texts.

### ***Hunting the Innumerable***

A. Of encyclopedic instances of scepticism one form indeed rather reverses the research hope to find openness. *What is beyond the finite intellect* might be welcomed into sanctioned inclusivity. If apophatic theology--the Dionysian negative theology--is joined to another *apo-* word, *apocalypse*, what lies beyond speech is not a "cataclysm," the meaning a modern dictionary suggests for "apocalypse," but rather a prophecy arriving at a large but quite fully-shaped temple quarter, the New Jerusalem, in the Revelation of John the Divine. John's book is to have no words added or taken away, even while its prophecy hovers unsealed (22: 10-19). The Middle English poem, *Pearl*, for example, gives nearly perfect closure to its restatement of this prophetic vision, nearly perfect because its surplus, the 101st stanza, rolls back to loss and expectant desire.

Mysticism may, however, be less total and traditional in its realisation, and, indeed, it was the lay, personal, and thereby dangerous thinking of Eckhart that the critic Joannes Wenck found lurking in Nicholas of Cusa's paradoxical and sceptical formulations. As an encyclopedic paradox, Joannes Scotus Eriugena's *Periphyseon* made divine infinitude the first of its fourfold division of the classes of nature (1.443-444).<sup>9</sup> Nicholas shared with Alanus de Insulis (or Alain de Lille) the formula that "God is an intelligible sphere whose center is everywhere, the circumference nowhere," whence it is infinite. However, distrusting the paradox, Nicole Oresme considered how a circle might expand *ad infinitum* and objected that as long as it was a figure it was finite.<sup>10</sup>

B. This side of learned ignorance we have *what is not certain right here*. Questioning the stable knowledge we claim to possess permits a more open encyclopedism. One might take the sceptical move to be like classical dialectic, which began in a survey of

opinions. The *Entheticus* of John of Salisbury was a presentation of the variety of philosophical opinions with a method like that of Diogenes Laertius. *Books of Sentences* were more cautious in not including opinions thoroughly outré and heretical; still, they left the opinions unreconciled so as to serve as materials for the questioning which is the format for scientific theology. Not all theological discussions were enclosed in the totality of a *summa*; some are more randomly sorted, that is, quodlibetal.

In literature one can find versions of the experimental essay that try various formulations of a subject, a conservative instance being the various attempts at moral theology in Langland's *Piers Plowman*, all of which point towards the concept of the Holy Church. Chaucer's *Canterbury Tales* never arrives at the goal of its geographical journey nor, despite "The Parson's Tale," at a resolution of its play of opinions and instances of problems in ethics and, by implication, in politics. Given the possible addition of pilgrims such as the Canon's Yeoman, the approach to worshipful consensus might be indefinitely delayed (Ronquist "Rhetoric").

C. The outside space of *what we do not yet know* was turned by the action of Christian faith into closed certainty. The orthodox creeds give a brief cosmogony that matches the stages of spiritual salvation. Both biblical prophecy and mysticism permit expansion through enucleation of a series of uncertain visionary symbols, as in the *Book of Showings* of Julian of Norwich. Julian did gather together her symbolic intuitions in complex paragraphs, by contrast to Margery Kempe, whose *Book* strung them out in a journey trying several destinations. For an encyclopedic compilation that situated itself in an on-going process outside of orthodoxy, there is the Sufi poem of commented exempla by Farid ud-Din Attar, *The Conference of the Birds*, with the goal of a self realised in the annihilation of divine love. The Simorgh the birds seek in the poem is a figure of Justice and elsewhere a sphinx, but as the word divided means "Thirty Birds," so the Pilgrim Birds are seeking themselves and not themselves in finding grace (as Christians would call it). For this Sufi poet, the Pilgrimage could move through Rome as well as Mecca (but rejecting Roman idols).

D. For *the not yet counted or included* there were compiled lists of questions, which might or might not be provided with provisional answers. There is in these the sense that to a body of knowledge more will have to be added. The interrogations about natural phenomena that have been edited as the *Salernitan Questions* encouraged the more open mode of physical cosmology known as Chartrean (Lawn). There were also thirteenth-century Latin dictionaries of nomenclature that began to include fresh

terminology from the vernaculars, as if local experience had fresh authority.

E. Seeing the small circle of confident truths and common sayings as *Divisible* affords an expansion of discourse. This is sometimes connected with the Simultaneous, which appears below. Sermons constructed according to the manuals took a single verse of the Scriptures and divided it into phrases and words for sequential elaboration, which produced a result not entirely predictable from the verse itself. In the *Parliament of Fowls*, Chaucer first made a terse summary of Cicero's *Dream of Scipio*, then turned it into a inconclusive dream exploring contradictory commonplaces. In sermonic division we see the difference between encyclopedia and encyclopedism: fresh research is needed to show what happened when something like the fine, concise encyclopedia of Bartholomaeus Anglicus actually fell into the hands of preachers. These studies would complement the research already in train concerning Langland's use of biblical manuals, such as that of Hugh of St-Cher (Allen 353-57). The historian of encyclopedias may admire the closed formulation, but encyclopedagogy, if one may use the term, would give experience in their use. Yet another expansion of the undivided starts from an intuition that has been provided by the faculty of *ingenium* or genius. A good idea is a bright and luminous one, and serves to generate and organise a larger project. Here, for example, we have Hildegard of Bingen's and Gioacchino of Fiore's use of schemata to guide exposition. Similarly, the first chapter of the Book of Genesis provides a format to be filled in by many hexaemeral encyclopedias.

F may in this survey stand for Fish, since accounts of their nomenclature would say there are more varieties of them than have been named. The schools of fishes teem in *a number larger than one cares to count*, as Isidore of Seville quoted the encyclopedic Psalm 103: 25 on the sea "wherein are things creeping innumerable."<sup>11</sup> Isidore plausibly argued that, because fish are less accessible and less well-known, human beings used names they had first given to cattle, beasts, and birds (*Origines* 12.6.3-4). The varieties of natural beings continue to have names that differ from region to region, despite efforts of scientific classification like those of Linné.<sup>12</sup> Even to suppose things are innumerable may keep one from complacency.

G. Finding *the additional* made possible Amplification, a basic procedure in literary rhetoric; manuals of the *Ars Poetricae* give instances and sometimes topics for discovery (see further L). There was a taste for bejewelled figuration, such as using two partially cancelling figures when one might do (as I have seen in thirteenth-century papal letters). Didactic poetry came to enjoy the elegiac distich, in which the second



line all too often says pretty much what the first one has already, while biblical parallelism affords sublime expansion and the echoes of a responsive community. (Judith Deitch, a participant at the session of the CSM/SCM at which I delivered a shorter version of this paper, wondered where Repetition might fit as a topic. Perhaps here.) An uneconomic generosity is also a power of the ruler in early society, for treasure is bestowed by and for a ruling class. If the collector is an encyclopedist, it is with the impulse continually to add fresh instances to the collection: it was frequent for medieval writers to think of themselves as compilers (Minnis).

Chaucer's description of the dissemination of "tidings" from ear to ear in the *House of Fame* marks the transition from this category to the next:

encresing ever moo,  
As fyr ys wont to quyke and goo  
From a sparke spronge amys,  
Til all a citee brent up ys (ll. 277-280).

However, the shifting of the encyclopedic in the direction of the Innumerable in the *House of Fame* is too complex a matter to examine here.

H. For the concept of *the Irrational*, mathematicians knew of the quandaries of division in squaring the circle and in dividing the musical scale, and medieval thinkers raised problems in the division of a continuum.<sup>13</sup> To resolve such a paradox, Richard Suiseth the Calculator argued that "a finite part can have no ratio to an infinite whole" but he nevertheless became entangled in the problem of maximum and minimum intensity and magnitude.<sup>14</sup> In modern calculus, the irrational is built into notational procedures as one of the aspects of accepted infinitude. As in Platonic mathematics, which acknowledged the irrational in some ratios, there was the Augustinian notion of the "region of unlikeness" reached in the grinding down from platonic principles. The irrational as a sign of error came from a failure to bear in mind platonic principles; encyclopedistic order would reject it. Yet, in a different sense, that of the spin-off from order, there was in Chaucer a fascination with *cas*—be that "chance" or a "particular case"—by which *nouvelles* multiplied surprising incidents. Chaucer's "Monk's Tale," with its collection of unfortunate cases, also comes under this heading. Madness, I should add, had an explanation as the skewing of conventional behaviour, and collections of its manifestations also provided instances of the comic and amphibologic. Finally, for the Irrational as the Insoluble, there were logical collections of *Insolubilia*.<sup>15</sup> Early on, a mathematical collection of "Falla-

cies" or a "Treasury of Paradoxes" known to Proclus in the fifth century was attributed by him to Euclid and said to be "cathartic and gymnastic." Even earlier, there was Aristotle's *Sophistical Refutations* and the *elenchoi* of Socrates.<sup>16</sup> The Liar's Paradox would render all encyclopedism inoperable, but itself may be catalogued.

I. For the concept of *the Sublime*, Longinus or pseudo-Longinus was not available in the Latin Middle Ages, but Boitani has argued that both the effect and the intention to produce the effect were there in Dante. The Beautiful, not the Sublime, is the main encyclopedic category, since it was explained by Augustine and others as a perfection of *taxis*, order. The hundred cantos of Dante's *Commedia* would seem to demonstrate careful and beautiful order (with the deviation of the thirty-fourth canto of the *Inferno*), but Dante seems to have withheld from circulation the later and sublime cantos of the *Paradiso* (perhaps in deference to my category A, beyond the finite). The widest form of *taxis* would see the world as a universe, or in Greek terms a cosmos (Vlastos). The taut cosmology that imagines a vast unified cosmos *ex nihilo* would seem to have taken a further step into the sublime; for example, Longinus admired the first verses of the Hebrew Bible on these grounds.<sup>17</sup>

J. *The fantastic* is a challenge to the puzzle- and problem-solving faculty. Todorov has given an account of the fantastic that shows its challenge to structural expectancies. The fantastic produced challenging medieval encyclopedistic texts. There was the collection of monsters in the manuscript containing *Beowulf* (cf. Friedman), and the invention of the letters from Aristotle to Alexander. Mandeville's geography reached unverifiable and unknown places. Wolfram von Eschenbach's *Parzival* abounded in places and personages not previously recorded in the Arthurian mythos, while reassembling the entire Arthurian court in new locales. Descriptions of what is unheard of or extraordinary take us to the edge of the next category.

K. *The unforeseen*. There were many collections of accounts of miracles and of *Acts of the Saints*. The Acts of the Apostles form a more complete narrative, and there was also a form of high history, such as Augustine's *City of God*, which saw everything in periods and with prophetic significance. Here tragedy is an error and change of fortune predictable. But chronicles are encyclopedistic arrays of the unforeseen, with fresh successive entries.<sup>18</sup>

L. *The possible* refers to theories of destiny, to what is not yet actual or which may be actualised differently. In closed encyclopedic narrative, possibilities play into destiny. In legal interpretation, the possible is measured by individual judgments of discre-

tion. Records would therefore be kept of cases of law. Since the Pope was not bound by law, each of his pronouncements was a distinct act, though as in case law not every decretal was necessarily kept going as a recognisable precedent. The founding encyclopedia here is Gratian's *Concordia Discordantium Canonum*, though this had to be added to in subsequent collections. It took until 1499 (or 1917) to achieve a definitive *Corpus Iuris Canonici* (Cross, s.v.) Another range of the possible gives rise to amphibologies and figuration. Handbooks of figuration would lead to experiments in discourse. For amphibology Gottfried von Strassburg's *Tristan* affords an encyclopedic catalogue of the tricks and double speech of Tristan and Isolde. More systematic in its way is the tradition of the *Dialogues of Solomon and Marcolphus* (see Beecher for a useful survey). If, more generally still, literary invention is placed in this category, we may note how the material of *Piers Plowman* kept on being reworded, revamped, and applied to fresh cases in the many scribal (and authorial) versions. This has been argued to be a mode of what Eco has called an "open text" in its later instances (Ronquist "Rhetoric").

M. Something like the judgment of particular cases is *the experiential test*, which may result in a revision of previous categories in this tentative taxonomy. Physicians might note queries and modifications in inherited handbooks, though the results might not become part of general lore.<sup>19</sup> Romances proceeded by detached exploits in which characters tried their skills, though there is sometimes the claim—if only by modern critics—that the exploits are linked as stages of instruction. This method of proceeding is more apparent in the conceptual conclusiveness of allegorical narrative. If love is taken to be an unpredictable and paradoxical experience, it is all the more a challenge to make a large collection on its basis (as for Petrarch), and construct encyclopedias of instances (as for Juan Ruiz) or of stages of initiation (as for Jean de Meun and Dante).

N. *The Developmental* would add fresh phases to the already acquired. Conservatively, this results in the full circle of what the Renaissance called the encyclopedia, or the full program of education. Martianus Capella gave an account that did see the liberal arts building one upon another, and as the allegory had it, marrying. For Bernardus Silvestris there was a sense of progress in phases of cosmogony. It is a matter of some dispute whether there was meant to be progress in the sequence of experiments in styles of discourse in Jean de Meun's *Roman de la Rose*.

O. *The Simultaneous* is perhaps a version of the variously possible. For the organisation of literate knowledge there is a different pacing of knowledge in the classical roll

and the codex of bound pages, the latter of which was adopted by early Christians (Roberts and Skeat). The roll, like the scrolling of a text on a computer screen, is sequentially linear in presentation; the codex, which looks like a book, can be opened in any order. The page an item is found on is a matter of chance, as in Augustine's experiment in opening a biblical text at random (not that Augustine saw the result as less than destiny in its strong form as grace). The codex can also be easily consulted from an index. Though there was earlier work by Hrabanus Maurus that added biblical loci to the vocabulary of Isidore of Seville, it was particularly in the later twelfth century that collections of *distinctiones* appeared, which accumulated all the instances of a word's use in the Scriptures and differentiated the instances, such that a single word need not always indicate the same thing. Manuscripts attach the word in a fan of lines to each of the instances. Around the same time a project of Stephen Langton led to standard numbering of the verses of the Bible, turning it into research data. Chaucer, in suggesting that a censorious reader might "turne over the leef and chese another tale" (*CT* 1.3177), was, less reverently than Augustine, leaving open the experience of a codex. Besides, there is notoriously no single standard manuscript arrangement of the tales. By contrast, a chancery roll would keep miscellaneous entries straight according to date, that being also a way of addressing the next category.

P. *Scattered instances* can simply remain stray notions. However, the codex format could sew together pages and gatherings written at various moments, like publishers' editions that now assemble facsimiles of a scholar's articles on a given topic. There can still be much codicological research into the imagination that saw a common topic or the utility of bringing treatises together in a single binding, whether vernacular texts or Latin. Medical treatises, for example, came to have their name from their place in collections that became standard. Among them the so-called *Liber tertius* expanded on an earlier translated Latin text of Galen (Beccaria 35). And as Siraisi says:

Twelfth- and early thirteenth-century Salernitan authors brought together a collection (subsequently known as the *Articella*) of short treatises conveying the rudiments of Hippocratic and Galenic medicine to serve as a basic curriculum, and they established the practice of teaching by commentary on these texts (58).

Another way of linking short treatises is to claim their author is an ancient authority. There is hyper-encyclopedic inclusivity if a miscellaneous codex includes an encyclo-

pedia as just one of its texts (thus Paris, Bibliothèque Nationale, MS. lat. 11867 presents Alexander Neckam's verse *Laus divine sapientie* along with treatises and models of papal diplomacy). Also, commentary, in its original sense of notes from reading of things to keep in mind, gave rise to encyclopedias, such as the records of insomnia in Aulus Gellius' *Noctes Atticae*, the enormous *Naturalis Historia* of Pliny the Elder, or the miscellany of the *Liber introductorius* of Michael Scot (for the last, Thorndike 2.307-27). A bibliography and a ledger-style library catalogue are also ways of keeping scattered material together while showing off the extensiveness of acquisitions, though this displaces learning their content to a later moment. Richard de Bury's *Philobiblon* celebrated this practice.

Q. *Margins* provide a blank space for multiplication of all sorts that one would do wrong to specify. Culturally, the margin is a forest where the marginalised may breed and prosper, if only to provide a measure of encyclopedic orthodoxy (Robertson, Camille). As we saw Ruskin observing, chapels in a great church might be decorated and redecorated in various styles (thus functioning like a miscellaneous codex), while outside there were the odd gargoyles, whether ornamental or practical waterspouts. Likewise, various versions of the post-medieval *Index Librorum Prohibitorum* have now been printed in several volumes. I have already mentioned catalogues of accepted and rejected cosmological principles. Marginalia might also give rise to more consolidated texts. Thus, apparently, those treatises on necromancy, sorcery, and the philosopher's stone attributed to Robert Grosseteste grew out of marginalia to his authentic works (Thorndike 2.439). The edition by Faustino Arévalo of Isidore of Seville's *Origines* (reprinted in the *Patrologia Latina*) preserved addenda omitted in the edition W.M. Lindsay made on classical principles.

R. An array of elements can be set into *combinatorial multiplication*. Notably, thanks to the Phoenicians, there is a modest accumulation of atomic elements in the alphabet, though even four material elements could be pieced together proportionately in a considerable variety, as in Marius' *De elementis*. Alchemical treatises did try to put compounds into a hierarchy. Chaucer's the "Canon's Yeoman's Tale" multiplies by telling a set of very similar stories. Certainly, as in a language in which not all combinations of phonemes are grammatically permitted, conventions limit the invention of imaginative possibilities, whence Lewis' and Koyré's exclusion of sheer infinitude for the medieval period. Nevertheless, there are a large number of grammatically and semantically "correct" statements that may be constructed from a body of vocabulary so large as to seem innumerable. The *Hisperica Famina* might further

be a dictionary of incorrect, unheard-of terms, a jabberwocky. As he is quoted at the end of the first two volumes of Thorndike's monumental *History of Magic and Experimental Science*, Abelard of Bath suggests atomic combinations of data: "If any concept is dissolved from one union, it does not perish but is joined to some other group" (2.984). As a logical expansion of correctness, variations in the formulations of terms through manipulations such as the Square of Opposition afford the option of "non-finite" terms, such as "non-horse," though Parsons cites medieval objections to such "negation by contraposition." The Combinatorial may therefore turn a fixed schema into a playing field. The game of chess might give a picture of society, e.g. Caxton's. Astrological treatises outlined the properties of the decans and degrees of the zodiac, the realisation of which would differ from day to day. Devices for divination had much the same effect.<sup>20</sup>

S. *Variation of method* has been a key to this investigation, for I have used topics of invention suggested by the art of rhetoric to re-examine the scene of medieval encyclopedism. Theology, for instance, might be discussed in Platonic, Aristotelian, and Ciceronian styles (cf. McKeon, a model for this sort of historiography). A shift to ethics as the central discipline in some later medieval encyclopedias after Brunetto Latini's *Trésor* permitted a new deployment of encyclopedic material in the vernacular, as in the various writings of Dante or in John Gower's *Confessio Amantis*, which incorporates the pseudo-Aristotelian *Secretum Secretorum*. One further instance is a ninth-century *Disputatio Platonis et Aristotelis*, which gave a pagan and, in one manuscript, a Christian version of the place of the human soul (Beccaria 29, 40-41, citing Normann).

In what we call the Middle Ages, there were contests in the styles by which closure was constructed. There was some thinking that treated traditional formulations as "information," that is, material that could be added to, criticised, and used for fresh constructions, promoting an encyclopedism without a fixed result. Because fresh acts of speech remain possible, as a useful tool an encyclopedia based on language and the interpretation of words cannot be closed.

My list of finding places for the Innumerable did not arise through an exhaustive division of the possibilities, for such a complete enumeration would run counter to the openness I am trying to explore. The topical categories I have proposed sometimes cluster, or they need further differentiation, yet they permit research showing that while usually the stars were not spread beyond possible conception to distances in space and time, there might be a considerable variety of instances and modes of

the Seemingly Infinite in earlier times—at least of the Innumerable. Our standard figure for the "middle" ages sees it as boxed in-between in a closed set, but we can, as we construct and revise its history, also look there for openness and for play of organisational principles.<sup>21</sup>

## Concordia University

### Endnotes

1 See Eberhard on *novitas, varietas*, and the coming of a prophetic age of *tolerantia*. For medieval "modernism" see the careful formulations of Stock about "Christian tradition in the western Middle Ages,... involving the birth of the notion of cultural progress as a way of transcending and yet incorporating the past" (p. 44), and, more loosely, Ronquist "Encyclopedism."

2 Thus Toulmin and Goodfield, "By 1730, many scientists of Western Europe had come to accept a view of Nature even more static and fixed than that of medieval Europe" (p. 74).

3 Like Michel Foucault, Lewis argued against "the book-author unit" (p. 210), thinking of adaptations attributed to Chaucer and Malory), though he continued to attribute to "the matter itself" some objective reality.

4 For contemporaneous historiographical quarrels of lumpers and splitters see Westra. Grant has revised his adherence to the notion of a "decisive mutation" of seventeenth-century natural science—upheld by Koyré and Kuhn, though their concern is discovering "the pre-conditions" of later thinking (xii, pp. 191-206).

5 I regret that the generous instances and categories of Mondolfo's large volume came to my attention only late in my own investigation. His categories of eternity and cyclicity are not strictly unclosed, but he has much on infinites and infinitesimals, and discusses many of the topics proposed here.

6 "The conception of the infinity of the universe, like everything else or nearly everything else, originates, of course, with the Greeks.... It seems to me, however, impossible to reduce the history of the infinitisation of the universe to the rediscovery of the world-view of the Greek atomists which became better-known through the newly discovered Lucretius or the newly translated Diogenes Laertius. We must not forget that the infinitist conceptions of the Greek atomists were rejected by the main trend, or trends, of Greek philosophical and scientific thought—the Epicurean tradi-

tion was not a scientific one--and that for this very reason though never forgotten, they could not be accepted by the mediaevals" (Koyré 5).

7 For a fear of chaos, cf. "Johannes ... Wenck, a partisan of the council, [who] published a work, *De Ignota Lit[t]eratura*, which listed the errors which he had found in the *Docta Ignorantia*. He accused Nicholas of denying the principle of contradiction in his doctrine of the coincidence of opposites, thereby attacking the very foundation of knowledge" (Sigmund 252, citing Wenck).

8 I have the impression that in this century the political motives for various sorts of medievalism are weaker than has been the case for an "Elizabethan world picture" (Pechter on Tillyard, who wrote in a time of war), but I may underestimate the power of neo-scholasticism and the notion of Christian philosophy.

9 The suggestion is Paul Dutton's in discussion. To the rejection by Adam of Balsham (Parvipontanus) of an infinite subset (Thomas), Grant recalls fourteenth-century counter-arguments (118) and also the possibility of infinite void space (122-126, 196); see further Murdoch. Approximation of the infinitely divisible, i.e. irrational, fractions and the measurement of curved figures and volumes was carried out very early. For the Babylonians, see Neugebauer, ch. 2; for the influence of Alhazen, d. 1039, on the early-modern *Arithmetica Infinitorum* (1655) of J. Wallis, see Dennis and Confrey 39-43, who urge a distinction between counting up and splitting (36).

10 Alanus de Insulis, *Regulae theologicae* 7 (PL 110.627): *Deus est sphaera intelligibilis, cuius centrum ubique, circumferentia nusquam*. A recent discussion of the formula appears in *Le livre des XXIV Philosophes*, ed. and trans. Françoise Hudry; there was a fuller discussion in the electronic list Medtext-1 28-29 January 1996. Nicole Oresme's last concession in discussing the question: *Utrum secundum ymaginacionem mathematicam debeat concedi, quod sit aliquid circulus infinitus ita, quod ex hoc non sequitur contradictio* was that *in fine esset spacium infinitum, naturam habens finitam* Questio 5, p. 13. Aristotle had similarly held that the Infinite was potential, not actual (Mondolfo 342-57, for formulations like that of Alanus, 247).

11 "Hoc mare magnum et spatiosum manibus: illic reptilia quorum non est numerus, animalia pusilla cum magnis;" I quote the English Authorised Version of Ps 104.

12 So McClane: "Many species have several common names by virtue of regional or traditional usage, and some accepted common names ... discourage the



consumer. Furthermore, common family names such as 'salmon' are of little value unless designated by the exact species name" (x).

13 Proclus (fifth century) derived "mathematical beings" from the principles of the Limit and the Unlimited, and held that "if there were no infinity, all magnitudes would be commensurate and there would be nothing inexpressible or irrational, features that are thought to distinguish geometry from arithmetic; nor could numbers exhibit the generative power of the monad, nor would they have in them all the ratios—such as multiple and superparticular—that are in things" (1.5-6, pp. 4-5).

14 Boyer 74-76, citing *Liber calculationum*; see further Boyer's ch. 2, "Medieval Contributions."

15 See Kneale and Kneale 227-29, and for *adynata*, improbable outcomes catalogued in lyrics, see Schröder.

16 Proclus 70, pp. 58 and 396, cf p. 312; see also Heath 1.329 for a reading of *topos* as "Budget."

17 Mondolfo begins with lovely instances from the "sea-faring society" of Homer, some of them praised by Longinus.

18 In his account of Gregory of Tours, Auerbach saw as a fault the lack of a style that could connect event with event.

19 Robert Grosseteste took note of a corrected version of Ptolemy by Thabit ben Corra (836-901); see Thorndike 2.439-43 for further varieties of "experience" and *experimenta*. Siraisi noted *quid pro quo* lists of permissible substitutions in pharmacology, but her conclusion was that "obviously in attempting to evaluate medieval and early Renaissance therapeutic knowledge and technique, the measure cannot be that of physical effectiveness, nor can one expect to find either progressive accumulation of scientific knowledge or sustained and systematic endeavors to test and modify theory by experience" (143, cf. 104 on Gentile da Foligno).

20 F. Wallis (53-57) has discussed Paschal tables so elaborately orderly as to be unusable.

21 I am grateful for suggestions from Mahmood Moghaddam, Robert M. Crosskey, W. Schipper, Peter Binkley, and the participants in the first presentation of this paper at the annual meeting of the Canadian Society of Medievalists, 5 June 1997—particularly Judith Deitch and Paul Dutton.

## Works Cited

- Alanus de Insulis (Alain de Lille). *Regulae theologicae Patrologia Latina* 110.
- Allen, Judson Boyce. "Langland's Reading and Writing: *Detractor* and the Pardon Passus," *Speculum* 59 (1984), pp. 342-62.
- Attar, Farid ud-Din. *The Conference of the Birds* trans. Afkham Darbandi and Dick Davis (Harmondsworth: Penguin, 1984).
- Auerbach, Erich. *Mimesis: The Representation of Reality in Western Literature* trans. Willard R. Trask. (Princeton: Princeton UP, 1953).
- Bartholomaeus Anglicus. *De rerum proprietatibus* ed. Georg Barthold Pontanus. 1601 (Frankfurt: Minerva, 1964).
- Beccaria, Augusto. *I codici di medicina del periodo presalernitano (secoli IX, X e XI)* Storia e Letteratura 53. (Roma, 1956).
- Beecher, Donald, with Mary Wallis. *The Dialogue of Solomon and Marcolphus* Publications of the Barnabe Riche Society 4 (Ottawa: Dovehouse, 1995).
- Bernardus Silvestris. *Cosmographia* ed. Peter Dronke. Textus Minores 53 (Leiden: Brill, 1978).
- Binkley, Peter. "COMERS Encyclopedia Project: Working Bibliography." Classical, Oriental, Mediaeval and Renaissance Studies (Groningen: Rijksuniversiteit Groningen, 1996). <http://grid.let.rug.nl/comers/bibindex.html>.
- , ed. *Pre-Modern Encyclopaedic Texts* (Leiden: Brill, 1997).
- Boitani, Piero. *The Tragic and the Sublime in Medieval Literature* (Cambridge: Cambridge UP, 1989).
- The Book of Margery Kempe* ed. Sanford Brown Meech. Early English Text Society, o.s. 212 (London: Oxford UP, 1940).
- Boyer, Carl B. *The History of the Calculus and its Conceptual Development* (New York: Dover, 1959).
- Calcidius. *Timaeus a Calcidio translatus commentarioque instructus* ed. J. H. Waszink. Corpus Platonicum Medii Aevi, Plato Latinus 4 (London: Warburg Institute, 1962).
- Camille, Michael. *Image on the Edge: the Margins of Medieval Art* (Cambridge: Harvard

UP, 1992).

- Cassirer, Ernst. *Individuum und Cosmos in der Philosophie der Renaissance* Studien der Bibliothek Warburg 10 (Leipzig: Teubner, 1927).
- Caxton, William. trans. Jacobus de Cessolis. *The Game and Play of the Chesse* ed. William E. A. Axon. British Chess Magazine Classics Reprints 6. 1883 (St. Leonards-on-Sea, s.d.).
- Chaucer, Geoffrey. *The Riverside Chaucer* ed. Larry D. Benson. 3rd ed. (Boston: Houghton Mifflin, 1987).
- Cicero, Marcus Tullius. *Somnium Scipionis* in Macrobius, *In Somnium Scipionis commentarii* ed. James Willis. 2nd corr. ed. (Stuttgart: Teubner, 1994).
- Cross, F.L., ed. *The Oxford Dictionary of the Christian Church* (London: Oxford UP, 1971).
- Curtius, Ernst Robert. *European Literature and the Latin Middle Ages* trans. W.R. Trask (New York: Harper, 1963).
- Dante Alighieri. *La divina commedia* ed. Natalino Sapegno. 2nd ed. 3 vols (Florence: La Nuova Italia, 1968).
- Dennis, David, and Jere Confrey. "The Creation of Continuous Exponents: A Study of the Methods and Epistemology of John Wallis," in Jim Kaput, Alan H. Schoenfeld, and Ed Dubinsky, eds, *Research in Collegiate Mathematics Education, II*, Conference Board of the Mathematical Sciences, Issues in Mathematics Education 6 (Providence: American Mathematical Society, 1996).
- Eberhard, Winfried. "Ansätze zur Bewältigung ideologischer Pluralität im XII. Jahrhundert: Pierre Abélard und Anselm von Havelburg," *Historisches Jahrbuch* 105 (1985), pp. 353-87.
- Eco, Umberto. *Opera aperta: Forma e indeterminazione nelle poetiche contemporanee* 3rd ed. (Milan: Bompiani, 1993).
- First Authorized English Bible and the Cranmer preface*, by Harold R. Willoughby ed. Harold R. Willoughby (Chicago: U of Chicago, 1942).
- Friedman, John Block. *The Monstrous Races in Medieval Art and Thought* (Cambridge: Harvard UP, 1981).
- Foucault, Michel. *L'Ordre du discours: Leçon inaugurale au Collège de France prononcée*

*le 2. décembre 1970* (Paris: Gallimard, 1971).

- Gellius, Aulus. *Noctes Atticae* ed. P.K. Marshall. 2 vols (Oxford: Clarendon Press, 1968).
- Gottfried von Strassburg. *Tristan* ed. Gottfried Weber (Darmstadt: Wissenschaftliche Buchgesellschaft, 1967).
- Gower, John. *The English Works* ed. G.C. Macaulay. Early English Text Society e.s. 81-82 (London: Oxford UP, 1900-01).
- Grant, Edward. *The Foundations of Modern Science in the Middle Ages: Their Religious, Institutional, and Intellectual Contexts* (Cambridge: Cambridge UP, 1996).
- Heath, Thomas L., trans. *The Thirteen Books of Euclid's "Elements"* 3 vols (New York: Dover, 1956).
- Hisperica famina* ed. Michael W. Herren. Studies and Texts 31, 85 (Toronto: Pontifical Institute of Mediaeval Studies, 1974-87).
- Index Librorum Prohibitorum, Ss.mi D. N. Pii. XII, iussu editus* (Vatican: Typis Polyglottis, 1948).
- Jean de Meun. *Le Roman de la Rose* ed. Felix Lecoy. Les Classiques français du Moyen Age 92 (Paris: H. Champion, 1965).
- Joachim de Fiore. *Il libro delle figure* eds Leone Tondelli, Marjorie Reeves, and Beatrice Hirsch-Reich. 2nd ed. (Torino: Società editrice internazionale, 1953).
- Ioannes Scotus Eriugena. *Periphyseon (De Divisione Naturae) Liber Primus* ed. I.P. Sheldon-Williams. Scriptores Latini Hiberniae 7 (Dublin: Dublin Institute for Advanced Studies, 1968).
- Isidore of Seville. *Etymologiarum sive Originum Libri XX* ed. W.M. Lindsay. 2 vols (Oxford: Clarendon Press, 1911).
- Jammer, Max. *Concepts of Space: The History of Theories of Space in Physics* (New York: Harper, 1960).
- Julian of Norwich. *A Book of Showings to the anchoress Julian of Norwich* eds Edmund Colledge and James Walsh. Studies and Texts 35 (Toronto: Pontifical Institute of Mediaeval Studies, 1978).
- Kneale, William, and Martha Kneale. *The Development of Logic* corr. ed. (Oxford: Clarendon Press, 1968).

- Koyré, Alexandre. *From the Closed World to the Infinite Universe* (Baltimore: Johns Hopkins, 1957).
- Kuhn, Thomas S. *The Structure of Scientific Revolutions* International Encyclopedia of Unified Science 2.2 (Chicago: U of Chicago, 1962).
- Langland, William. *The Vision of William concerning Piers Plowman: Together with Vita de Dowel, Dobet, et Dobest, secundum Wit et Resoun* ed. W.W. Skeat. Early English Text Society o.s. 28, 38, 54, 67, 81. (London: N. Trubner, 1867-77).
- Latini, Brunetto. *Li Livres dou Tresor* ed. Francis J. Carmody. University of California Publications in Modern Philology 22 (Berkeley: U of California, 1948).
- Lawn, Brian. *The Salernitan Questions: An Introduction to the History of Medieval and Renaissance Problem Literature* (Oxford: Clarendon Press, 1963).
- Lewis, C.S. *The Discarded Image: An Introduction to Medieval and Renaissance Literature* (Cambridge: Cambridge UP, 1964).
- Le livre des XXIV Philosophes* ed. and trans. Françoise Hudry (Grenoble: Jérôme Millon, 1989).
- Malory, Thomas. *Works* ed. Eugene Vinaver (London: Oxford UP, 1954).
- Mandeville, John. *Mandeville's Travels, Translated from the French of Jean d'Outremeuse* ed. P. Hamelius. Early English Text Society o.s. 153-154 (London: K. Paul, 1919-1923).
- Marius (fl. s. 12). *De elementis* ed. Richard C. Dales (Berkeley: U of California, 1976).
- Martianus Capella. *De nuptiis Philologiae et Mercurii* ed. Adolf Dick, rev. Jean Préaux. corr. ed. (Stuttgart: Teubner, 1969).
- McClane, A J. *McClane's Fish Buyer Guide* (New York: Holt, 1990).
- McKeon, Richard. "Rhetoric in the Middle Ages," rep. *Critics and Criticism* ed. R.S. Crane (Chicago: U of Chicago, 1952), pp. 260-296.
- Medtext-1. Online discussion group. Internet. 28-29 January 1996.
- Minnis, A.J. *Medieval Theory of Authorship: Scholastic Literary Attitudes in the Later Middle Ages* (London: Scholar, 1988).
- Mondolfo, Roberto. *L'Infinito nel pensiero dei Greci* Studi Filosofici, ser. 2.10 (Florence: Le Monnier, 1934).

- Murdoch, John E. "Infinity and continuity," in *The Cambridge History of Later Medieval Philosophy* ed. Norman Kretzmann, Anthony Kenny, and Jan Pinborg (Cambridge: Cambridge UP, 1982), pp. 564-91.
- Neugebauer, O. *The Exact Sciences in Antiquity* 2nd ed. (Providence: Brown UP, 1957).
- Nicholas of Cusa. *De docta ignorantia* trans. Jasper Hopkins. *Nicholas of Cusa on Learned Ignorance: A Translation and an Appraisal of De Docta Ignorantia* (Minneapolis: Arthur J. Banning, 1981).
- , *Dialogus de possess* Latin text and translation in Jasper Hopkins, *A Concise Introduction to the Philosophy of Nicholas of Cusa* 2nd ed. (Minneapolis: U of Minnesota, 1978).
- Normann, Herbert. "Disputatio Platonis et Aristotelis: ein apokrypher Dialog aus dem frühen Mittelalter," *Sudhoffs Archiv für Geschichte der Medizin* 23 (1930), pp. 68-86.
- Oresme, Nicole. *Quaestiones super Geometriam Euclidis* ed. H.L.L. Busard. *Janus*, suppl. 3 (Leiden: Brill, 1961).
- Parsons, Terence. "Square of Opposition," *Stanford Encyclopedia of Philosophy* ed. Edward N. Zalta (Stanford: Center for the Study of Language and Information, 1997) <http://plato.stanford.edu/entries/square/square.html>.
- Pearl* ed. E.V. Gordon, rev. Ida. L. Gordon. (Oxford: Clarendon, 1953).
- Pechter, Edward. *What Was Shakespeare?: Renaissance Plays and Changing Critical Practice* (Ithaca: Cornell UP, 1995).
- Pépin, Jean. *Théologie cosmique et théologie chrétienne (Ambroise, Exam. I 1, 1-4)* (Paris, Presses Universitaires de France, 1964).
- Perkins, David. *Is Literary History Possible?* (Baltimore: Johns Hopkins, 1992).
- Pliny, the Elder. *Naturalis historiae libri XXXVII* eds Ludovig von Jan and Karl Mayhoff, 1892-1906 (Stuttgart: Teubner, 1967).
- Petrarca, Francesco. *Rime* ed. Guido Bezzola (Milan: Biblioteca Universale Rizzoli, 1976).
- Proclus. *A Commentary on the First Book of Euclid's "Elements"* trans. Glenn R. Morrow (Princeton: Princeton UP, 1970).

- Ribemont, Bernard. "On the Definition of an Encyclopaedic Genre in the Middle Ages," in Binkley, *Pre-Modern Encyclopaedic Texts*, pp. 47-61.
- Richard de Bury. *Philobiblon* ed. E.C. Thomas, rev. Michael Maclagan (New York: Barnes & Noble, 1970).
- Roberts, Colin H., and T.C. Skeat. *The Birth of the Codex* (London: Oxford UP, 1983).
- Robertson, D.W. *A Preface to Chaucer; Studies in Medieval Perspectives* (Princeton: Princeton UP, 1963).
- Ronquist, E.C. "Patient and Impatient Encyclopedism," in Binkley, *Pre-Modern Encyclopaedic Texts*, pp. 31-45.
- "Rhetoric and Early Modern Skepticism and Pragmatism," *Canadian Journal of Rhetorical Studies* 5 (1995), pp. 49-75.
- Ruiz, Juan. *Libro del Archipreste: tambien llamado Libro de buon amor* ed. Anthony N. Zahareas. (Madison: Hispanic Seminary of Medieval Studies, 1989).
- Ruskin, John. *The Stones of Venice* (London: Dent, n.d.).
- Schröder, Franz Rolf. "Adynata," *Edda, Skalden, Saga: Festschrift zum 70. Geburtstag von Felix Genzmer* ed. Hermann Schneider (Heidelberg: Carl Winter, 1952). pp. 108-137.
- Secretum Secretorum* ed. Robert Steele. Opera Hactenus Inedita Rogeri Baconi 5 (Oxford: Clarendon Press, 1920).
- Sigmund, Paul F. *Nicholas of Cusa and Medieval Political Thought* (Cambridge: Harvard UP, 1963).
- Siraisi, Nancy G. *Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice* (Chicago: U of Chicago, 1990).
- Stock, Brian. "Tradition and Modernity: Models from the Past," *Recherches et Rencontres* (1990), pp. 33-44.
- Thomas, Ivo. "A 12th Century Paradox of the Infinite," *Journal of Symbolic Logic* 23 (1958), pp. 133-134.
- Thorndike, Lynn. *A History of Magic and Experimental Science during the first thirteen centuries of our era* (New York: Columbia, 1923).
- Tillyard, E.M.W. *The Elizabethan World Picture* (London: Chatto and Windus, 1943).

- Todorov, Tsvetan. *Introduction à la littérature fantastique* (Paris: Seuil, 1970).
- Toulmin, Stephen, and June Goodfield. *The Discovery of Time* (London: Hutchinson, 1963).
- Vincent de Beauvais. *Speculum quadruplex; sive, Speculum maius 1624* (Graz: Akademische Druck- und Verlagsanstalt, 1964).
- Wallis, Faith. "Images of Order in the Medieval *Computus*," in *Ideas of Order in the Middle Ages* ed. Warren Ginsberg. *ACTA* 15 (Binghamton: Center for Medieval and Early Renaissance Studies, 1990 for 1988), pp. 45-68.
- Wenck, Johannes. "Le 'De Ignota Litteratura' de Jean Wenck de Herrenberg contre Nicolas de Cuse," ed. E. Vansteenbergh *Beiträge zur Geschichte der Philosophie des Mittelalters* 8.6 (1910).
- Westra, Haijo Jan. "Auerbach and the Critics," in *Festschrift für Paul Klopsch* eds Udo Kindermann, Wolfgang Maaz, and Fritz Wagner. *Göppinger Arbeiten zur Germanistik* 492 (Göppingen: Kümmerle, 1988), pp. 569-75.
- Wolfram von Eschenbach. *Parzival* ed. Gottfried Weber. 2nd ed. (Darmstadt: Wissenschaftliche Buchgesellschaft, 1967).