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# Reality, Symbolism, Time, and Space in Medieval World Maps

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**Abstract.** Medieval *mappaemundi* carry levels of meaning that have been widely misunderstood. Their compilers have been judged on their ability to show geographical reality structured according to a coordinate system, but the primary function of these maps was to provide illustrated histories or moralized, didactic displays in a geographical setting. That medieval thinkers' understanding of the physical world has also been underestimated is reflected in the frequently repeated views that most medieval scholars thought the earth was flat or that Jerusalem should be shown at its center. This paper challenges these commonly held views in the light of recent reinterpretations in art history and the history of cartography. Several themes are explored, including the type of reality represented by the maps, the way the map center changed as the Middle Ages developed, and the relationship between concepts of the earth's sphericity and the graphic constraints on the *mappaemundi*. Finally, the study suggests ways in which we can learn from this genre of maps. We need to evaluate the achievements of the Middle Ages on their own terms and in the context of their purpose. More specifically for cartography, the *mappaemundi* show that maps may also consist of historical aggregations or cumulative inventories of events in addition to representing objects that exist cosynchronously in space.

**Key Words:** medieval *mappaemundi*, world maps, Middle Ages, history of cartography, map functions, cosmographical concepts.

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MEDIEVAL world maps, or *mappaemundi* as they are frequently called, form a well-defined genre of maps that have received only spasmodic attention from geographers. Some 1,100 maps, mostly in manuscript codices of the eighth to the fifteenth centuries, still survive. They are usually schematic in form, and fall into several subcategories depending on their historical origin and their graphic structure. Rooted in both the Hellenistic and Roman traditions, they were adapted by the early leaders and scholars of the Christian Church. To the extent that they embody both scriptural and classical sources, their meaning reflects the changing emphases of medieval thought.<sup>1</sup>

The *mappaemundi* carry levels of meaning that have been completely misunderstood. In the nineteenth century, when systematic studies of these maps first appeared, they were interpreted in light of the view that maps (to be *true* maps) were intended to show geographical reality structured according to a coordinate system,

such as longitude and latitude. These nineteenth-century writers also oversimplified and underestimated medieval thinkers' understanding of the physical world; this is reflected in the frequently repeated views that most medieval scholars thought the earth was flat or that Jerusalem should be shown at its center. Some of these misunderstandings arose from a tendency to regard the culture of the Middle Ages as essentially static. *Mappaemundi* were thus gathered into only one category, the T-in-O model, so often reproduced in general histories of geography and cartography. Also contributing to this lack of understanding of medieval cartography was the apparent obliviousness to the technical and conceptual constraints on scribes and artists of the period: the media, tools, and techniques, and a failure to relate such structural concepts as perspective and projection to the mapmaking of the period.

This paper seeks to examine the validity of these commonly held views of *mappaemundi* in

the light of recent reinterpretations made in art history and the history of cartography. Its aim is to show that the intention of the compilers of these maps was as much historical as geographical and that the resulting documents blended concepts of both time and space as a context for understanding the Christian life. By examining the development of such concepts as the flat earth with Jerusalem at its center, the paper also seeks to demonstrate that these maps cannot be considered as a single category spanning a thousand years of medieval history. Finally, I suggest that, in the light of these documents, our modern view of maps may need adjusting. It is now fully accepted that maps need not necessarily show only Euclidean space. Perhaps we need also to consider the idea that a map does not by its nature have to represent a cosynchronous scene but may be a many-layered cumulation of historical events as well as objects in geographical space.

Since *mappaemundi* are better understood when their variation is recognized, it is convenient to describe four main categories: tripartite, zonal, quadripartite, and transitional; typical examples of each are illustrated in Figures 1–4.<sup>2</sup> The tripartite map type consists of a disk representing the inhabited world (O), within which is a tripartite schema (T) oriented to the east with Asia taking up the upper half of the circle, Europe the lower left quarter, and Africa the lower right quarter (Fig. 1). The parts of the T represent the three major hydrographic features known to divide the three parts of the earth: Tanais (the Don River) dividing Europe and Asia, the Nile dividing Africa and Asia, and the Mediterranean Sea dividing Europe and Africa. The genre is rooted in a classical tradition, and it is conjectured that the earliest tripartite maps accompanied manuscripts of the *De Bello Jugurthino* of Gaius Sallustius Crispus (Sallust) (86–34 B.C.).

The zonal category is characterized by orientation to the north or south and by the representation of the Greek *climata* in five climatic zones that follow parallels of latitude (Fig. 2). Its prototype is derived from the cosmographical section (ch. 5–8 of Book 2) in Macrobius's early fifth-century A.D. commentary on Cicero's *Dream of Scipio* (51 B.C.), which in turn derived its cosmography from Eratosthenes (c. 275–194 B.C.), Posidonius (c. 151–35 B.C.), Serapion of Antiochea (second or first century B.C.), Crates

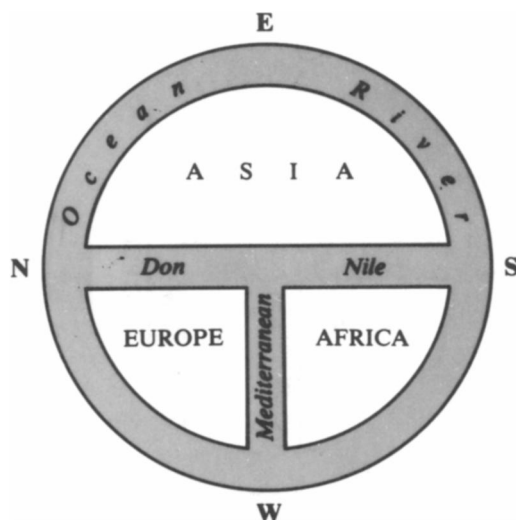


Figure 1. Category 1: T-O map. Schematic drawing of the tripartite world divided among the sons of Noah. Asia represented the home of the Semitic peoples, Europe the Japhetic, and Africa the Hamitic.

of Mallos (c. 168 B.C.) and, ultimately from a Pythagorean concept.

Intermediate between the tripartite and the zonal categories of *mappaemundi* is a third category, the quadripartite, which contains maps bearing the characteristics of each. Though these are not numerous, they are sufficiently distinctive and influential to warrant separate treatment. Within their circular, oval, or rect-

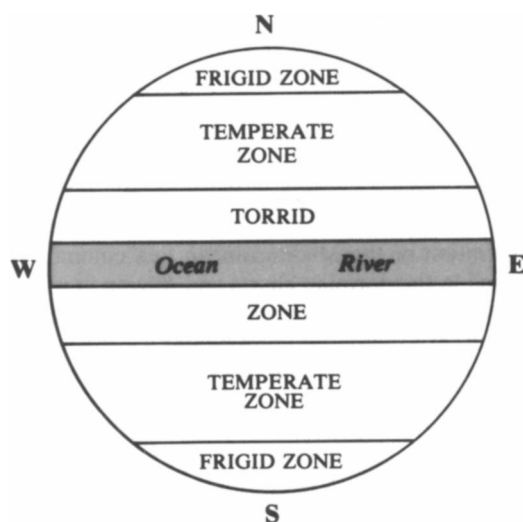
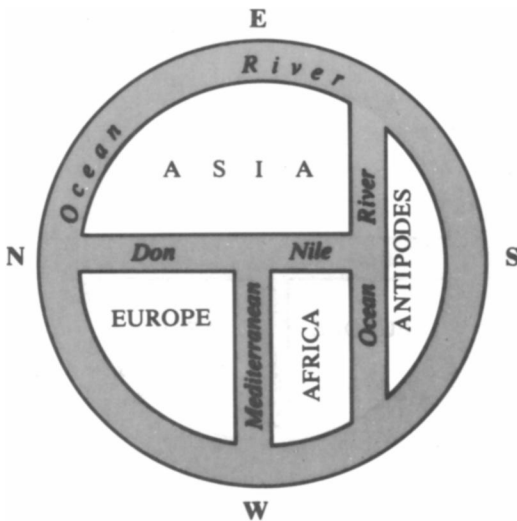


Figure 2. Category 2: Zonal map. Schematic drawing of the system of five climatic zones, derived from a model of the ancient Greek geographers.



**Figure 3.** Category 3: Quadripartite map. Schematic drawing of the combination of the tripartite world with the fourth part—inhabited by Antipodeans—separated by an “ocean river.”

angular shapes oriented to the east, there is an “ocean river” that divides the known tripartite world from the fourth part, unknown on account of the sun’s heat, but inhabited by the Antipodeans (Fig. 3). The maps are believed to stem from one lost eighth-century prototype of Beatus of Liebana in his *Commentary on the Apocalypse of St. John* in which he stressed the mandate of the Apostles to travel in all parts of the earth to preach the Gospel.

The fourth category, which is transitional between the medieval and Renaissance periods, reflects the profound change in *mappaemundi* that took place in the fourteenth and fifteenth centuries. These maps differ fundamentally from the zonal or tripartite models of the late Roman world, and belong in many ways to the spirit of the Renaissance, having as their basis the configuration of the Mediterranean Sea commonly found in the portolan charts and relying in some degree on the contemporary recording of exploration, especially the Portuguese voyages to the Atlantic islands and along the west coast of Africa (Fig. 4).

### Realism and *Mappaemundi*

From the late-nineteenth century on, several authors have viewed the *mappaemundi* primarily as bearers of locational information, a func-

tion no different from other classes of maps in the Middle Ages or any other period. The surviving corpus of medieval world maps have been seen therefore as a marked retrogression from an expected gradual improvement in the representation of the earth’s features on maps. Thus Charles Beazley, in his otherwise fundamentally useful work, was able to write: “The non-scientific maps of the later Middle Ages . . . are of such complete futility . . . that a bare allusion to the monstrosities of *Hereford* and *Ebstorf* should suffice” (Beazley 1897–1906, 3:528).

A comparison between two medieval maps made within a few decades of each other lends superficial support to Beazley’s view. The *mappaemundi* known as the Hereford Map (c. 1290) and the earliest known dated portolan chart by Petrus Vesconte (1311) both feature the Mediterranean Sea prominently, but the positional accuracy of the Vesconte map is clearly superior to that of the Hereford Map, as Figure 5 demonstrates. This assessment should be modified in several significant ways, however. The first involves studying the *mappaemundi* on its own terms, according to its intended function and in the context of the scriptorium in which it was compiled. This view was forcefully expressed by John K. Wright, who developed the theme—echoed by Kimble—that the lack of geometrical accuracy in the *mappaemundi* did not necessarily warrant criticism, as this attribute was not



**Figure 4.** Category 4: Transitional map. Schematic drawing of a fifteenth-century *mappaemundi*. The outlines of the Mediterranean Sea are based on portolan charts, while the rest of the map retains the traditional circular frame.

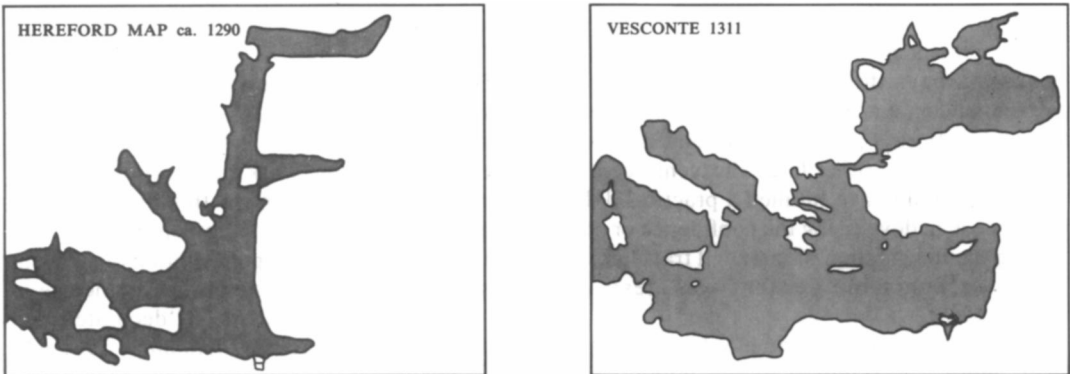


Figure 5. Diagram comparing the eastern part of the Mediterranean Sea as shown on the Hereford Map (c. 1290) (left) and a portolan chart by Pietro Vesconte dated 1311 (right).

the primary goal of this genre of map (Wright 1925, 248; Kimble 1938, 181).

We should not assume, however, that there was no interest in geographical location by the compilers of these maps but that there were certain prescribed constraints within which they had to work. The rare account of how to make a *mappamundi* by Hugh of St. Victor in his *On the Mystical Noah's Ark* provides an example of the kind of framework into which geographical information could be fitted:

The perfect ark is circumscribed with an oblong circle, which touches each of its corners, and the space which the circumference includes represents the earth. In this space, a world map is depicted in this fashion: the front of the ark faces the east, and the rear faces the west. . . . In the apex to the east formed between the circle and the head of the ark is Paradise. . . . In the other apex, which juts out to the west, is the Last Judgment with the chosen to the right, and the reprobates to the left. In the northern corner of this apex is Hell, where the damned are thrown with the apostate spirits (Migne 1844–64, vol. 176, col. 700).

The bounding shape of the *mappamundi*, whether circular, oval, or rectangular, was thus predetermined by biblical or classical tradition. Into this space were arranged the features deemed significant for the reader. As we might expect, the scale for that part of the map of primary interest was frequently larger: for example, the Jerome map of Asia exaggerates Asia Minor to the point that it is almost as large as the representation of the rest of Asia (Fig. 6). Likewise, Matthew Paris's well-known explanation of distortion on his map of Britain demonstrates that there was a conscious awareness that scale could be conveniently adjusted within certain constraints: "if the page had allowed it,

this whole island would have been longer" (Vaughan 1968, 243).

This does not mean that the importance of current geographical content was always ignored. Using the Hereford Map as an example, Crone has demonstrated that lists of place-names from written itineraries were incorpo-

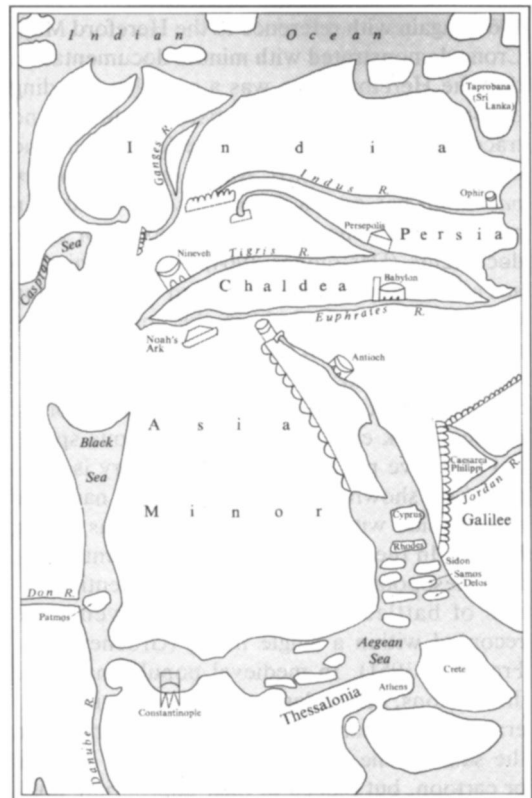


Figure 6. The Jerome map of Asia. Adapted from the twelfth-century manuscript in the British Library, Add. MS. 10049, fol. 64r.

rated into the map. Though its size (163 × 135 cm) clearly precluded its use as a *vade mecum* for actual journeys (for which written itineraries, pilgrim guides, and verbal directions might well have served), it is perhaps likely that the Hereford map and the other large thirteenth-century wall maps could have fulfilled a practical didactic purpose in developing the confidence or stimulating the imagination of intended travelers, for which recognizable content was desirable (Crone 1965).

For this purpose of spiritual education, however, more was required of the *mappamundi* than a modicum of current geography. The maps needed also to be imbued with the richness of the Christian historical tradition. It is thus also important to realize that the *mappaemundi* were not snapshots of the world's geography at a given point in time, but a blending of history and geography, a projection of historical events on a geographical framework. This point was made by Bevan and Phillott (1873) in a preliminary way, but a full illustration of this theme was to await the careful studies of G. R. Crone (1954, 1965), again with reference to the Hereford Map. Crone demonstrated with minute documentation that the Hereford Map was a complex blending of Greek, Roman, and Christian sources and traced its pedigree back to the late fourth and early fifth centuries A.D. As the interest in *mappaemundi* has grown in recent years—aided in part by the publication of a catalogue of these documents (Destombes 1964)—several historians and art historians have turned their attention to the maps, particularly in the context of the relationship between text and graphic images in medieval writing and painting (Ruberg 1980, 551–92). Most painters assume that the border of their work encloses a cosynchronous space, but narrative painting, in which a story is illustrated by showing several stages of a narrative side by side within the same frame, has a long history. In the monumental art of ancient Egypt and Mesopotamia, for example, sequential stories of battles and other notable events are recorded within a single frame (Groenewegen-Frankfort 1951). In medieval popular narrative illustrations, particularly of biblical stories, several events separated by time are portrayed in the same scene, not in sequence as in a frieze or cartoon, but placed in their appropriate positions in the scene. The chief characters thus reappear in a static landscape to express the

dimension of time (Pächt 1962, 2; Hindman 1977, 38).

The *mappaemundi* are the cartographic equivalent of narrative medieval pictures. The thirteenth-century author of the Hereford Map even refers to his graphic work as a “history” on the map itself: “All who have this history. . . .” This usage is still supported by one definition of history as a “pictorial representation of an event or series of incidents,” supported by the use of the word “historiated” to mean “decorated with figures” (*Oxford English Dictionary*, 1961 ed., s.v. “historiated”). This theme has been developed extensively by von den Brincken where the *mappaemundi* are seen as syncretic pictorial chronicles parallel to the textual chronicles from St. Jerome to Hartmann Schedel (von den Brincken 1968, 118). Juergen Schulz has applied this idea of the didactic moralized map to art history, focusing particularly on city views in the late-medieval period and the Renaissance.

Cartographic historians are agreed that the main function of these maps was the representation of religious mysteries and history, rather than the recording of precise geographical facts. They never pause, however, to explain this aspect of the medieval map, which is irrelevant to their main concern, the growth of geographical knowledge. For the historian of art, by contrast, it is precisely this didactic tradition, its range in time and content, that is of primary interest (Schulz 1978, 446).

The sources of historical and geographical information on the *mappaemundi* were both classical and biblical—the commemoration of famous events and places being sometimes inseparable, with the Old Testament rather than the New more frequently represented. Though early Judaism emphasized the importance of an event's location, the earliest Christians showed little interest—with some important exceptions—in the exact location of even their most sacred events (North 1979, 76). The teachings of Christ emphasized the spiritual and not the physical world; for example, in response to the question of whether to build a shrine at Gerizim or Jerusalem, Christ's answer was to be less concerned with the location than with the motivation of the proposed action (John 4, 19–24). There are, moreover, few allusions to global or cosmological matters: the words sphere, globe, or hemisphere in the geographical sense are nowhere found in its pages.<sup>3</sup>

The early leaders of the Church, in reaction

to the classical philosophers, were also anxious to point out that the knowledge of information about the earth was of strictly secondary importance to the Christian, whose mind should be on a higher spiritual plane. Thus, in characterizing a true believer, St. Augustine was able to say, "a faithful man . . . although he knows not the circles of the Great Bear, is much better than another who can weigh out the elements and number the stars and measure the skies" (Augustine 1965, 5:4).

The functions of medieval *mappaemundi* can thus be regarded as being on a different plane from those of the portolan charts or estate maps of the same period. As teaching rather than locational devices, they relied on mystical, symbolic, and allegorical imagery to a remarkable extent. The spiritual history of the Christian world, from its Creation to the Last Judgment, with a sequence of divinely planned events in between, such as the Salvation by Jesus Christ, are all carefully portrayed—in more or less detail—on the *mappaemundi*.

The threefold division of the world in the T-O maps represents the peopling of the earth in the three continents by each of Noah's sons. The families of Shem (the eldest son having the maximum share—or Asia—in the tripartite scheme), Ham (Africa), and Japheth (Europe) are often depicted or listed on these maps. This traditional division is the source for the naming of the three great groups of peoples in the Old World: the Semitic, Hamitic, and Japhetic.

The Passion of Christ is also symbolized by the T-O maps. Lanman has suggested that the T in the T-O schema represents a *crux commissa* or tau cross, and this observation is lent credence particularly when the ends of the cross-piece are trimmed at an angle, as in Figure 7 (Lanman 1981). Sometimes, as in the Ebstorf map—a huge thirteenth-century *mappamundi* unfortunately destroyed in World War II—the body of Christ is literally superimposed on the map of the world. His head is at the east, feet in the west, and arms outspread to gather in the north and the south in a powerful gesture symbolizing the salvation of the world.

The third main stage of Christian history, the Last Judgment, is represented either by the figure of Christ in Glory or of God the Father at the top of the *mappaemundi* in the easterly location of Paradise. An aura of light symbolizing holiness may also surround the figure. The

shape of the aura, which is also known as a *mandorla* (Italian for almond), an extremely common symbol in Christian iconography from the fifth century on, is also reflected in the shape of certain *mappaemundi* themselves, such as a number of mid-fourteenth-century maps by the English chronicler Ranulf Higden or the map known as the Genoese map of 1457 now preserved in the Biblioteca Nazionale in Florence. This common symbolic shape thus may stand for the world as Christ's domain.

With all these considerations, it is inadvisable to compare the geographical accuracy of the *mappaemundi* with that of contemporary or later map types, such as the portolan charts or the great wall maps of the Renaissance. The history of cartography, like the history of science, is moving away from being primarily a search for precursors to an attempt to understand the developments in various periods on their own terms. For *mappaemundi* this means studying them not primarily as repositories of then current geographical knowledge (although a modicum of such information may sometimes be obtained from nowhere else) but as illustrated histories or moralized, didactic displays in a geographical setting.

## The Map Center

The narrative historical character of the *mappaemundi* is also revealed in the choice of a central feature. It is commonly assumed that the majority of medieval world maps were centered on Jerusalem, following the biblical passage: "This city of Jerusalem I have set among the nations, with the other countries round about her" (Ezek. 5,5).<sup>4</sup> There was also, as we have seen, a definite spatial sensitivity revealed in the Old Testament that rendered the location of events in Jewish history intimately connected with the events themselves (Cohn 1981, 2).

We would expect the *mappaemundi* to reflect this concept, and it is true that three of the best known and most often illustrated *mappaemundi*—the Hereford, Ebstorf, and Psalter maps—are all precisely centered on Jerusalem. From the time of these maps (the thirteenth century) to about the middle of the fifteenth century, it can be said that this feature was typical. But this two-century period is by no means representative of the entire Middle Ages; it is but

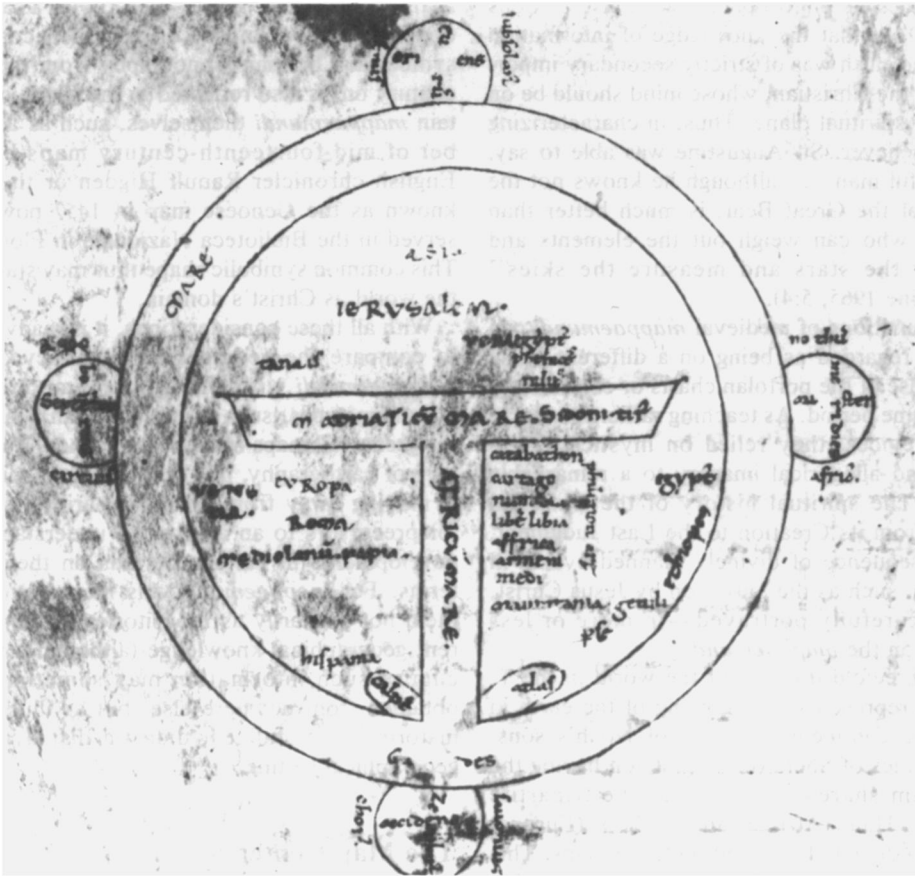


Figure 7. A T-O *mappamundi* demonstrating a truncated crossbar. From an eleventh-century Sallust manuscript in the Biblioteca Medicea Laurenziana, Florence, Plut. 64.18, fol. 63v.

one of several different phases in the medieval period, of which at least four can be identified for the *mappaemundi*.<sup>5</sup>

Nor do the three thirteenth-century maps mentioned above—which fall into the tripartite T-in-O category—constitute the only major category, an oversimplification frequently repeated in the literature. In the first of the four categories introduced at the beginning of this paper—the tripartite—it is commonly assumed that, as the T represents the meeting of the Mediterranean with the Don-Black Sea-Aegean-Nile axis, the Holy Land is near enough to that intersection for Jerusalem to be at the center of the map. There are, however, not only many examples of the intersection of the stem and the crossbar of the T being far above the center, but also of the placing of Jerusalem far from this intersection. In most examples of these schematic maps Jerusalem is not marked at all, and in the non-schematic tripartite maps from before the thirteenth

century (such as those based on the fourth- or fifth-century *Historia Adversum Paganos* of Paulus Orosius) the maps do not appear to be centered on any particular place. The eighth-century Albi map and the tenth-century “Anglo-Saxon” map are examples. Other influential maps are centered on places other than Jerusalem. Following an ancient Greek tradition, the world map of Henry of Mainz (c. 1110) is centered on the Cyclades, the islands surrounding the sacred isle of Delos.

The zonal maps, which form a major group consisting of over 300 maps, are clearly centered on the equator, somewhere in Africa. In the later zonal maps, the mythical town of Aryn, the Islamic center of the earth lying on the central meridian bisecting the inhabited world, is prominently marked. Jerusalem is clearly not in the center. Furthermore, the maps in the intermediate category, consisting largely of the Beatus maps, are usually centered not on any identi-



able place but somewhere in the Mediterranean Sea.

It was only after the strengthening of the idea of Jerusalem as the spiritual center, a natural outcome of the Crusades, that a noticeable shift occurred toward centering the maps on Jerusalem. This then becomes a characteristic of the fourth category, the transitional, from the end of the thirteenth century to about the mid-fifteenth century, when new discoveries extended the margins of the world map and the center moved accordingly. By then, Andrea Bianco had to state explicitly why he had broken with the tradition of centering maps on Jerusalem, and even tried to explain it away on his map of 1436 on what must be one of the earliest references to the concept of a center of population density: "Jerusalem is indeed the center of the inhabited world latitudinally, though longitudinally it is somewhat to the west, but since the western portion is more thickly populated by reason of Europe, therefore Jerusalem is also the center longitudinally if we regard not empty space but the density of population" (Bianco 1436).

## The Flat Earth

The question of the extent of the understanding of the earth's sphericity in the Middle Ages is confounded by several factors, summarized by several recent authors (Randles 1980; Tattersall 1981). As we have discussed, the medieval period consists of several entirely different sub-periods and it is unwise to assume that the views of a few individuals can be extended to the period as a whole. Even in the earliest period, however, despite the various difficulties of biblical interpretation, most early Church leaders held to the classical concept of the spherical earth, and Augustine specifically mentions it at least twice (Augustine 1965, 5:51). The most popular of the late Roman secular writers—Pliny, Macrobius, and Martianus Capella—also made unequivocal references to its spherical shape. It was perhaps in overreaction to these works that Severianus and Lactantius, who denied on principle that anything "pagan" could be accurate, included the spherical earth in their sweeping condemnation of the pagan writings (Jones 1934). But it must still be said that their writings were not to have the influence of the greater Church Fathers and that the importance

of their views has thus probably been exaggerated on account of their controversial nature. An excellent example of this is found in the undue space in general historical texts given to Cosmas Indicopleustes' sixth-century concept of a flat, rectangular, four-cornered earth with a vaulted heaven (Jones 1934, 305). This is now preserved only in two manuscripts and was virtually ignored by medieval commentators, with the exception of Photius of Constantinople, who stated not only that "the style is poor and the arrangement hardly up to the ordinary standard" but that "he may fairly be regarded as a fabulist rather than a trustworthy authority" (Photius 1920, 36:31–32). Nevertheless, the light of Cosmas's fame is kept burning by such historians who continue to write that he "had great popularity among even the educated till the twelfth century" (Randall 1926, 23).

The views of the common populace on the issue are of course barely recorded. There is some evidence from the cosmographical content of the vernacular epics and romances of the twelfth and thirteenth centuries designed for the everyday person that many thought of the earth as a disk (Tattersall 1981, 46). But the interpretation of the word "round" in these poems as either circular or spherical is fraught with confusion, and the similes of "apple" and "ball"—frequently used in these works—would seem to lend more credence to a common view of the earth's sphericity, even before 1300.

The shape of the earth seems however to have been of less interest to the majority of the clergy, let alone the general populace, than the concept of human life existing on the other side of the world. The ninth-century confrontation between Virgil of Salzburg and Pope Zacharias was about the heretical doctrine of the Antipodes and not about the sphericity of the earth (Betten 1924). It was possible to believe in a spherical earth without knowing what was on the other side of it. The Antipodes concept, with the apparent absurdity of people standing upside down, caused an embarrassment for the Church, as the baptismal status of a race of people who were not descended from the sons of Adam was in question. Even well into the Age of Discoveries, books were being written against the doctrine, such as the *Contra Antipodes* of Zacharia Lilio, a monk in the church of St. John Lateran in Rome (Randles 1980, 31).

Whatever the confusion about the general medieval views of the earth's shape, there is no

reason to believe that the best-known form of *mappamundi*, the T-O map, with its tripartite division of the inhabited world and the surrounding ocean river, was *prima facie* evidence for universal medieval belief in a flat earth. It was not easy to depict a three-dimensional solid on a two-dimensional medium. Medieval concepts of projection and perspective were not well developed. In the broadest sense, it is possible to argue that any transformation from a sphere to a plane involves an implied projection.<sup>6</sup> Thus, even the simple Macrobian diagrams (for example in Fig. 2), which show the *climata* as zones between parallel lines on a circle representing the hemisphere, could be said to be on a projection that approximates an orthographic (equatorial aspect); the author was quite aware that these *climata* were circular zones on the globe, yet they are portrayed as straight parallel lines on the map. Despite the achievements of the thirteenth-century philosopher Roger Bacon, who had a clear idea of the value of using a systematic coordinate system to transform and inventory the positions of places and who described a systematic projection, there was no general understanding in Christian Europe of the way to represent a spherical surface on a plane until that knowledge—preserved in the *Geography* of Claudius Ptolemy—was revealed through translation at the beginning of the fifteenth century.

The controversy can perhaps best be illustrated from the example of the writings (particularly the *Etymologiae* and the *De Natura Rerum*) of Isidore of Seville, one of the most influential encyclopedists of the Middle Ages. Isidore accepted the sphericity of the universe and is quite explicit in his wording on that question (Brehaut 1912). Isidore also uses the word *globus* several times in the *De Natura Rerum* but always in describing the moon or the planets (Fontaine 1960, 223, 231, 239, 277). But he cautiously avoided comments on the sphericity of the earth itself except in a passage where he describes the ocean bathing the confines of the globe (Fontaine 1960, 325). His awareness of the concept of a spherical earth is further indicated in the *Epistula Sisebuti*, an astronomical poem written in the form of a letter to Isidore by Sisebut, King of the Goths, for whom the *De Natura Rerum* had been written (Fontaine 1960, 151). In explaining an eclipse, Sisebut writes about the terrestrial globe being an obstacle to the sun's



Figure 8. Isidore's five circles. From a printed edition of the *Etymologiae*, 1472. Reproduced from Kimble (1938), opp. p. 36.

light and uses the word *globus* to express this (Fontaine 1960, 333).

On the other hand, several passages have been used to indicate that Isidore thought the world was flat. For example, he describes the earth as a "circle of lands" (*orbis*) like a wheel (Migne 1850, 82:495). Isidore also seems to have confused the Greek zonal concept, which he gleaned from the *Poeticon Astronomicum* of Hyginus (reading it in Latin), and misunderstood its main point: that the lines separating the zones were only circles when they were drawn on a globe. When applying the five zones to his world, therefore, they emerged as five circles placed on a flat disk as in Figure 8 (Fontaine 1960, 208–11). This could hardly be taken as evidence of Isidore's belief in a flat earth, however, but rather his inability to grasp the geometry inherent in the Greek climate concept.

In summary, therefore, whereas Isidore sometimes appears confused about the shape of the earth, the weight of the evidence tends toward his acceptance of its sphericity. When viewed in the general context of his time, in which most of the influential Christian and secular writers had also propounded this view, it is not surprising that this was the case.

Later Christian writers not only specifically accepted the sphericity of the earth, but provided explicit reasons for their view. Thus the Venerable Bede (672/3–735) explained that the

cause of the unequal length of the days lay in the globular shape of the earth, describing it as not only “round like a shield, but also in every direction, like a playground ball” (Bede 1843–44, 210).

In the later Middle Ages, the most influential commentators agreed that the earth was spherical. The writings of Aristotle, with his elegant three-part proof of the sphericity of the earth, or the astronomical and geographical work of Ptolemy, for which the concept was essential, had found their way into the West as the channels of classical and Arabic learning became opened after the twelfth century. In the fourteenth and fifteenth centuries—despite the myth still perpetuated in some school history texts of Columbus, the common navigator, valiantly defending the idea of the globe before the learned clergy<sup>7</sup>—there would have remained little doubt in the mind of the medieval scholar that, in Gautier de Metz’s words, “a man could go around the world as a fly makes the tour of an apple” (Caxton 1913, 52).

The limitations of the two-dimensional medium of the *mappaemundi* and the lack of a clear concept of projective geometry and perspective appear to have contributed to the belief that they represented a flat, disk-shaped earth. But since the overriding purpose of these maps—as narrative histories—was not to convey facts about the size and shape of the earth except where they bore directly on the Christian mission, they can hardly be criticized for not reflecting the philosophical thought of the time.

## Conclusion

What can we learn from challenging the oft-repeated misconceptions concerning medieval world maps? In the first place, it underlines the need, now recognized by medieval historians, to evaluate the achievements of the Middle Ages on their own terms and in the context of their purpose. The function of the *mappaemundi* was primarily to provide a visual narrative of Christian history cast in a geographical framework, not to communicate geographical or cosmographical facts. They thus represent an entirely different cartographic tradition and should therefore not be ridiculed on the grounds that they appeared as retrogressions to an ever-improving literal geographical picture of the

world. Nor can the disk-shaped appearance in many of these maps be taken literally to reflect a general belief in a flat earth. As we have seen, this was probably not the prevailing opinion among those (admittedly not a great number) who cared about the issue.

Second, by exaggerating the spread of time depicted within their borders, the *mappaemundi* also demonstrate that maps in general need not be seen as reflecting only spatial realities and perceptions or pictures of the earth stopped at a given moment in time. They may also consist of historical aggregations or cumulative inventories of events that occur in space. For the *mappaemundi*, this meant a curious mélange of both Christian and secular legendary history. Even the practice of placing Jerusalem at the center of the *mappaemundi* overcame the weight of the classical secular tradition only at the very end of the medieval period. The logical inseparability of history and geography is thus vividly illustrated by the *mappaemundi*. Because they provide a dual context in which human events unfold, both time and space have been of prime interest to the philosopher. Bertrand Russell called the study of this unified context “chronogeography” (Russell 1927, 283), and there seems to be a growing awareness of the importance of integrating both geography and history as providing a unified context for our understanding of the processes that shape the world.

For cartography, this has significant implications. No map represents features on its face observed at precisely the same time. Even in modern topographic maps, the dates of compilation of its several parts may vary by several years. Nevertheless, the modern map often provides the illusion that the objects in the landscape it portrays are cosynchronous. There is perhaps a case to be made for a modification of this idea, of providing a new kind of reference map that reveals explicitly the layers of historical events, processes, and artifacts that have shaped the present landscape, as well as the objects that now exist within it. This of course has been attempted in historical maps and atlases with varying degrees of success, but it has not yet been extended systematically to modern large-scale reference maps. It is not the purpose of this paper to explore the ways in which this blending of geography and history could be accomplished cartographically. But it

may be fruitful to expand the agenda of cartographers to study ways in which the large-scale reference map can represent the historical meaning of the landscape. Maps will then come to be seen as artifacts that can portray the location and distribution not only of objects and conditions but also of events and processes.

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## Notes

1. This paper reports preliminary research for a chapter on medieval *mappaemundi* prepared for a larger work edited by Harley and Woodward (forthcoming). Other issues involving the *mappaemundi* and full references will be found in that work. For recently published general studies, see Ruberg (1980) and Arentzen (1984).
2. There have been several attempts at classifying *mappaemundi*, as in the standard catalogue of medieval world maps edited by Destombes (1964). The classification proposed here is explained further in Harley and Woodward (forthcoming).
3. The phrase in Psalm 83,11, "surface of the globe," is now regarded to have no geographical significance (Mahood 1968, 275, n.11). In addition, the frequent references to "the round world" in the original (sixteenth-century) *Book of Common Prayer*, as in Psalm 89:12, 96:10, 98:8 (Pss. 88, 95, and 97 respectively in the Bible) are an expression of circularity rather than sphericity, from the Latin of the Vulgate *orbis terrae*. The only specific mention of a "map" (or at least a town view) that I have been able to find in the Bible is in Ezekiel 4:1: "Man, take a tile [Vulgate: *laterem*] and set it before you. Draw a city on it, the city of Jerusalem" (New English Bible). It is also possible, as Menashe Har-El believes, that maps were in use for the extensive survey (or "register" in the New English Bible) dividing the tribes of Israel, found in Joshua 13–19, especially 18:5 (Har-El 1981, 19–20).
4. This oversimplification is also repeated in some general books on the history of geography, most recently in Holt-Jensen (1980, 11) where it is stated that in the Middle Ages "the world became a flat disk with Jerusalem at its center."
5. Four stages are proposed in Harley and Woodward (forthcoming). Macrobius to Isidore: the late Greco-Roman and Patristic Period, (c. 400–700); Bede to Lambert of St. Omer (c. 700–1100); Henry of Mainz to the Hereford map (c. 1100–1300); and Pietro Vesconte to Fra Mauro, (c. 1300–1460).

6. This issue was discussed by Tobler (1966).
7. This myth was greatly expanded by Washington Irving in his biography of Columbus. See Morison (1942, 1:117).

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