

## THE RISE OF GRAPHICACY IN LATE ANTIQUITY AND THE EARLY MIDDLE AGES

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**Abstract:** Diagrams, maps, and other forms of graphic visualization are nowadays discussed as a specific mode of communication, graphicacy, typical of the modern age with its ever-increasing role of visual media in social life. This essay questions this tendency to see graphicacy as a by-product of modernity by surveying various forms of representational graphic signs and systems that were placed on various media in Late Antiquity and the early Middle Ages, and it suggests that this graphic material should be seen as expressions of the very same mode of communication rising at the time of the sociocultural—and more specifically, religious—transformation of the late Roman and post-Roman worlds. With reference to this graphic evidence, early graphicacy is defined as a mode of visual communication of conceptual information and abstract ideas by means of non-figural graphic devices, which may comprise inscribed letters, words, and isolated decorative symbols.

**Keywords:** graphicacy, graphic visualization, graphic signs, text and image, christograms, late antique monograms, display lettering, cosmographic diagrams, early medieval maps, early Christian culture.

In the past twenty years, various forms of graphic visualization such as diagrams, maps, and charts have attracted a growing interest among specialists in educational psychology and visual literacy, who have commonly studied them as phenomena typical of the modern age with its increasing importance of visual media in social communication. This assumption is somewhat at odds with the rich graphic material deriving from Late Antiquity and the early Middle Ages. At the same time, this implicit assumption is not so surprising considering that classicists and medievalists have rarely addressed comprehensively the increasing role of non-figural representational graphic devices across a wide range of media in these historical periods. By and large, research on various graphic devices has been primarily limited to highly specialized academic disciplines such as paleography, diplomatics, epigraphics, numismatics, and the history of sciences. Such academic specialization have led to many breakthroughs in the study of specific graphic signs and systems, but it has also prevented us from seeing, so to speak, the forest for the trees. Meanwhile, taken as a whole, the surviving graphic evidence can be seen as expressions of a specific mode of communication, graphicacy, that appeared long time before the modern age.

### 1. GRAPHICACY: A SHORT INTRODUCTION

The word “graphicacy” was coined by the British scholars W. G. V. Balchin and Alice M. Coleman in the mid-1960s; they argued that the understanding and deciphering of such graphic media as charts, graphs, and maps is based on a specific intellectual skill that they called graphicacy. They also contended that this skill facilitates graphic communication of information, which could not be adequately carried on by verbal or

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numerical means. Therefore, they concluded, this intellectual skill ought to be taught in high schools.<sup>1</sup> In the next two decades, the word gradually began to be used in discussions of how school children process graphic information, and graphs and maps in particular.<sup>2</sup> Consequently, some modern English dictionaries define graphicacy narrowly as “the ability to understand and use a map or graph,” while the others like the *Oxford English Dictionary* define it more broadly as “knowledge of or skill in the use of graphical information; the ability to produce or interpret diagrams, maps, tables, etc.”

But it was only in the late 1990s that graphicacy entered mainstream studies in educational and cognitive psychology and that some scholars approached it not only as an intellectual skill but also as a major form of communication.<sup>3</sup> The scholars working within this theoretical framework argue that graphicacy, along with literacy, oracy, and numeracy, belongs to the main modes of communication. With reference to modern maps, graphicacy has been described as communication of spatial information by means of graphic drawings whereby their creators and readers “encode and decode spatial information using symbols.” It has also been suggested that this process of encoding and decoding is only possible if both the creators and readers of such graphic drawings possess “conceptual knowledge of the phenomena represented in the graphic representation.”<sup>4</sup>

This connection between spatial and conceptual dimensions of graphicacy that has been noticed by some students of modern graphicacy is hardly accidental, since recent research in linguistics similarly points to the abundance of spatial metaphors in thought as expressed by language.<sup>5</sup> More importantly, modern research in graphic visualization suggests that human visual perception processes graphic lines arranged in a certain way as visual objects, and such object-like signs and symbols are also interpreted by the human brain as proxies for concepts.<sup>6</sup> Hence, due to the nature of human visual perception, graphic compositions have a potential to communicate conceptual as much as spatial information. At the same time, specific forms that such graphic drawings take to transmit conceptual information are culturally and historically defined. For example, experimental research in the US with school students from different cultural backgrounds has shown that effectiveness in the use of maps and graphs has depended on the students’ familiarity with certain cultural systems of

<sup>1</sup> W. G. V. Balchin and Alice M. Coleman, “Graphicacy – the Fourth ‘Ace’ in the Pack,” *Times Educational Supplement*, 1965, November 5; and Balchin and Coleman, “Graphicacy Should Be the Fourth Ace in the Pack,” *The Cartographica: The International Journal for Geographic Information and Geovisualization* 3.1 (1966) 23–28.

<sup>2</sup> See, for example, David J. Boardman, “Graphicacy in the Curriculum,” *Educational Review* 28.2 (1976) 118–125; Howard Weiner, “A Test of Graphicacy in Children,” *Applied Psychological Measurement* 4.3 (1980) 331–340; and David J. Boardman, “Graphicacy Revisited: Mapping Abilities and Gender Differences,” *Educational Review* 42.1 (1990) 57–64.

<sup>3</sup> Yolanda Postigo and Juan Ignacio Pozo, “On the Road to Graphicacy: The Learning of Graphical Representation Systems,” *Educational Psychology* 24.5 (2004) 623–644, at 623–624.

<sup>4</sup> P. D. Wilmot, “Graphicacy as a Form of Communication,” *South African Geographical Journal* 81.2 (1999) 91–95, at 91–92.

<sup>5</sup> *Language and Space*, ed. Paul Bloom and others (Cambridge, MA 1996); Steven Pinker, *The Stuff of Thought: Language as a Window into Human Nature* (London 2007); and George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago 2003).

<sup>6</sup> Colin Ware, *Information Visualization: Perception for Design*, 3rd edn. (Waltham, MA 2013) 222–223.

representation. In other words, people's abilities to communicate conceptual knowledge by means of non-figural types of graphic drawings are mainly defined by their familiarity with culturally specific systems of representation. Therefore, particular types of graphic signs and systems can be studied as phenomena of cultural history.<sup>7</sup>

It is true that early graphic devices often look quite different from modern maps, charts, and graphs, but both early and modern graphic compositions require a learned skill "developed from the visual-spatial ability of intelligence, as distinct from the verbal or numerical abilities."<sup>8</sup> We have to describe early graphicacy, therefore, not in relation to graphic systems specific to the modern age, but with reference to classical and medieval graphic compositions that were created and used with reliance on that particular cognitive skill and in response to historically limited cultural systems of representation. I would like to exemplify this point in the following pages with reference to graphic evidence surviving from Late Antiquity and the early Middle Ages.

## 2. THE CONFLATION OF TEXT AND IMAGE IN LATE ANTIQUITY AND THE EARLY MIDDLE AGES: THE CALENDAR OF 354

THE first graphic composition relevant to our discussion can be found on the dedication page (fig. 1) in the *Calendar of 354*, which Furius Dionysius Filocalus produced for a wealthy Roman Christian Valentinus and which has only survived in later copies. Filocalus is a well-known fourth-century calligrapher, who, later in his life, carved epigrams composed by Pope Damasus (366–384) for renovated Christian tombs in Roman catacombs and can thus be connected to Christian aristocratic circles in the eternal city.<sup>9</sup> The recipient of the manuscript, Valentinus, seems to have belonged to an established Roman aristocratic family, the Symmachi family.<sup>10</sup> Thus, the production of the codex as well as its dedicational monogram can be firmly attributed to the aristocratic Christian milieu in Rome.

The monogram duplicates the text written on its both sides, "Valentine, floreas in Deo" (Valentinus, may you flourish in God), which suggests that its main message was not so much textual as visual. The graphic device is located approximately at the center of the upper page and twice higher than the two lines of the corresponding text, which is to say that the size and the location of the monogram follows the main principles of a visual pop-up effect familiar to modern graphic designers: an important target object or data should be represented by graphic elements that are visually distinct from less significant surroundings.<sup>11</sup> This pop-up effect serves to grasp the viewer's attention and accentuate the significance of the graphic composition on the dedication page. Furthermore, the monogram conflates Latin capital letters within a letter O and thus

<sup>7</sup> Postigo and Pozo, "On the Road to Graphicacy" (n. 3 above) 641.

<sup>8</sup> I am referring here to Balchin's definition of graphicacy from 1970: W. G. V. Balchin, "Graphicacy", *Geography: An Outline of the Intending Student* (London 1970) 28–42, at 28.

<sup>9</sup> Michele Renee Salzman, *On Roman Time: The Codex-Calendar Of 354 and the Rhythms of Urban Life in Late Antiquity* (Berkeley 1990) 199–205; and Alan Cameron, "Filocalus and Melania," *Classical Philology* 87.2 (1992) 140–144.

<sup>10</sup> Salzman, *On Roman Time* (n. 9 above) 201–202.

<sup>11</sup> Ware, *Information Visualization* (n. 6 above) 14 and 140; and idem, *Visual Thinking for Design* (Amsterdam 2008) 24–32.

creates a closed object-like contour. This graphic form employs another important *Gestalt* principle, according to which closed contours such as a circle or square tend to be seen as objects and are commonly used to visualize concepts.<sup>12</sup>

There are two other subjunctive phrases written on the lower part of that page and addressed to Valentinus: “Valentine, vivas floreas” (Valentinus, may you live and flourish) and “Valentine vivas gaudeas” (Valentinus, may you live and rejoice). But they were written in smaller letters and thus attract less attention. So it is only the first subjunctive phrase that received a special graphic structure, which seems not to be accidental since this unique formula “floreas in Deo” was constructed in imitation of known Christian acclamations such as “vivas in Deo” or “vivatis in Deo” and hence can also be interpreted as clearly Christian.<sup>13</sup> The monogram thus makes absolutely clear to its viewer the hierarchy of optative messages on the page, with the Christian message being (both semantically and visually) on the top. The Christian acclamation also required the late antique recipient to pause his reading and to analyze the central graphic device and its constituent elements. This pause invited that reader to contemplate the concept encoded in the monogram: what did it really mean to flourish in God? Similarly to modern graphicacy, this contemplative process relied on the visual-spatial ability of human intelligence.

The dedication monogram in the *Calendar of 354* is quite unique for late antique book culture, but it is symptomatic of a wider trend that developed in late antique and early medieval art from the fourth century onwards, the trend toward the convergence of text and image in new innovative ways resulting, among other things, in the appearance of the early medieval decorated book. As early as 1970, the Swedish art historian Carl Nordenfalk pointed out that the classical clear-cut distinction between script, ornament, and illustration began to blur in Late Antiquity, and that the first initials which combined letters with decorative elements can be dated to the fourth century.<sup>14</sup> By the eighth century, this development led to the text itself becoming a focus of artistic decoration at the expense of its legibility and to the appearance of the historiated initial, which incorporated an image related to the accompanying text.<sup>15</sup> To explain this development, Nordenfalk emphasized the transition of book production in Late Antiquity from professional scribes (slaves) working for their lay owners to Christian clerics of monastic scriptoria.<sup>16</sup> This would imply not only a change in terms of scribes, but also in terms of nature of books to be copied and their intended audiences. In a similar vein, Lawrence Nees has explained the appearance of the illuminated book by a move in Late Antiquity from the society where the texts were intended for public recitation to the world where the books were mainly intended for silent private reading,

<sup>12</sup> Ware, *Information Visualization* (n. 6 above) 186–187 and 222–224.

<sup>13</sup> Salzman, *On Roman Time* (n. 9 above) 199 and n. 11.

<sup>14</sup> Carl Nordenfalk, *Die spätantiken Zierbuchstaben* (Stockholm 1970) 181.

<sup>15</sup> Meyer Shapiro, “The Decoration of the Leningrad Manuscript of Bede,” *Scriptorium* 12 (1958) 191–207; Jonathan J. G. Alexander, “Scribes as Artists: The Arabesque Initial in Twelfth-century English Manuscript,” *Medieval Scribes, Manuscripts & Libraries: Essays Presented to N. R. Kerr*, ed. M. B. Parkes and Andrew G. Watson (London 1978) 87–116, at 87; and Michelle P. Brown, *Manuscripts from the Anglo-Saxon Age* (London 2007) 8–51.

<sup>16</sup> Nordenfalk, *Die spätantiken Zierbuchstaben* (n. 14 above) 97–116.

“which presupposes a small and commonly solitary audience.”<sup>17</sup> In such contemplative reading, the visual aspect of the written text acquired a new, significant role.

In the early medieval British Isles and continental Europe, this trend led to the text itself becoming a focus of artistic decoration at the expense of its legibility and the appearance of the so-called “monogrammatic initials” or display lettering, which encoded biblical and liturgical words and phrases (*Te igitur, Quoniam, In principio*, and so on) in religious manuscripts. Such graphic devices carried important extralinguistic meaning and required a special learned skill from their producers and viewers.<sup>18</sup> As several recent academic projects and events have suggested,<sup>19</sup> this early medieval trend toward the conflation of text, ornament, and image was not limited to manuscript culture, but can be traced in epigraphic and paleographic practices in other media. This interdisciplinary research has also demonstrated that such (epi)graphic texts had various non-literary uses within specific material and performative contexts.

### 3. CHRISTOGRAMS AND LATE ANTIQUE MONOGRAMMATIC CULTURE: THE ENCOLPION OF EMPRESS MARIA

The dedication monogram in the *Calendar of 354* is also representative of broader monogrammatic culture that became a visual feature of Late Antiquity. The first monograms were placed on Greek coins in the first half of the fifth century BC, and this practice was continued in the Hellenistic period.<sup>20</sup> The classical Greek monograms communicated referential information about their “producers,” that is, their official issuers, and were composed of several letters confluent within a single graphic structure, which presented the initial (or most important) letters of the name of an issuing city-state or king. This practice remained dormant during most of the Roman period, before it was revitalized in the late second and the third centuries AD. Jeffrey Spier has recently identified a group of third-century jasper gems with Greek box monograms that were associated with the rings similar to those that were used for the earliest Christian gems.<sup>21</sup> In the same century, box monograms consisting of all the letters of a person’s name appeared in Christian catacombs in Rome.<sup>22</sup> In the course of the fourth

<sup>17</sup> Lawrence Nees, *Early Medieval Art* (Oxford 2002) 156–157.

<sup>18</sup> See especially Benjamin C. Tilghman, “The Shape of the Word: Extralinguistic Meaning in Insular Display Lettering,” *Word & Image* 27,3 (2011) 292–308.

<sup>19</sup> The British project *Viewing Texts: Word as Image and Ornament in Medieval Inscriptions* at the Courtauld Institute of Art in London (2009–10): <http://projects.beyondtext.ac.uk/wordasimage/index.php>. The German project *Material Text Cultures (Materiale Textkulturen)* at the University of Heidelberg: <http://www.materiale-textkulturen.de>. The international symposium *Sign and Design: Script as Image in a Cross-Cultural Perspectives (300–1600 CE)* at Dumbarton Oaks (12–14 October 2012): <http://www.doaks.org/news/past-events-1/2012-symposium>. See also Jeffrey F. Hamburger, “The Iconicity of Script,” *Word & Image* 27,3 (2011) 249–261; and *Sign and Design: Script as Image in Cross-Cultural Perspective (300–1600 CE)*, ed. Brigitte M. Bedos-Rezak and Jeffrey Hamburger (Washington, DC, forthcoming).

<sup>20</sup> Viktor Gardthausen, *Das alte Monogramm* (Wiesbaden 1924) 18–19; and Jeffrey Spier, *Late Antique and Early Medieval Gems* (Wiesbaden 2007) 193.

<sup>21</sup> *Ibid.* 193–195.

<sup>22</sup> See, for example, the owner’s monogram *Constans* or *Constantius* carved over the entrance to a private basilica in the Catacomb of Pretestato in Rome established in the 3rd c.: *Inscriptiones Christianae Urbis Romae septimo saeculo antiquiores*, ed. Baptista di Rossi and Antonius Ferrua, Nova series, vol. 5, *Coemeteria reliqua viae Appiae* (Vatican City 1971) no. 13277, table xiv, 6a. On this particular catacomb,

century, Latin monograms became an immanent part of early Christian calligraphic culture in Rome and were adapted by late Roman aristocrats to express their name on various valuable objects. As the *Calendar of 354* shows, they also began to be employed to express Christian invocations. In the late Roman and early Byzantine worlds, such monograms developed into the graphic signs of noble status and higher authority and began to be placed on such objects as coins, seals, weights, and public monuments, which were accessible to wider viewing audiences. In the seventh and eighth centuries, the use of monograms somewhat decreased in the Byzantine world. At the same time, they became more popular as graphic signs of authority in the Latin West, where they began to be used not only on coins but also in royal diploma.<sup>23</sup>

In most cases, the understanding of such monograms relied on the viewer's knowledge of the people to whom they belonged or on some accompanying *tituli* that decoded their meaning in a textual form. The decoding of a monogram was therefore a process different from reading, as was clearly realized by Quintus Aurelius Symmachus as early as the late fourth century. In one of his letters, he wrote that the monogram of his name "magis intellegi, quam legi promptum est" (was presented more to be grasped mentally than to be read).<sup>24</sup> The verb "intellegere"—which is usually translated as "to perceive, grasp mentally, understand, and comprehend"—was used in this context to emphasize that the process of graphic decoding of a monogram was quite different from reading.

In their association with "intellegere," the late antique monograms were similar to the staurogram (*tau-rho*) and christograms—the monograms of Christ's names (*chi-rho*, *iota-eta*, and *iota-chi*)—and they also share their origins in the early Christian culture of the late second and third centuries AD. The first Christian sign, the staurogram (*tau-rho*), appeared in New Testament manuscripts at the end of the second century as an abbreviation of the Greek letters (ταυρ) forming the central part of the words "cross" (σταυρός) and "crucify" (σταυρώω). Such a usage was not different from earlier Greek inscriptions where the *tau-rho* sign could be used as an abbreviation, for example, for the word τριακός (thirty).<sup>25</sup> But very soon, the *tau-rho* sign became staurogram, that is, it began to function as a symbolic reference to divine authority, a graphic reference to the crucified Jesus and Crucifixion, and a visual expression of early Christian faith.<sup>26</sup> Very soon, the popularity of staurogram was matched by the

see Vincenzo Ficocchi Nicolai, Fabrizio Bisconti, and Danilo Mazzoleni, *The Christian Catacombs of Rome: History, Decoration, Inscriptions*, 3rd ed. (Regensburg 2009) 19.

<sup>23</sup> Ildar Garipzanov, "Metamorphoses of the Early Medieval *signum* of a Ruler in the Carolingian World," *Early Medieval Europe* 15 (2006) 419–464; and idem, *The Symbolic Language of Authority in the Carolingian World (c. 751–877)* (Leiden 2008) 157–202.

<sup>24</sup> Quintus Aurelius Symmachus, *Epistolae*, II. 12, *Symmachi opera*, ed. Otto Seeck, MGH, Auctores antiquissimi, vol. 6.1 (Berlin 1883) 46.

<sup>25</sup> Michael Avi-Yonah, *Abbreviations in Greek Inscriptions (the Near East, 200 BC–AD 1100)* (Jerusalem 1940) 105.

<sup>26</sup> For more details and references, see Erich Dinkler, "Alteste christliche Denkmaler," *Aufsätze zum Neuen Testament und zur christlichen Archäologie* (Tübingen 1967) 134–178, at 177–178; Kurt Aland, "Neue neutestamentliche Papyri II," *New Testament Studies* 10–11 (1963–1965) 62–79, at 75–79; and 1–21, at 1–3; Erica Dinkler-von Schubert, "CTAYPOC: von 'Wort vom Kreuz' (1 Kor. 1,18) zum Kreuz-Symbol," *Byzantine East, Latin West: Art-Historical Studies in Honor of Kurt Weitzmann*, ed. Doula Mouriki, Christopher Moss, and Katherine Kiefer (Princeton 1995) 29–39; Larry W. Hurtado, "The Staurogram in Early Christian Manuscripts: the Earliest Visual Reference to the Crucified Jesus," *New Testament Manu-*

*chi-rho* sign, which was made of the two first Greek letters of Christ's name. This sign also functioned as an abbreviation in earlier Greek inscriptions,<sup>27</sup> but as early as the third century it was placed as a freestanding symbol on early Christian gems.<sup>28</sup>

In the Christian usage, these two signs moved from the realm of literacy to that of early graphicacy. As abbreviations, such signs referred to specific words. By contrast, Christian visual culture appropriated such utilitarian signs for qualitatively different, symbolic usage whereby they began to refer to God and Christological concepts. Consequently, combinations of letters forming such graphic devices (*tau-rho*, *chi-rho*, *iota-eta* etc.) acquired ideographic meanings.<sup>29</sup> Such devices were representational and directly open to meanings and interpretations. For example, in the fourth century, Ephraim the Syrian interpreted the staurogram as signifying that "the cross is our help" or "salvation is in the cross." His interpretation was based on the well-known early Christian identification of the letter *tau* with the sign of the cross and by the identification of the letter *rho* with the word "help" through the application of antique isopsephy: the later character's numeric value was 100, which was identical with the sum of the numeric values of the Greek letters in the word βοήθεια (help).<sup>30</sup>

As graphic symbols of Christ and Salvation as well as apotropaic signs, the christograms appeared in Late Antiquity on funerary plaques, liturgical vessels, silverware, signet rings, Eucharistic bread stamps, and mass-produced objects such as clay lamps and coins. They were also introduced as part of church decoration on walls, mosaic pavements, and the basins of baptismal fonts.<sup>31</sup> In the course of the fifth and sixth centuries, the sign of the cross, whose multiple symbolic meanings were repeatedly commented upon by the early Christian authors from the second century onwards, came to dominate the repertoire of the Christian graphic symbolism. In the sixth century, the graphic signs of Christ and personal monograms converged with the appearance of the cruciform monogram whereby the letters of a personal name or optative message were framed by the paradigmatic graphic sign of Christ. As the Lord created the first man in his own image, so Christ's primary sign became the graphic prototype par excellence for the graphic *signa* of Christians.

This use of Christ's graphic signs as visual tools for mental comprehension can already be traced to the fourth century AD. Soon after the triumph of Christianity under Constantine the Great, Publilius Optatianus Porfyrius produced the first *versus intexti* (interwoven verses) also known as *carmina figurata* to celebrate the twentieth anniver-

*scripts: Their Text and Their World*, ed. Thomas J. Kraus and Tobias Niklas (Leiden 2006) 207–226, at 207; and 224–226; and idem, *The Earliest Christian Artifacts: Manuscripts and Christian Origins* (Grand Rapids 2006) 135–154.

<sup>27</sup> Avi-Yonah, *Abbreviations in Greek Inscriptions* (n. 25 above) 12 and 19.

<sup>28</sup> Spier, *Late Antique* (n. 20 above) 30–34.

<sup>29</sup> Isidore of Seville, *Etymologies*, 1.3–4, ed. Stephen A. Barney et al. (Cambridge 2002) 40–41.

<sup>30</sup> Ephraim, *In sanctam Parasceven, Ephraem Syri opera omnia quae extant graece – syriace – latini*, vol. 3 (Rome 1746) 477; Franz Joseph Dölger, *Sol salutis: Gebet und Gesang im christlichen Altertum* (Münster 1920) 61; Larry Hurtado, *The Earliest Christian Artifacts* (n. 26 above) 149; and Markus Vinzent, *Christ's Resurrection in Early Christianity and the Making of the New Testament* (Farnham 2011) 23.

<sup>31</sup> Katherine M. D. Dunbabin, *The Mosaics of Roman North Africa: Studies in Iconography and Patronage* (Oxford 1978) 189–190; Rachel Hachlili, *Ancient Mosaic Pavements: Themes, Issues, and Trends: Selected Studies* (Leiden 2009) 224–226; Robin Jensen, *Living Water: Images, Symbols, and Settings of Early Christian Baptism* (Leiden 2010) 271–273.

sary of Constantine's reign (325). Optatianus Porphyrius's work brought a drastic innovation to the tradition of calligraphic poetry that originated in the Hellenistic period by producing cryptic graphic devices where poetic lines can only be decoded by following the lines of geometric patterns and graphic symbols inscribed on each page.<sup>32</sup> The *chi-rho* sign was one of the symbols he used in his work. This poetic conflation of text and graphic image was imitated in the early Middle Ages, among others by Alcuin, before reaching its climax in the *carmina figurata* of Hrabanus Maurus, whose poems were shaped quite literally by various types of the cross and christograms.<sup>33</sup>

The role of Christ's signs as decoding keys for graphic devices was not limited to manuscript culture as can be illustrated by the encolpion with a relic that had been presented to Empress Maria, the wife of Emperor Honorius, at the turn of the fifth century and was discovered in her tomb in Rome in 1544.<sup>34</sup> On its frontal side (fig. 2), the names of the imperial couple and the parents of Maria, Stilicho and Serena, all in vocative, are written to create a graphic image of a *chi-rho* sign—the names of the older couple making X and the names of their young daughter and Honorius making P. It is noteworthy that the name of Maria is attached to the main vertical bar of the letter *rho* created by the letters of Honorius's name, which visually indicates her status in this marital arrangement: a noble girl betrothed to the mighty Western Roman emperor. Another Christian sign, the staurogram, creates the second graphic composition that presents the viewer with the first part of the Christian wedding acclamation *Honori et Maria vivatis*. The second part of this acclamation *in Christo* is implied by the above-mentioned *chi-rho* sign, which was sometimes used in this meaning in early Christian inscriptions in Roman catacombs. This interpretation is corroborated by the other side of the encolpion where the names of the imperial couple are substituted with the names of Maria's brother and sister, Eucherius and Thermantia. Yet, it is not their names but the names of Maria's parents that create the letter *rho* on the other side, while their children's names make the latter *chi*. As a result of this change, the staurogram on the backside contains the acclamation *Stelicho et Serena vivatis in Christo*, which was more appropriate for the older married couple than for their unmarried children.

At the middle of the graphic composition on the frontal side, one can see an ankh-cross, which was appropriated by the Christian Copts as a symbol of eternal life refer-

<sup>32</sup> For more details, see Publilius Optatianus Porphyrius, *Carmina*, ed. Giovanni Polara, 2 vols. (Torino 1973); William Levitan, "Dancing at the End of the Rope: Optatian Porphyry and the Field of Roman Verse," *Transactions of the American Philological Association* 115 (1985) 245–269; Ulrich Ernst, *Carmen figuratum: Geschichte des Figurenedichts von den antiken Ursprüngen bis zum Ausgang des Mittelalters* (Cologne 1991) 97–142; J. Stephan Edwards, "The *Carmina* of Publilius Optatianus Porphyrius and the Creative Process," *Studies in Latin Literature and Roman History*, vol. 12, ed. Carl Deroux (Brussels 2005) 447–466; and Michael Squire, "Patterns of Significance: Publilius Optatianus Porphyrius and the Figurations of Meaning," *Images and Texts: Papers in Honour of Professor E. W. Handley, CBE, FBA*, ed. R. Green and M. Edwards, *Bulletin of the Institute of Classical Studies*, Suppl. no. 129 (London 2014) 87–120.

<sup>33</sup> Ernst, *Carmen figuratum* (n. 32 above) 147–332; Rabanus Maurus, *In honore sanctae crucis*, ed. M. Perrin, 2 vols, CCCM 100 (Turnhout 1997).

<sup>34</sup> *Vingt ans d'acquisitions au Musée du Louvre 1947-1967*, ed. M. André Parrot and Hélène Adhemar (Paris 1967–1968) 76, no. 234; and *The Age of Spirituality: Late Antique and Early Christian Art, Third to Seventh Century*, ed. Kurt Weitzmann (New York 1979) 306, no. 279.



ring to Christ's passion.<sup>35</sup> This symbol divides the verb *vivatis* and thus explains the deep meaning of the phrase "vivatis in Christo" (may you live in Christ): it refers, first and foremost, to eternal life, and a relic was encapsulated in this object to ensure that wish to be fulfilled. So the complicated graphic message of the encolpion—which was most likely commissioned by Stilicho and his wife as a bridal gift to their daughter on the occasion of her marriage to Honorius in 398—can be properly comprehended only if the process of decoding is guided by the knowledge of the two Christian signs that were most popular in the fourth century. In short, we are presented here with a hybrid graphic formation that, properly speaking, is neither a text nor image. It belongs to the realm of late antique graphicacy that had the early Christian cultural system of representation as its main reference point.

#### 4. THE BRUCE CODEX AND THE EARLY MEDIEVAL COSMOGRAPHIC DIAGRAMS

That cultural system of representation was by no means the only one available at the time as demonstrated by another peculiar case of early graphic visualization that comes from a book produced in a late antique Gnostic context, namely, the so-called *Book of Jeu* (also dubbed recently as *Livre du grand discours mystérique*). This work was originally written in Greek in late third- or fourth-century Egypt and preserved in a Coptic translation in the Bruce Codex.<sup>36</sup> In this book, the resurrected Jesus takes his disciples to a mystical journey through heavenly spheres to approach the true invisible god Jeu. Jesus teaches his disciples how their souls should travel across the mystical world in order to reach the treasures of the light and to reach specific sections of the supernatural world where the souls can encounter multiple emanations radiating from Jeu. Rectangular diagrams consisting, among other things, of mystical *characteres* are drawn in the book to visualize the types of Jeu, his emanations, and seals marking the identity of those emanations to the book's readers.<sup>37</sup> In total, sixty-four graphic schemata have survived in this incomplete text, and, according to Paul Corby Finney, they "remain consistently abstract, linear schematization of an imaginary world inhabited by concepts, not people."<sup>38</sup> These graphic devices were designed to help the Gnostic reader mentally grasp the transcendent world void of sensibles.

Let us look at one graphic example of that "imaginary world": the diagram of Jeu's treasure and his type marked in the manuscript as Jeu 5 (fig. 3). Its textual part presents the names of the three watchers guarding this particular treasure, the graphic

<sup>35</sup> Ibid. 494.

<sup>36</sup> For details and references, see Birger A. Pearson, *Gnosticism and Christianity: In Roman and Coptic Egypt* (New York 2004) 74; and Eric Crégheur, "Édition critique, traduction et introduction des 'deux Livres de léou' (MS Bruce 96), avec des notes philologiques et textuelles" (PhD thesis, Univ. Laval 2013) 160–170.

<sup>37</sup> See *The Books of Jeu and the Untitled Text in the Bruce Codex*, ed. Carl Schmidt and trans. Violet MacDermot (Leiden 1978). The text has been considerably rearranged by Crégheur, *Édition critique* (n. 36 above). In this interplay between a narrative frame and pictorial schemata as a means to facilitate a mental journey, this Gnostic text can be compared to the 2nd-c. *Tabula Cebetis*. For more details, see Michael Squire and Jonas Grethlein, "'Counterfeit in Character for Persuasive in Appearance': Reviewing the *Ainigma* of the *Tabula Cebetis*," *Classical Philology* 109 (2014) 285–324. I would like to thank Michael Squire for bringing this parallel to my attention.

<sup>38</sup> Paul Corby Finney, "Did Gnostics Make Pictures?" *The Rediscovery of Gnosticism*, ed. B. Layton, Numen, Supplementum 41.1 (Leiden 1980) 434–454, at 437–438.

character (seal) and the name of Jeu's particular type associated with this treasure, and the names of the twelve emanations deriving from that type.<sup>39</sup> The lines and letters that are used to draw the diagram look arbitrary and abstract at first glance. Yet, if we look at the part of the book explaining how the wandering soul should traverse such treasures, the diagram suddenly turns into a detailed mental map necessary for such a mystical voyage (fig. 4): it shows the entrance doors to this particular treasure, the three letters identifying the three watchers, the five ranks (two inside, one at the middle, and two outside), and the paths leading to the central place of the treasure and protected by veils. Elsewhere in the book, enigmatic seals and arcane passwords made of specific names and numbers are given by Jesus to his disciples in order to draw these obstacles away and thus open the way to a particular treasure.<sup>40</sup> For a Gnostic reader, such a diagram was as useful a guiding tool as the New York City subway map to a modern European tourist.

Just as Gnostic intellectuals designed such graphic schemata as means to map the transcendent world and to visualize its conceptualized attributes, so Christian thinkers of Late Antiquity and the early Middle Ages developed their own graphic devices such as the cosmological diagrams to perceive and comprehend (*intellegere*) the temporal world in its intrinsic connection to the divine. These diagrams (*rotae*) found in early medieval manuscripts have traditionally been viewed as mere copies of classical prototypes. Yet, recent research conducted by such scholars as Barbara Obrist, Bianca Kühnel, and Bruce S. Eastwood has shown that despite some classical sources of inspiration, the early medieval cosmological diagrams as they are known to us from Carolingian and Ottonian manuscripts were products of their own time. The new research has shown that, similarly to modern graphic devices, such diagrams communicated to their early medieval viewers conceptual information that otherwise would have been lost on a textual level.<sup>41</sup> Thus, Barbara Obrist has emphasized that medieval diagrams were used to present "the vast domain of implicit knowledge: they bring to the foreground categories considered essential but that were not necessarily made explicit on a textual level."<sup>42</sup> Bianca Kühnel has also argued that the tendency to "geometrization" in early medieval art reached its maturity in the Carolingian and Ottonian periods, leading to the appearance of more complex and sophisticated diagrams "in line with theological and political developments."<sup>43</sup> She has even stated that "the diagram began to be systematically mobilized to express theological concepts only in the early medieval West." Hence, she sees the "union between the scientific

<sup>39</sup> *The Books of Jeu*, ed. Schmid (n. 37 above) 38–39, and Crégheur, "Édition critique" (n. 37 above) 312–313.

<sup>40</sup> *Ibid.* 134–139.

<sup>41</sup> Barbara Obrist, "Wind Diagrams and Medieval Cosmology," *Speculum* 72.1 (1997) 33–84; eadem, *La cosmologie médiévale: Textes et images*, vol. 1, *Les fondements antiques* (Florence 2004); Bianca Kühnel, *The End of Time in the Order of Things* (Regensburg 2003); eadem, "Carolingian Diagrams, Images of the Invisible," *Seeing the Invisible in Late Antiquity and the Early Middle Ages*, ed. Giselle de Nie, Karl F. Morrison, and Marco Mostert (Turnhout 2005) 359–389; and Bruce Eastwood, *Ordering the Heavens: Roman Astronomy and Cosmology in the Carolingian Renaissance* (Leiden 2007).

<sup>42</sup> Obrist, "Wind Diagrams and Medieval Cosmology" (n. 41 above) 34.

<sup>43</sup> Kühnel, *The End of Time* (n. 41 above) 66–68.

diagram and theology” as one of the most original early medieval contributions to visual arts.<sup>44</sup>

Recent research has also demonstrated that this type of medieval graphicacy originates from the same period of Late Antiquity as the *Calendar of 354* and the *Bruce Codex*. Even though visual representations of the spherical cosmos were derived from classical Greece, they were either geometric figures accompanying mathematical texts or pictorial schematic figures simply illustrating on a subject. As emphasized by Barbara Obrist, cosmological diagrams as a specific mode of representation only began to prevail in the fifth and sixth centuries AD.<sup>45</sup> Such works as Calcidius’s commentary on Plato’s *Timaeus* (produced around the turn of the fifth century), Macrobius’s commentary on Cicero’s *Dream of Scipio* (composed ca. 430–440), and Martianus Capella’s *De nuptiis Philologiae et Mercurii* (dated to the first half of the fifth century) marshaled the new trend.<sup>46</sup>

Plato’s *Timaeus* was a popular object of commentaries for late antique Neoplatonists, and Neoplatonic ideas can be traced in the two other works mentioned above. This is hardly surprising if we agree with Paolo Olmos in that “the different trends of the various schools of Neoplatonism to a certain extent pervade most of the literary production of Late Antiquity.”<sup>47</sup> What was, meanwhile, typical of various strands of late antique Neoplatonism was a focus on the intelligible realm of ideas—with the One above it—as the ultimate reality structuring the sensible world. For the fifth-century Neoplatonist Proclus, universal concepts were thus the objects of knowledge, “more worthy of respect than the objects of sense.”<sup>48</sup> According to Plotinus, the third-century founder of Neoplatonism, a part of our human soul remained not in “the realm of deceit and falsity” (the realm of senses), but in “the Meadows of Truth” (the intellectual realm), which could be accessed by means of contemplation.<sup>49</sup> The figural forms of the natural world were, therefore, of little help in understanding this intelligible world of Ideas since “the Idea in the truest sense is an incorporeal cause, transcending its participants, a motionless Being, exclusively and really a model, intelligible to souls through images, and intellegising causally the existents modeled upon it.”<sup>50</sup>

<sup>44</sup> Kühnel, “Carolingian Diagrams, Images of the Invisible” (n. 41 above) 375. Barbara Obrist similarly states that “le systématisation des procédés de représentation schématique des concepts cosmologiques constitue une particularité du haut Moyen Age”: Obrist, *La cosmologie médiévale* (n. 41 above) 23. For a somewhat similar use of diagrams in the high Middle Ages, see Madeline H. Caviness, “Images of Divine Order and the Third Mode of Seeing,” *Gesta* 22.2 (1983) 99–120.

<sup>45</sup> Obrist, *La cosmologie médiévale* (n. 41 above) 20–23.

<sup>46</sup> *Ibid.* 48, 119–146, 171–194, 234–238, and 259–273.

<sup>47</sup> Paola Olmos, “Two Literary Encyclopaedias from Late Antiquity,” *Studies in History and Philosophy of Science* 43 (2012) 284–292, at 285. See also Gretchen J. Reydams-Schils, “Meta-Discourse: Plato’s *Timaeus* according to Calcidius,” *Phronesis* 52 (2007) 301–327, at 307, who views Calcidius as “a cultural mediator” between Christianity and Platonism. For a discussion of the influence that philosophy in general and Neoplatonism in particular exercised over the late antique intellectual elites, both pagans and Christians, see Christian Wildberg, “Philosophy in the Age of Justinian,” *The Cambridge Companion to the Age of Justinian*, ed. Michael Maas (Cambridge 2005) 316–340.

<sup>48</sup> Proclus, *Commentary of Plato’s Parmenides*, IV. 896, *Proclus’s Commentary on Plato’s Parmenides*, trans. Glenn R. Morrow and John M. Dillon (Princeton 1987) 257.

<sup>49</sup> Plotinus, *The Enneads*, I. 3. 4 and IV. 8. 8, trans. Stephen MacKenna and ed. John Dillon (London 1991) 26–27 and 342.

<sup>50</sup> Proclus, *Commentary of Plato’s Parmenides*, IV. 935 (n. 48 above) 288.

At the turn of the sixth century, Pseudo-Dionysius adapted the Neoplatonic cognitive method and categories to the Christian mystical thought and thus put “into theoretical terms tendencies long apparent in Christian discourse,” and by the mid-sixth century his works were accepted as Christian orthodoxy in the Greek-speaking world.<sup>51</sup> It is noteworthy, for example, that most chapters of his *Ecclesiastical Hierarchy*, consist of three sections: an introduction, a description of a specific liturgical mystery, and a section called “Contemplation.”<sup>52</sup> This final part contemplates the true hidden meanings of the liturgical actions described in the preceding section, which shows that the term “contemplation” in his usage referred to the process of true understanding of various phenomena. Elsewhere, Pseudo-Dionysius stated that the Good (God) “draws sacred minds upward to its permitted contemplation” and that such divine enlightenment allows us to grasp the things “in the best way we can, and as they come to us, wrapped in the sacred veils of that love toward humanity with which scripture and hierarchical traditions cover the truths of the mind with things derived from the realm of senses. And so it is that the Transcendent is clothed in the terms of being, with shape and form on things which have neither, and numerous symbols are employed to convey the varied attributes of what is an imageless and supra-natural simplicity.”<sup>53</sup> Within these late antique strands of thought, thus, graphic diagrams could be seen as useful contemplative tools to understand the Intellectual/Divine Cosmos and its constituent elements.

By the time of Isidore of Seville’s *De natura rerum* (written in 612–613) the transformation of graphic diagrams into a mode of representation was already complete. In the Carolingian realm, where the works of Pseudo-Dionysius were translated into Latin by John Scottus Eriugena,<sup>54</sup> early medieval diagrams were further elaborated to schematize cosmological ideas;<sup>55</sup> and Bruce S. Eastwood argues that such Carolingian diagrams—no matter how incoherent they may look to a modern viewer—allow us to “discover much more deeply what and how ninth-century teachers and students were able to *understand* .”<sup>56</sup>

Let me illustrate this point with a diagram that was drawn in a manuscript produced in a Carolingian scriptorium ca. 798–805 (Cologne, Erzbischöfliche Diözesan- und Dombibliothek, Cod. 83II, 84r). This diagram is included in the set of thirteen diagrams compiled for contemplative study in the manuscript primarily consisting of computistic and cosmological texts.<sup>57</sup> An annotation to the diagram is quite simple:

<sup>51</sup> Wildberg, “Philosophy in the Age of Justinian” (n. 47 above) 323–324; and Peter N. Bell, *Social Conflict in the Age of Justinian: Its Nature, Management and Mediation* (Oxford 2013) 254.

<sup>52</sup> Pseudo-Dionysius, *The Ecclesiastical Hierarchy, The Complete Works*, trans. Colm Luibheid and Paul Rorem (New York 1987) 195–259.

<sup>53</sup> Pseudo-Dionysius, *The Divine Names*, 1. 2 and 1. 4, *The Complete Works* (n. 52 above) 50 and 52.

<sup>54</sup> The above-mentioned “cognitive” ideas of Pseudo-Dionysius were further developed in the 12th-c. Latin West with reference to a specific, spiritual mode of seeing; Caviness, “Images of Divine Order” (n. 44 above) 115–116.

<sup>55</sup> Obrist, “Wind Diagrams and Medieval Cosmology” (n. 41 above) 43–52; eadem, *La cosmologie médiévale* (n. 41 above) 273–291.

<sup>56</sup> Eastwood, *Ordering the Heavens* (n. 41 above) 28. My emphasis.

<sup>57</sup> The original image is accessible at <http://www.ceec.uni-koeln.de/ceec-cgi/kleioc/0010/exec/pagepro/%22kn28%2d0083ii%5f167%2ejpg%22/segment/%22body%22>. On this manuscript and other diagrams in that set, see Kühnel, *The End of Time* (n. 41 above) 117–123.

“This is the world divided into four parts—east, west, south, and north—and the names of the winds are written down; and the length of shadows in each month so that the hours can be found out; and how much they decrease and increase each month.”<sup>58</sup> But the diagram includes much more information than the note may suggest (fig. 5). It presents a graphic model of the universe (cosmos), worldly macrocosm (*mundus*) and humanly microcosm (*homo*), all intrinsically intertwined and existing within the temporal framework of an annual circle (*annus*). These four denominations are given at the central square of the diagram. The next square from the center presents the four seasons and the related bodily fluids (humors), thus relating the human microcosm with the annual cycle. These two squares are framed by a circle consisting of the four elements of which macrocosm is made: fire (*ignis*), air (*aer*), earth (*terra*), and water (*aqua*). As we continue our mental journey to the outer edge of the diagram, we encounter an annual circle with computistic data, which is divided into twelve months. In the outer square of the diagram, we see among other things the four parts of the world; each earthly part is marked with its Greek and Latin names and linked with three corresponding winds (twelve in total). All the key elements of the diagram discussed above are highlighted with red ink and framed by separate squares or circles so that its viewer can identify conceptual units at first glance. As mentioned earlier, squares and circles are often used to visualize concepts. The fourfold symmetry of the sides of the world, the basic elements of the world, and the humors are expressed graphically via squares, while the cyclic nature of time is expressed via a circle.

This diagram is not a graphic illustration to any text. It is a graphic “text” by itself, whose formal structure can be compared to most modern graphic designs. As described by Colin Ware, they “are hybrids of the visual and language modes of expression and the amount of each should depend on what is to be conveyed. Words, images, and spatial patterns should be used for what they express best. In most cases, images do not make good labels, and describing complex patterns of relationships with words is confusing.”<sup>59</sup> In agreement with this modern statement, the main categories of the Carolingian diagram are expressed via words, but their complex relationships are shown via spatial patterns. These relationships cannot be traced to a single early medieval work. The close spatial connection between *mundus* and *homo* echoes Isidore of Seville’s statement in *De natura rerum* (Ch. 9) that the world signifies the man: as the former consists of four elements, so the latter of four humors.<sup>60</sup> The spatial links of the four worldly elements with the four sides of the world, on the outside, and with the four bodily fluids, on the inside, are meanwhile different from what Isidore

<sup>58</sup> “Hic est mundus divisus in quattuor partes oriens occidens meridies septentrio et nomina ventorum scripta et quantos pedes umbra habet in unoquoque mense ad horas inveniendas et quantas discrecit aut adrecescit in unoquoque mense.” On this diagram, see Obrist, “Wind Diagrams and Medieval Cosmology” (n. 41 above) 63; and Kühnel, *The End of Time* (n. 41 above) 121–122.

<sup>59</sup> Ware, *Visual Thinking* (n. 11 above) 134.

<sup>60</sup> “Secundum mysticum autem sensum, mundus competenter homo significatur, quia sicut ille ex quattuor concretus est elementis, ita et iste ex quattuor constat humoribus uno temperamento conmixtis. Unde et veteres hominem in communione fabricae mundi constituerunt, siquidem graece mundus cosmos, homo autem micros cosmos, id est minor mundus est appellatus . . .” Isidor de Seville, *Traité de la nature*, 9. 1–2, ed. Jacques Fontaine (Bordeaux 1960) 207. This passage can be found in the same manuscript: Colonne, Erzbischöfliche Diözesan- und Dombibliothek, Cod. 83II, 130r.

has written in his *Etymologies*.<sup>61</sup> Meanwhile, the connections of each of the four seasons to a specific humor can be traced not to Isidore's writings but to Pseudo-Hypocrates's *Epistola de quattuor humoribus*<sup>62</sup>—the text that can be found in some ninth-century Carolingian manuscripts.<sup>63</sup> Thus, this diagram is a graphic digest of conceptual information deriving from different literary texts, and this type of graphicacy was only accessible to highly literate people—more precisely, to alumni of monastic, episcopal and palace schools familiar with such texts.

Through its careful graphic layout that was designed to help the medieval literate viewer to see complex relationships among various levels of the universe, this diagram could not have been matched by thousand words, since it allowed its viewer to perceive (*intelligere*) a holistic image of the universe as intrinsically connected on its macro and micro levels. In doing so, it relied on visual-spatial abilities of human intelligence and the early medieval Christian system of representation. The spatial orientation of this diagram, with the east placed on the top, may seem odd to a modern viewer, but it reflected the mental map of the world that emerged in Late Antiquity and was quite foreign to the modern system of (carto)graphic representation.

#### 5. THE EARLY MEDIEVAL *MAPPÆ MUNDI*

This unfamiliar map of the world should not surprise us. After all, as Alessandro Scafi emphasizes, “the premise that maps are always a reflection of the culture in which they are produced and that they always transform reality, highlighting some phenomena at the expense of the others, is becoming widely recognized as fundamental to the understanding of maps, their image and their role.”<sup>64</sup>

Recent studies in the history of cartography have shown a profound change in map-making in Late Antiquity and the early Middle Ages. Modern studies in this field also distinguish between modern maps as “phenomenon-representations” and pre-modern maps as “concept-representations.” It has been emphasized that maps as “concept-representations” became especially typical of the Middle Ages,<sup>65</sup> and this observation points to a noticeable difference between modern and early medieval graphicacy that has become apparent in the previous section of this paper: the latter had a much stronger conceptual dimension. While modern graphicacy often communicates the data and phenomena that belong to the sensible, natural world, early medieval graphicacy developed as a cognitive tool to perceive, so to speak, the intelligible and divinely organized world unveiled by the Christian written tradition. This is the world that, in the words of Pseudo-Dionysius, is permeated by the power of God, which brings humans, animals, plants, and the entire nature of the universe to mutual harmony and concord.<sup>66</sup>

<sup>61</sup> Isidore of Seville, *Etymologies*, 4. 5. 3 and 4. 35. 8, ed. Barney (n. 29 above) 109 and 129.

<sup>62</sup> Anargyros Anastassiou and Dieter Irmer, *Testimonien zur Corpus Hippocraticum*, vol. 3 (Göttingen 2012) 304.

<sup>63</sup> For example, see Brussels, Bibliothèque royale de Belgique, MS 3701-15, fol. 9r-10r.

<sup>64</sup> Alessandro Scafi, *Mapping Paradise: A History of Heaven on Earth* (London 2006) 28.

<sup>65</sup> Alan M. MacEachren, *How Maps Work: Representation, Visualization, and Design* (New York and London 1995) 255–260; Brian Harley, *The New Nature of Maps: Essays in the History of Cartography*, ed. Paul Laxton (Baltimore 2001).

<sup>66</sup> Pseudo-Dionysius, *The Divine Names* 8. 5, *The Complete Works* (n. 52 above) 111.

The medieval maps were thus intended not so much to show the real aspects of the physical world, as its conceptual perception structured by a Christian view of the world and its teleological progression. As graphic representations of the Christian world-view and divine authority, maps were allowed as decorative elements in early medieval Christian churches, as illustrated by a Byzantine church in Madaba in Jordan where a mosaic pavement map was produced in the sixth century to show its visitors the world of the Near East with relevant biblical quotations.<sup>67</sup>

Observations about medieval maps as concept-representations are especially true in regard to topological maps known as *mappae mundi* or T-O maps, on which the earth was presented as a disc surrounded by an ocean in the form of the letter O and divided into three continents—Asia, Africa and Europe—by internal seas and rivers shaping the letter T.<sup>68</sup> These are the initial letters for the Roman definition of the habitable world, *orbis terrarum* (the circle of the lands), and their combination reminds us of the similar use of Jesus Christ's initials (*iota-rho*) to compose one of his salvific graphic signs. The origins of these early medieval topological maps remain unclear, although late classical and Jewish ancestries have been suggested as two alternatives.<sup>69</sup> Yet, as demonstrated by Patrick Gautier Dalché, the earliest geographical texts of the Ptolemaic tradition that provided textual bases for the first *mappae mundi* were only produced from the fourth century onwards.<sup>70</sup>

This fourth-century development might have been related to the changing perception of space in Late Antiquity. Some scholars have argued that in the Roman world space was envisioned as linear (one-dimensional),<sup>71</sup> and cultural change caused by Christianization led to changes in “Roman mental mapping” of the world. This development may also have related to the transition from the papyrus rolls where space could have been presented in a linear mode to parchment codices where images

<sup>67</sup> Michael Avi-Yonah, *The Madaba Mosaic Map* (Jerusalem 1954); G. V. Bowersock, *Mosaics as History: The Near East from Late Antiquity to Islam* (Cambridge, MA 2006) 1–29; *The Madaba Map Centenary 1897–1997*, ed. Michele Piccirillo (Jerusalem 1999).

<sup>68</sup> David Woodward, “Medieval Mappaemundi,” *The History of Cartography*, vol. 1, *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, ed. Brian Harley and David Woodward (Chicago 1987) 286–370.

<sup>69</sup> These two traditions should not be seen in a sharp opposition since, for example, a precursor of the early medieval Christian worldview, the worldview of the Jewish Book of Jubilee (the 2nd c. BC), is shown to have been influenced by both the Old Testament and the classical Greek cartographic tradition. See James M. Scott, “On Earth as in Heaven: The Apocalyptic Vision of World Geography from *Urzeit* to *Endzeit* according to the *Book of Jubilee*,” *Geography and Ethnography: Perceptions of the World in Pre-modern Societies*, ed. Kurt A. Raaflaub and Richard J. A. Talbert (Chichester 2010) 182–196, at 187–192.

<sup>70</sup> Patrick Gautier Dalché, “L’héritage antique de la cartographie médiévale: Les problèmes et les acquis,” *Cartography in Antiquity and the Middle Ages: Fresh Perspectives, New Methods*, ed. Richard J. A. Talbert and Richard W. Unger (Leiden 2008) 29–66, at 51–53; idem, *La Géographie de Ptolémée en occident (IVe–XVIIe siècle)* (Turnhout 2009) 24–71. At the same time, the origins of late antique artistic images of the sea-encircled earth can be traced back as early as the 1st c. AD; for more detail see Henry Maguire, “The Mantle of Earth,” *Illinois Classical Studies* 12.2 (1987) 221–228.

<sup>71</sup> Petro Janni, *La mappa e il periplo: Cartografia antica e spazio odologico* (Rome 1994); Kai Brodersen, *Terra cognita: Studien zur römischen Raumerfassung* (Hildesheim 1995); C. R. Whittaker, “Roman Maps: Seeing like a Roman,” *Thinking Like a Lawyer: Essays on Legal History and General History for John Crook on his Eightieth Birthday*, ed. P. McKechnie (Leiden 2002) 81–112; and A. H. Merrills, *History and Geography in Late Antiquity* (Cambridge 2005) 10. Cf. Richard Talbert, “The Roman Worldview: Beyond Recovery,” *Geography and Ethnography*, ed. Raaflaub and Talbert (n. 69 above) 252–272, at 262–269.

of the world were limited by the two-dimensional surface of a folio. One way or another, the two-dimensional *mappae mundi* that were produced within the Isidorian-Orosian tradition should be seen, first and foremost, as products of Christian cartography since they represented the graphic visualization of the world according to the Holy Scripture (fig. 6).<sup>72</sup> As in the case of the early medieval diagrams, only literate people with a good knowledge of the Bible were able to *intellegere* such maps.

Unlike on modern maps, the Far East, that is, the place of Paradise according to the biblical worldview, was placed at the upper top part of the globe on these maps, while Jerusalem and the Holy Land were located right at the center. Thus, spatial metaphors were undoubtedly employed to visualize the Christian concept of the earthly world and its spatial hierarchies. Among other noticeable visual features of these maps is the symbolism of the *tau*-cross (which is identical with the Latin capital **T**), a Christian graphic symbol of Crucifixion and Salvation. The *tau*-cross frames the tripartite division of the world, which is linked to the three sons of biblical Noah—thus presenting to the medieval viewer the visual manifestations of the Old Testament history in his/her world. In short, these maps were designed with reliance on human visual-spatial abilities and, as graphic tools of religious contemplation, they communicated to their graphicate viewers a spatial model of biblical history.<sup>73</sup>

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To conclude, graphicacy as a specific mode of communication is not a uniquely modern phenomenon and can be traced back to pre-modern times. Our discussion has exemplified this point by drawing attention to various forms of graphic devices that were placed on various material artifacts, monuments, and parchment leaves in Late Antiquity and the early Middle Ages. Most of such graphic compositions were designed to allow Christian intellectuals to grasp (*intellegere*), both visually and mentally, the world, divinity, time, and self as immanently intertwined and conceptually coherent. In other words, the metaphoric thinking of scriptural exegesis was complemented by visual metaphors for the Christian perception of the natural and supernatural worlds. With reference to this graphic evidence, early graphicacy can thus be defined as a specific mode of visual communication of conceptual information and abstract ideas by means of non-figural graphic devices, which may comprise inscribed letters, words, and isolated decorative symbols.

Similarly to early literacy, the levels of early graphicacy within the late Roman and post-Roman worlds were uneven among different social groups. The sign of the cross, staurogram, and christograms were the efficacious graphic devices that were loaded with many symbolic meanings to every Christian, who was expected to acquire this elementary level of graphicacy through upbringing and socialization within a Christian

<sup>72</sup> Scafi, *Mapping Paradise* (n. 64 above) 87–94. On the Isidorian-Orosian cartographic tradition, see Evelyn Edson, “Maps in Context: Isidore, Orosius, and the Medieval Image of the World,” *Cartography in Antiquity and the Middle Ages: Fresh Perspectives, New Methods*, ed. Richard J. A. Talbert and Richard W. Unger (Leiden 2008) 219–236.

<sup>73</sup> Dalché, “L’héritage antique de la cartographie medieval” (n. 70 above) 54–66. Mary Carruthers suggests, after all, that the *mappae mundi* were “a foundational heuristic form for meditation”: *The Craft of Thought: Meditation, Rhetoric, and the Making of Images, 400–1200* (Cambridge 1998) 210.



community. Aristocratic, episcopal, royal and imperial monograms developed as an element of late antique calligraphic culture and were initially designed for the literate members of social elites for whom familiarity with such culture was a prerequisite *sine quo* of their status. In the course of the Middle Ages, such monograms became the graphic signs of social elites *par excellence* addressing and recognizable to both literate and illiterate audiences. The most advanced forms of early graphicacy, such as early Christian diagrams, maps, and book decorations, were accessible only to highly literate and fully graphicate people, and thus from the seventh century onwards, such advanced graphic forms were mainly limited to clerical communities and intellectuals. What was common to this heterogeneous graphic corpus is that its use in social communication was facilitated by a learned skill deriving from the visual-spatial ability of intelligence, and this cognitive basis made early graphicacy similar in nature to its modern analogue. Yet, unlike the latter, the former was conditioned by the early Christian cultural system of representation, was limited by a set of media available at that time, and was more unevenly distributed along the social scale.



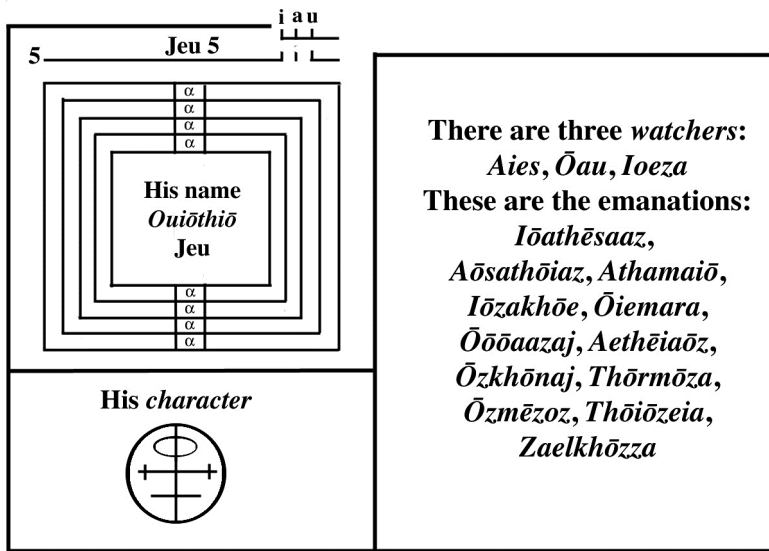


FIG. 3. Jeu 5 diagram in the Bruce Codex, based on *The Books of Jeu*, ed. Schmidt, (n. 37 above) 38–39, and Crégheur, *Édition critique* (n. 36 above) 312–313. Drawn by the author.

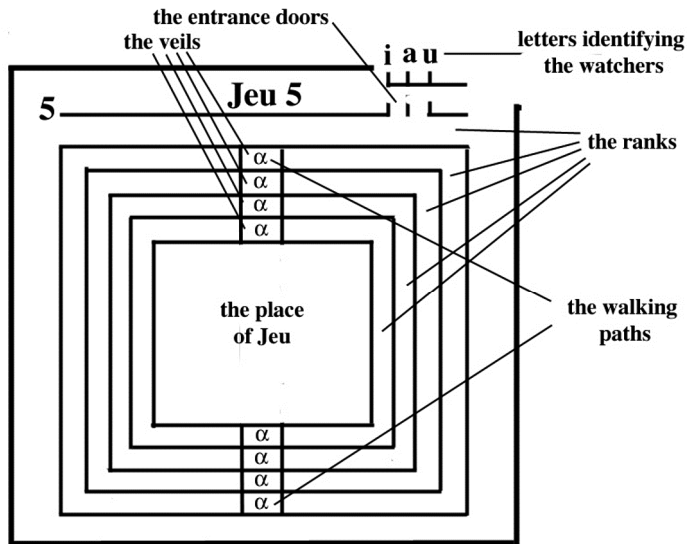


FIG. 4. Explanation to Jeu 5 diagram, based on Crégheur, *Édition critique* (n. 36 above) 137. Drawn by the author.

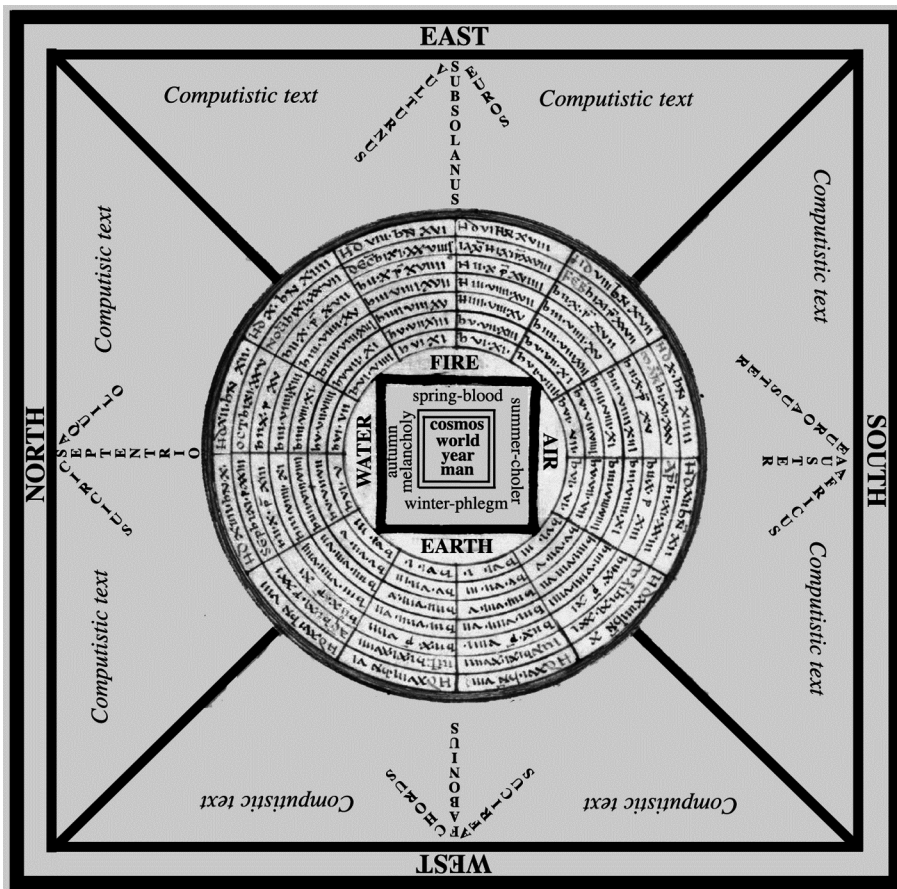


FIG. 5. A graphical adaptation of a Carolingian cosmological diagram. Based on Cologne, Erzbischöfliche Diözesan- und Dombibliothek, Cod. 83II, 84r. Drawn by the author.

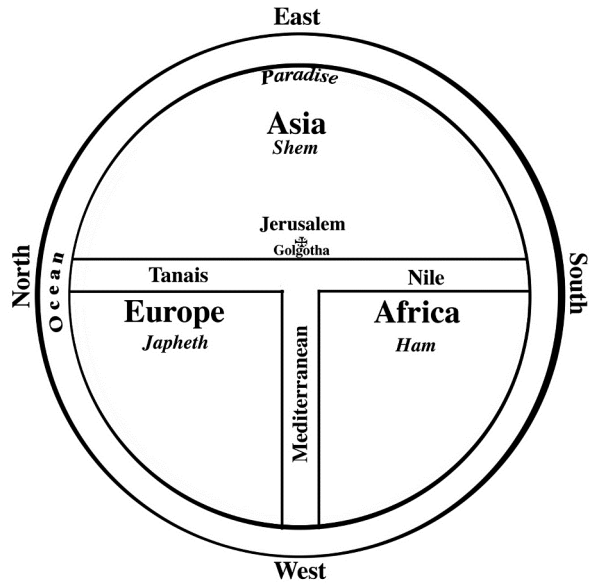


FIG. 6. A graphical model of the T-O map. Drawn by the author.

