
Following the surge in scholarship by medieval art historians that explores images of the body and credulity around the miraculous ‘living’ image, it is refreshing to find that a number of recent studies, including the three books under review here, focus on other types of imagery and traditions that were equally important throughout the Middle Ages. Already in 2011 Jeffrey F. Hamburger bemoaned the restricted account of medieval art generated by Hans Belting’s *Bild und Kult*:

In its focus on the cult image … and its impact, Belting’s book, despite its vast coverage, provides a foreshortened vision of medieval art that excludes many other genres and media that do not fit comfortably within his framework…. So powerful is Belting’s storyline that the cult image has sometimes come to stand for medieval art *tout court*. The Western monastic tradition, which had a decisive impact on attitudes towards images in the medieval West, gets short shrift.

Hamburger’s *Diagramming Devotion: Berthold of Nuremberg’s Transformation of Hrabanus Maurus’s Poems in Praise of the Cross* and his *Color in Cusanus* as well as Ayelet Even-Ezra’s *Lines of Thought: Branching Diagrams and the Medieval Mind* introduce a broad scope of captivating visual materials that redress this distortion in the field. In a counter-balance to recent accounts of what is distinctive about medieval art, Hamburger stresses the centrality of diagrams to the creation of art of this era, from stained glass windows to the façades of Gothic cathedrals. Hamburger’s and Even-Ezra’s contributions on medieval diagramming are highly welcome, not so much because Belting’s argument is wrong, but rather because it is incomplete.

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1 I am referring to works inspired by such pathbreaking and fascinating studies as David Freedberg’s *The Power of Images: Studies in the History and Theory of Response* (Chicago, 1989); Hans Belting’s *Bild und Kult: eine Geschichte des Bildes vor dem Zeitalter der Kunst* (Munich, 1993); and, more recently, Horst Bredekamp’s *Theorie des Bildakts* (Berlin, 2010).

At the same time that they offer a reprieve from ever-increasing studies of ‘living’ images, Hamburger and Even-Ezra are also both interested in the agency of medieval diagrams and in their performative aspects. Part of their claim is that diagrams are not merely representations; they can also act in the world, move, and elicit action, if in somewhat different ways from living bodies. According to Hamburger and Even-Ezra, diagrams are operative; they are not illustrations, but instruments of thought, often tools to lift the soul towards God. One of the great virtues of both Hamburger’s and Even-Ezra’s studies is that they discuss this aspect of medieval diagrams in relation to the rich modern literature about diagrams. Particularly compelling and productive is Even-Ezra’s reliance on Andy Clark and David Chalmers’ notion of ‘the extended mind’, which posits ‘an active role of the environment in driving cognitive processes.’\(^3\) This theory stresses the value of considering cognitive processes that take place not only within, but also beyond the skull and skin, with such tools as pens, notebooks, and computers. The insights of Clark and Chalmers help to justify historical research into the ways in which individuals have thought in the past, into their modes of ordering knowledge, and into their habits of pursuing knowledge. Hamburger was clearly also taken by Even-Ezra’s use of this framework, as he too refers to contemporary discussions of ‘the extended mind’ in his *Color in Cusanus* (40).

To show that ‘[w]e think with objects’, Even-Ezra focuses on what she terms *horizontal tree* diagramming, which she demonstrates popped up in the margins as well as within columns of European manuscripts from the thirteenth century through the Renaissance (3). This genre of diagram is deciphered from left to right and consists of verbal units or *nodes*, containing portions of words or phrases, that are linked by lines that signal the route the observer’s eyes should follow. As one reads the diagram from left to right, a node might link to a single node or it might be divided into several other nodes organized as a vertical list. Multiple nodes might also conglomerate into a single node. Even-Ezra claims that her project overturns Walter J. Ong’s seminal *Ramus, Method, and the Decay of Dialogue*, in which, she tells us, Ong ‘mistakenly’ argues ‘that the Ramist diagrammatic mode of spatializing knowledge was an early modern invention associated with the print revolution’ (7). Although Even-Ezra is correct that Ong did not focus sufficiently on the Middle Ages, his argument

is a little more subtle than she allows. In this regard, a passage in which Ong refers to ‘elaborate diagrams or charts’, a category that likely includes tree diagramming, is instructive. He does not claim that such ‘elaborate’ visuals were not produced prior to the printing revolution – to the contrary, he explicitly stresses that logicians ‘assuredly’ devised such diagrams – rather Ong’s argument is that ‘there was no large-scale reproduction or transmission’ of such diagrams as compared to written texts before printing.

Notwithstanding Ong’s claim, Even-Ezra has unearthed an impressive corpus of horizontal tree diagrams in her thorough archival research. She shows that horizontal tree diagramming was prevalent in a broad range of domains, including the study of philosophy, the Bible, law, medicine, language, sonic patterns, grammatical doctrines and structures, letter writing, and textual exegesis. She explains clearly how in each of these areas, horizontal tree diagramming presented a tool that could ‘extend’ the mind. Horizontal tree diagrams made it possible for thinkers to observe structures that they could otherwise not see. Scholars created these diagrams to elucidate, compress, and shape ideas. She even contends that some carefully organized works, such as Aquinas’s *Summa theologiae*, would have been impossible both to create and to read without external visualizations (195). She proffers a sample of seventy-one manuscripts of Aristotle’s logical writings as well as Porphyry’s *Isagoge*, Gilbert de la Porriére’s *Liber de sex principiis*, and Boethius’s *Liber divisionum* that she examined in such collections as the Bibliothèque nationale de France, the Vatican collections, the British Library, and the National Library of Spain in Madrid, as well as in smaller institutions. Even-Ezra finds that fifty-two out of these seventy-one manuscripts include at least one horizontal tree diagram. This percentage is remarkable and one wonders whether Ong would have found that the result implies that the transmission of such diagrams was comparable to that of written texts in the Middle Ages. Would he have drawn our attention to his *Ramus and Talon Inventory*, a work he describes as ‘a short-title

4 Just as Even-Ezra skews Ong’s position, she also misrepresents my own (198). She holds incorrectly that I argue ‘that students of logic did not visualize information in their personal notes before the Renaissance.’ Although I do not make this claim, I am interested in showing how a variety of factors, including the increased production of paper across Europe, helped to increase the frequency with which students visualized information in their notes. See *The Art of Philosophy: Visual Thinking in Europe from the Late Renaissance to the Early Enlightenment* (Princeton, 2017).

inventory of the published works of Peter Ramus (1515–1572) and of Omer Talon (c. 1510–1562) in their original and in their various altered forms, in order to suggest that the total number of tree diagrams increased dramatically with the advent of print, if not the percentage of tree diagrams as compared with written texts.6

Even-Ezra concludes her study by proclaiming that print ‘contributed nothing specific to this practice [of horizontal tree diagramming]’ (198). In the next paragraph she acknowledges that although the horizontal tree diagram’s ‘form and principle remained unchanged’, there were significant shifts in ‘material and intellectual contexts’ (198). She notes that horizontal tree diagrams ‘became more dominant in the sphere of public writing’ and that novel ‘venues [for horizontal tree diagramming] were opened, from frontispieces to memorial plaques to notation of multi-instrumental music, and the occasional medieval use of [horizontal tree diagrams] in bureaucratic contexts was expanded’ (198). It is left unexplained how exactly these changes differ from the kinds of shifts Ong had in mind when he described how ‘the intellectual’ “reforms” so passionately advocated by [Ramus] and by his thousands of followers across central and northwest Europe, somehow registered a major shift in consciousness marking the transit from the ancient and medieval world into the modern.7 If Even-Ezra really agrees with Clark and Chalmers’ ‘active externalism, based on the active role of the environment in driving cognitive processes’, then she ultimately would have to accept Ong’s position that the quantitative expansion of horizontal tree diagrams brought by the new technology of printing affected a qualitative ‘shift in consciousness.’8

In Diagramming Devotion, Hamburger likewise demonstrates some of the ways in which individuals have thought with objects through a fine-grained analysis of one of the Middle Age’s most challenging diagrammatic works: a little-studied, two-part treatise, written and illustrated in the last decade of the thirteenth century in Germany, by the Dominican monk Berthold of Nuremberg. The treatise is a commentary on the most well-known compendium of Latin carmina figurata (figured poems), In honorem sanctae crucis (In Honor of the Holy Cross), which was written by the abbot of Fulda, Hrabanus Maurus (c. 780–85), who went on to become archbishop of Mainz. The first part of Berthold’s treatise, completed in 1292, is devoted to the Holy Cross; the second part, completed in 1294, is devoted to the Virgin Mary. If more than

6 In this inventory, Ong traces around 300 editions of Ramus’ Dialectic to cite just one text, some of whose editions contained branching diagrams. Note that Ong lists manifold copies of each edition in his inventory. Ong, Ramus and Talon Inventory (Cambridge, MA: 1958), 2.
7 Ong, Ramus, Method, and the Decay of Dialogue, xv.
eighty manuscripts of *In honorem* survive today, only a few copies of Berthold’s work or sections of his work appear to have survived. Hamburger concentrates on the oldest known copy of Berthold’s commentary, which is preserved in Gotha, Germany, in the Forschungsbibliothek Gotha der Universität Erfurt (call number Memb. I 80), and which he surmises served as a presentation copy, created under Berthold’s eye. Hamburger argues that medieval diagrams do not only function as instruments of memory and tools in the production of knowledge, but he is also interested in the ways in which they articulate their makers’ ‘deeply held desires’ – for instance, the desire ‘to see order in a world whose appearances seem to escape it’ (9).

Hrabanus’ work praises the cross through twenty-eight figural Latin poems that each have identical numbers of letters per verse and whose letters produce a rectangular shape that is integrated with crosses and other images and motifs. In the two parts of Berthold’s commentary, by contrast, there is a clearer separation of image and text. Hamburger reminds us that Hrabanus lived through the second iconoclast period in Byzantium (814–843) to explain that the comparative foregrounding of images in Berthold’s commentary aligns with the greater acceptance of the use of visual art as an aid to devotion in his period. In part one of his commentary, Berthold develops Hrabanus’ twenty-eight figural poems into thirty-one images and diagrams, of which many are cruciform. Berthold juxtaposes these pictures with inscriptions taken from Hrabanus’ second book as well as with his own words. The sixty diagrams in Berthold’s second section all pertain to the Virgin Mary and are composed of simple geometric forms – straight and curved lines, squares, rectangles, and circles – as well as floral and vegetal motifs, and angels, stars, lions, and birds. One of the most fascinating observations in Hamburger’s deeply learned analysis pertains to the square of opposition, a diagram associated with the discipline of logic that was first presented in the second-century CE text *On Interpretation*, attributed to Apuleius of Madaura. Hamburger shows how this diagram was transferred from the realm of philosophy to this theological treatise, such that it served in the Marian section of the commentary as an instrument or ‘a frame of mind’ with which Berthold could think and compose new ideas (264). Hamburger also elucidates how Berthold’s treatise presents the Holy Cross and the Virgin Mary within the underlying order of human history as told in the Bible. The work functions as an instrument that not only reflects ideas, but that also creates and shapes worlds in a manner that provides insight into the desires that guide its creator. In this way, Berthold’s commentary offers instruction and pleasure as well as material to inspire meditation towards deeper spiritual insight. Given Hamburger’s masterful analyses of these complex illuminated manuscripts, it is a great shame that *Diagramming Devotions*...
is littered with typos; on the other hand, the University of Chicago Press is to be commended for the book’s elegant production and manifold full-page color illustrations.

Hamburger continues his exploration of the ways in which we have thought with objects in *Color in Cusanus*. This book emerged from Hamburger’s recognition that historians have overlooked the functions of color in original diagrams produced under the direction of the fifteenth-century polymath Nicholas of Cusa. In particular, Hamburger points out that scholars have not studied Cusa’s sophisticated use of color to represent phenomena pertaining to light, such as the dispersion of light throughout space – an occurrence that denoted the process through which divine light spread to the world, while remaining distinct, and thus an important element in Cusa’s theology. The book centers on the color images in Cusa’s *De coniecturis* (*On Surmises*), which was finished in 1443. The function of color and shading in the diagrams for this treatise has been ignored because scholars have worked from printed editions of Cusa’s writings, going all the way back to his *Opera omnia* of 1488. One wonders how many other medieval and early modern diagrams have been misunderstood by scholars owing to similar medial mistranslations; it is hoped that at the very least Hamburger’s *Color in Cusanus* will provoke a reevaluation of diagrams in Cusa’s works. Through his impressive analysis of the *De coniecturis*, Hamburger shows how sensory encounters offered a means through which the soul could rise towards the divine.

In broadening our understanding of medieval art history, Hamburger’s and Even-Ezra’s books join a growing body of literature on the Middle Ages that considers the interrelations among visual culture and intellectual history. The connections of images and intellectual history have also been at the forefront of much recent work in later periods, particularly in early modern

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European art history and in the history and philosophy of science.\textsuperscript{10} This research in medieval and early modern visual culture and intellectual history can be understood as contributing to the expanding field that in Germany is known as \textit{Bildwissenschaft} (often translated as ‘image science’), which enlarges art history to include accounts of images from interdisciplinary perspectives. Hamburger’s and Even-Ezra’s valuable contributions will undoubtedly motivate further studies to enrich and complete our understanding of medieval art and intellectual history.

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