

## 2 • The Role of Maps in Later Medieval Society: Twelfth to Fourteenth Century

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The Middle Ages has been described as a period that “knew little of maps,” and indeed the number of surviving examples, even if allowances are made for what was probably an extremely high rate of loss, do not suggest that maps were produced and consumed in particularly large numbers between the fifth and fourteenth centuries.<sup>1</sup> This assessment is reinforced by what we know of the physical production of maps, which was limited by hand copying, the use of parchment and other expensive supports, and the low level of private ownership of, and of markets for, books and maps until at least the thirteenth century.<sup>2</sup> Nevertheless, the patient examination of the surviving evidence of map production and use is beginning to suggest that, while maps may not have been as commonplace at all levels of society during the Middle Ages as they became during subsequent periods or in other cultures, they were important and—at least to some audiences—familiar means of expression and communication.<sup>3</sup>

This chapter surveys the many functions of maps in later medieval culture (roughly the twelfth through the fourteenth century) and some of the key areas of continuity and change between medieval and Renaissance cartography. A survey of the issues currently under dis-

*Makers, Distributors & Consumers* (London: British Library, 1996), 2. There is as yet no monographic study of the physical production of medieval maps. See the survey and bibliography in Woodward, “Medieval *Mappaemundi*,” 318 and 324–26. The work done on the creation of the Hereford map is well summarized in Scott D. Westrem, *The Hereford Map: A Transcription and Translation of the Legends with Commentary* (Turnhout: Brepols, 2001), xviii. The production of portolan charts is better studied; see the discussion and bibliography in Tony Campbell, “Portolan Charts from the Late Thirteenth Century to 1500,” in *HC* 1:371–463, esp. 390–92. There is a short survey of some of the factors relating to map authorship in Anna-Dorothee von den Brincken, *Kartographische Quellen: Welt-, See-, und Regionalkarten* (Turnhout: Brepols, 1988), 58–65.

3. The number of medieval maps still extant is uncertain, owing to incomplete research and overly restrictive definitions of what might be considered a map in earlier catalogs and lists. For example, Gautier Dalché notes that he has almost doubled the number of world maps reported in Marcel Destombes, ed., *Mappemondes A.D. 1200–1500: Catalogue préparé par la Commission des Cartes Anciennes de l’Union Géographique Internationale* (Amsterdam: N. Israel, 1964); see Patrick Gautier Dalché, “De la glose à la contemplation: Place et fonction de la carte dans les manuscrits du haut Moyen Âge,” in *Testo e immagine nell’alto medioevo*, 2 vols. (Spoleto: Centro Italiano di Studi sull’Alto Medioevo, 1994), 2:693–771, esp. 702 and n. 26, where he refers to an inventory of about 400 manuscripts containing one or more maps, as opposed to the 283 manuscripts listed by Destombes. This article has been reprinted in *Géographie et culture: La représentation de l’espace du VIe au XIIe siècle* (Aldershot: Ashgate, 1997), item VIII. For a more recent inventory of world maps in the BNF, see his “*Mappae Mundi* antérieures au XIII<sup>e</sup> siècle dans les manuscrits latins de la Bibliothèque Nationale de France,” *Scriptorium* 52 (1998): 102–62, esp. 102–3 and 110. Interesting evidence of the familiarity of maps to at least some medieval readers is provided by maps drawn into the margins of Sallust’s historical works, presumably by readers who felt that a map ought to accompany the text; see Evelyn Edson, *Mapping Time and Space: How Medieval Mapmakers Viewed Their World* (London: British Library, 1997), 20. See also Patrick Gautier Dalché, *La “Descriptio mappe mundi” de Hugues de Saint-Victor* (Paris: Études Augustiniennes, 1988), 88, on the ability of readers to form mental maps. A telling example in the shift of attitude among scholars toward the familiarity of maps in the Middle Ages is the following comment by Lecoq: “Tucked away in the secrecy of books or exhibited on the walls of churches, cloisters, and royal or princely palaces, the image of the earth was displayed abundantly during the Middle Ages”; see Danielle Lecoq, “Images médiévales du monde,” in *A la rencontre de Sindbad: La route maritime de la soie* (Paris: Musée de la Marine, 1994), 57–61, esp. 57. Sylvia Tomasch argues that by the fourteenth century Geoffrey Chaucer had a sophisticated appreciation of contemporary cartography; see “*Mappae Mundi* and ‘The Knight’s Tale’: The Geography of Power, the Technology of Control,” in *Literature and Technology*, ed. Mark L. Greenberg and Lance Schachterle (London: Associated University Presses, 1992), 66–98, esp. 68.

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Abbreviations used in this chapter include: *Géographie du monde* for Monique Pelletier, ed., *Géographie du monde au Moyen Âge et à la Renaissance* (Paris: Éditions du C.T.H.S., 1989), and *LMP* for R. A. Skelton and P. D. A. Harvey, eds., *Local Maps and Plans from Medieval England* (Oxford: Clarendon, 1986).

1. P. D. A. Harvey, “Local and Regional Cartography in Medieval Europe,” in *HC* 1:464–501, esp. 464. See also Harvey’s comments in his “Medieval Maps: An Introduction,” in *HC* 1:283–85, esp. 283, and his *Medieval Maps* (Toronto: University of Toronto Press, 1991), 7: “Maps were practically unknown in the middle ages.” His views on this subject more recently changed: “We probably know of only a tiny proportion” of the world maps produced in thirteenth-century England (*Mappa Mundi: The Hereford World Map* [London: British Library, 1996], 38). For the likelihood of a high rate of loss, see David Woodward, “Medieval *Mappaemundi*,” in *HC* 1:286–370, esp. 292.

2. For the limited ownership of books in the later Middle Ages, see Pascale Bourgain, “L’édition des manuscrits,” in *Histoire de l’édition française*, ed. Henri Martin and Roger Chartier (Paris: Promodis, 1983–86), 1:49–75, esp. 64–66 and 72–73. For a view that emphasizes the continued rarity of the private ownership of maps into the fifteenth century, see David Woodward, *Maps as Prints in the Italian Renaissance:*

cussion by scholars of the period is essential to achieving a balanced understanding of both the innovations of fifteenth- and sixteenth-century mapmakers and the very real continuities that linked their work to that of their predecessors. Scholars working on the fourteenth and fifteenth centuries in particular are suggesting that, in the later Middle Ages, the production and consumption of maps responded to a rapidly changing sense of what a map could and should portray, a change that still remains to be fully explored and explained.<sup>4</sup> At the same time, our appreciation of the cartography of the high Middle Ages is becoming more nuanced and subtle with the discovery of new maps and new texts relevant to their study. The reassessment of the probable numbers of medieval maps is just one example of the substantially new understandings introduced by recent scholarship. This chapter is therefore designed to describe some current research directions, with a particular focus on those that help us better understand the relationship between the cartography of the Middle Ages and that of the Renaissance. It does not aim to replace the chapters in the first volume of *The History of Cartography*; instead it provides updates and corrections and, more important, focuses the reader's attention—at the beginning of an extended treatment of cartography in the Renaissance—on the roots that struck deep into the soil of the twelfth through the fourteenth century.

Although medieval maps often used to be described as copying a few standard models and repeating a tired assortment of information drawn from classical and biblical sources, it is becoming increasingly clear that they, like all other maps, should instead be understood as tools for thinking and as flexible means of communicating ideas.<sup>5</sup> In the Middle Ages, as in other periods, maps could be shaped and manipulated to meet particular needs as their authors drew from graphic and textual traditions, from experience, and from their own ideas to create individual artifacts suited to given contexts. As Gautier Dalché has emphasized, maps, like other representations, do not inform us generally about contemporaries' perceptions of space, but rather about the mental and technical tools available to the mapmaker.<sup>6</sup> Medieval maps must, in short, be approached not as transparent windows into their creators' and users' minds but as rhetorically constructed documents belonging to specific times and specific contexts. Recent studies have emphasized the importance of exploring these contexts, whether the specific codicological context of a particular manuscript or the larger social and cultural setting in which the map was conceived, as essential to understanding the full meaning of a given map within its society.<sup>7</sup>

One particularly fruitful aspect of this more contextualized and differentiated approach to medieval maps is the growing awareness of change within the period. In-

stead of a monolithic "medieval map," we are now able to recognize that maps, like other texts and artifacts, have their own histories that exist in a complex relationship with the cultures that produced them. Recent examples of attention to change in response to the historical moment range from the role of the Crusades in the gradual development of the tendency to locate Jerusalem at the center of world maps to the increasing sense of English national identity expressed on the Evesham map during the Hundred Years War.<sup>8</sup> Likewise, it is now easier to appreciate

4. See pp. 44–51.

5. For a further discussion of this attitude, contrasted with the undoubted creativity medieval authors brought to the use of ancient sources, see Patrick Gautier Dalché, "Un problème d'histoire culturelle: Perception et représentation de l'espace au Moyen Âge," *Médiévales* 18 (1990): 5–15, esp. 6 and 12–15, and idem, "Sur l' 'originalité' de la 'géographie' médiévale," in *Auctor & auctoritas: Invention et conformisme dans l'écriture médiévale*, ed. Michel Zimmermann (Paris: École des Chartes, 2001), 131–43. For the originality possible in maps copied from other sources, see Danielle Lecoq's comments about the maps in the *Liber floridus* in "La mappemonde du *Liber floridus* ou la vision du monde de Lambert de Saint-Omer," *Imago Mundi* 39 (1987): 9–49, esp. 9. This is a point emphasized in regard to Lambert's encyclopedia more generally by its most thorough interpreter, Albert Derolez, in *Lambertus qui librum fecit: Een codicologische studie van de Liber Floridus-autograaf* (Gent, Universiteitsbibliotheek, handschrift 92) (Brussels: Paleis der Academiën, 1978).

6. Gautier Dalché, "Un problème d'histoire culturelle," esp. 8. On the T-O maps as ideograms, rather than mimetic representations of space, see Pascal Arnaud, "Plurima orbis imago: Lectures conventionnelles des cartes au Moyen Âge," *Médiévales* 18 (1990): 33–51, esp. 50–51.

7. See Gautier Dalché, "De la glose à la contemplation," 698, on the importance of the codicological context; and Edson, *Time and Space*, vii–viii, for the necessity of studying the maps found in manuscripts in relation to the surrounding texts. For a fascinating exploration of the social and political context of the Hereford map, see Valerie I. J. Flint, "The Hereford Map: Its Author(s), Two Scenes and a Border," *Transactions of the Royal Historical Society*, 6th ser., 8 (1998): 19–44. For an appraisal of certain aspects of this interpretation, see Westrem, *Hereford Map*, xxiii–xxv, esp. n. 22 and n. 28. Victoria Morse, in "A Complex Terrain: Church, Society, and the Individual in the Works of Opicino de Canistris (1296–ca. 1354)" (Ph.D. diss., University of California, Berkeley, 1996), analyzes the personal, intellectual, and spiritual settings of a series of unusual maps and diagrams from fourteenth-century Avignon. More programmatically, Marcia A. Kupfer suggests that a map's meaning was dependent on its context and framework; see her "Medieval World Maps: Embedded Images, Interpretive Frames," *Word & Image* 10 (1994): 262–88, esp. 264.

8. For the growing tendency to locate Jerusalem at the center of world maps in the period 1100–1300, see Woodward, "Medieval *Mappae-mundi*," 341, and Anna-Dorothee von den Brincken, "Jerusalem: A Historical as Well as an Eschatological Place on the Medieval *Mappae Mundi*," paper presented at the Mappa Mundi Conference, Hereford, England, June 29, 1999. Von den Brincken locates this development after the middle of the thirteenth century, attributing the centrality of Jerusalem to heightened European awareness after the city's reconquest by the Muslims in 1244. On English identity and the Hundred Years War, see Peter Barber, "The Evesham World Map: A Late Medieval English View of God and the World," *Imago Mundi* 47 (1995): 13–33, esp. 23–24.

the variety of forms of medieval maps, instead of taking the world map as the archetypal form. The other widespread map types—especially the portolan charts, but also local, regional, and city maps—are no longer seen as aberrations or precursors of postmedieval development but as contemporary forms of cartographic expression that collectively helped define the medieval experience of maps.<sup>9</sup>

This awareness of the changes in the form, content, and use of maps during the medieval period is particularly helpful when we turn to the difficult problem of the transition between medieval and Renaissance cartography. The meaning of the labels “medieval” and “Renaissance” has long been debated, as have the degree and nature of the change between the two periods. The tendency in the history of cartography to look to the Renaissance for the birth of modern mapmaking has led to an overemphasis in this field on the discontinuities with the medieval past. The undoubted continuities between the two periods are dismissed as medieval survivals, astonishing to modern observers for whom the portolan charts of the later Middle Ages and the Ptolemaic maps of the later fifteenth century seem so obviously superior to the zone maps and *mappaemundi* that continued to be produced.<sup>10</sup> More recent studies have begun to examine the maps of the transitional fourteenth and fifteenth centuries more carefully, outlining the continuities and attempting to define the changes that undoubtedly did take place between the medieval and early modern periods more precisely at the specific levels of individual artifacts, thinkers, and communities.<sup>11</sup> These studies must be compared with recent work that focuses attitudes toward the representation and control of space in medieval experience, including the development of territorial conceptions of legal jurisdictions and intellectual changes in quantification and measurement.<sup>12</sup> Only with the careful examination of specific

9. The idea that the portolan charts, in particular, were atypical of medieval cartography or somehow precursors of later developments still appears, surprisingly, in Robert Karrow, “Intellectual Foundations of the Cartographic Revolution” (Ph.D. diss., Loyola University of Chicago, 1999), 7 and 53. A good discussion of a local map’s connectedness with contemporary society (in this case disputes over rights) may be found in Rose Mitchell and David Crook, “The Pinchbeck Fen Map: A Fifteenth-Century Map of the Lincolnshire Fenland,” *Imago Mundi* 51 (1999): 40–50, esp. 40–41 and 47–49.

10. Tony Campbell’s introduction to *The Earliest Printed Maps, 1472–1500* (Berkeley: University of California Press, 1987), 1–4, is a striking example of this tendency. On the continuing importance in the fifteenth century of the world map as a means of obtaining an overview of the world and its component parts, see Patrick Gautier Dalché, “Pour une histoire du regard géographique: Conception et usage de la carte au XV<sup>e</sup> siècle,” *Micrologus: Natura, Scienze e Società Medievali* 4 (1996): 77–103, esp. 92, and idem, “Sur l’ ‘originalité’ de la ‘géographie’ médiévale,” 132. See also Edson’s comments on the schematic map in the fifteenth-century *Rudimentum novitiorum* in *Time and Space*, 14.

11. See in particular the precise and thought-provoking comments on the new instrumentality of maps in the fifteenth century by Gautier Dalché in “Pour une histoire,” esp. 100–103. David Woodward argues that a notion of an “abstract, geometric and homogeneous space” lay at the heart of fifteenth-century mapping in “Maps and the Rationalization of Geographic Space,” in *Circa 1492: Art in the Age of Exploration*, ed. Jay A. Levenson (Washington, D.C.: National Gallery of Art, 1991), 83–87, esp. 84. Marcia Milanesi sees the change in the explicitly unitary vision of the known world developed in humanist circles under the influence of Ptolemy’s *Geography*; see her “La rinascita della geografia dell’Europa, 1350–1480,” in *Europa e Mediterraneo tra medioevo e prima età moderna: L’osservatorio italiano*, ed. Sergio Gensini (Pisa: Pacini, 1992), 35–59. Most recently, Nathalie Bouloux has suggested that humanist practices of textual criticism led to a new concern with geographical accuracy and the invention of geography as an independent, and important, field of study in *Culture et savoirs géographiques en Italie au XIV<sup>e</sup> siècle* (Turnhout: Brepols, 2002), esp. 193–235.

12. These topics have generated an enormous recent bibliography. Two particularly stimulating studies of changing conceptions of political space in Italy in the later Middle Ages are Robert Brentano, *A New World in a Small Place: Church and Religion in the Diocese of Rieti, 1188–1378* (Berkeley: University of California Press, 1994), and Odile Redon, *L’espace d’une cité: Sienne et le pays siennois (XIII<sup>e</sup>–XIV<sup>e</sup> siècles)* (Rome: École Française de Rome, 1994). See also Daniel Lord Smail’s *Imaginary Cartographies: Possession and Identity in Late Medieval Marseille* (Ithaca, N.Y.: Cornell University Press, 1999). On the interesting developments of the sacred spaces of the ecclesiastical immunities of Cluny, see Barbara H. Rosenwein, *Negotiating Space: Power, Restraint, and Privileges of Immunity in Early Medieval Europe* (Ithaca, N.Y.: Cornell University Press, 1999), esp. 156–83. There are useful comments on the relative importance of the idea of boundaries and frontiers in the Middle Ages in Patrick Gautier Dalché, “De la liste à la carte: Limite et frontière dans la géographie et la cartographie de l’occident médiéval,” in *Castrum 4: Frontière et peuplement dans le monde méditerranéen au moyen âge* (Madrid: Casa de Velázquez, 1992), 19–31; see also Christine Deluz, *Le livre de Jehan de Mandeville: Une “géographie” au XIV<sup>e</sup> siècle* (Louvain-la-Neuve: Université Catholique de Louvain, 1988), 172–73 and 364. There is a large literature, particularly in French, on the perception and description of rural lands: see especially Mathieu Arnoux, “Perception et exploitation d’un espace forestier: La forêt de Breteuil (XI<sup>e</sup>–XV<sup>e</sup> siècles),” *Médiévales* 18 (1990): 17–32; Bernard Guidot, ed., *Provinces, régions, terroirs au Moyen Âge: De la réalité à l’imaginaire* (Nancy: Presses Universitaires de Nancy, 1993); Elisabeth Mornet, ed., *Campagnes médiévales: l’homme et son espace: Études offertes à Robert Fossier* (Paris: Publications de la Sorbonne, 1995); and the excellent study of the expression of space in notarial documents by Monique Bourin, “Délimitation des parcelles et perception de l’espace en Bas-Languedoc aux X<sup>e</sup> et XI<sup>e</sup> siècles,” in *Campagnes médiévales: l’homme et son espace. Études offertes à Robert Fossier* (Paris: Publications de la Sorbonne, 1995), 73–85. See also Jean Coste, “Description et délimitation de l’espace rural dans la campagne romaine,” in *Sources of Social History: Private Acts of the Late Middle Ages*, ed. Paolo Brezzi and Egmont Lee (Toronto: Pontifical Institute of Medieval Studies, 1984), 185–200, also published in *Gli atti privati nel tardo medioevo: Fonti per la storia sociale*, ed. Paolo Brezzi and Egmont Lee (Rome: Instituto di Studi Romani, 1984), 185–200. Changes in ideas of quantity and scale among university-trained philosophers are explored in Joel Kaye, *Economy and Nature in the Fourteenth Century: Money, Market Exchange, and the Emergence of Scientific Thought* (New York: Cambridge University Press, 1998), with important consequences for our understanding of quantification and the development of a geometrical, relational understanding of the world in the later Middle Ages. Alfred W. Crosby’s *The Measure of Reality: Quantification and Western Society, 1250–1600* (Cambridge: Cambridge

cases over time will we begin to see more precisely how the transition between medieval and Renaissance mapping took place and to appreciate more fully its roots in the profound social and cultural transformations of the later Middle Ages.

### THE ROLES OF MAPS IN THE TWELFTH AND THIRTEENTH CENTURIES

The broad division of medieval map forms into world maps, portolan charts, and local and regional maps and plans provides a helpful starting place for a discussion of the roles of maps in the later Middle Ages.<sup>13</sup> These individual traditions have in the past been seen as almost completely independent of one another, to the point that some scholars have suggested that the Middle Ages had no concept of a “map” as a category distinct from diagrams, pictures, and other representations.<sup>14</sup> The idea that there was little cross-fertilization among medieval maps has become untenable with new discoveries and a new appreciation of the sheer numbers of medieval maps.<sup>15</sup> Nevertheless, the categories remained sufficiently distinct in many twelfth- and thirteenth-century works that they provide a useful framework for discussion.

#### WORLD MAPS: FORMS

Much of the early scholarship on medieval world maps focused on creating typologies, some of considerable complexity.<sup>16</sup> More recently, the tendency has been to simplify the categories and terminology used to describe world maps and to explicate the meaning of individual maps by examining their functions within their specific contexts rather than by situating them within clearly defined families of maps. The most far-reaching revision of the typologies of medieval world maps calls for the recognition of just two basic types of map: those taking a global view of the earth and those focusing only on the *oikoumene*, or the inhabited world as it was conceptualized by late Roman and medieval thinkers, comprising in modern terms the regions of Europe, north Africa, and Asia, especially Asia Minor.<sup>17</sup>

A more moderate revision proposed in the first volume of *The History of Cartography* would reduce the number of major types to four: tripartite, zone, quadripartite, and transitional.<sup>18</sup> The first category comprises those maps that show the inhabited part of the earth as it was conceptualized in the Middle Ages, divided implicitly or explicitly into the three regions of Europe, Africa, and Asia. A subgroup of this category is the T-O map, which gives a schematic view of the three regions and the waterways—the river Tanais or Don, the Nile, and the Mediterranean Sea—dividing them. The zone map, in contrast, takes a global view of the earth, indicating its di-

vision into five *climata* or zones defined by temperature, including two cold polar regions, a northern and a southern temperate zone, and a hot equatorial zone. The quadripartite category accommodates maps that combine the two previous categories, showing the tripartite division of the known world and the existence of a further landmass south of the equatorial zone. Finally, the transitional category highlights the important developments of the fourteenth and fifteenth centuries as world maps began to incorporate material from the portolan charts and from the newly discovered maps of Ptolemy’s *Geography*.

This classification is particularly useful in its recognition of the transitional maps as a separate and note-

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University Press, 1997) includes a discussion of space, but skims too quickly over the topic to allow for a real understanding of how and why change took place. For philosophical discussions of space in the Middle Ages, see the articles in Jan A. Aertsen and Andreas Speer, eds., *Raum und Raumvorstellungen im Mittelalter* (Berlin: W. de Gruyter, 1998). For the medieval geographical imagination, especially expressed in literary sources, see Scott D. Westrem, ed., *Discovering New Worlds: Essays on Medieval Exploration and Imagination* (New York: Garland, 1991), and Sylvia Tomasch and Sealy Gilles, eds., *Text and Territory: Geographical Imagination in the European Middle Ages* (Philadelphia: University of Pennsylvania Press, 1998). Barbara A. Hanawalt and Michal Kobialka, eds., *Medieval Practices of Space* (Minneapolis: University of Minnesota Press, 2000), presents essays from a broad range of disciplines.

13. This is the division adopted by the two authoritative surveys of medieval maps: HC vol. 1, and von den Brincken, *Kartographische Quellen*. It derives from Destombes, *Mappemondes A.D. 1200–1500*, xvii.

14. For a strong statement of the separateness of medieval map traditions and the lack of a medieval notion of the map, see Harvey, “Medieval Maps: An Introduction,” 283–85. There is a useful summary of medieval terms for maps in von den Brincken, *Kartographische Quellen*, 22–23, and in Woodward, “Medieval Mappaemundi,” 287–88.

15. For a helpful, brief description of the interplay between portolan charts and world maps, see Gautier Dalché, “Un problème d’histoire culturelle,” 14.

16. Woodward, “Medieval Mappaemundi,” 294–99, gives a brief history of classification systems for world maps; see also the discussion in Gautier Dalché, “*Mappae mundi* antérieures au XIII<sup>e</sup> siècle,” 103–9.

17. See, for example, Jörg-Geerd Arentzen, *Imago mundi cartographica: Studien zur Bildlichkeit mittelalterlicher Welt- und Ökumenekarten unter besonderer Berücksichtigung des Zusammenwirkens von Text und Bild* (Munich: Wilhelm Fink Verlag, 1984), 125, and Gautier Dalché, “De la glose à la contemplation,” 703. Both authors emphasize the fundamental compatibility of the two views of the earth. The common use of the term “continents” to refer to Europe, Asia, and Africa on the maps is criticized by Benjamin Braude in “The Sons of Noah and the Construction of Ethnic and Geographical Identities in the Medieval and Early Modern Periods,” *William and Mary Quarterly*, 3rd ser., 54 (1997): 103–42, esp. 109–10; Braude points out that, for medieval thinkers, these terms referred to “regions of one world, not separate continents” (p. 109).

18. Woodward, “Medieval Mappaemundi,” 295–99 and 343–58.

worthy category and for its simplification of earlier schemes.<sup>19</sup> It has been criticized, however, for its continued use of subcategories named for the authors of certain classical and late antique texts that, in medieval manuscripts, were often illustrated by maps (e.g., “Isidore,” “Orosius,” or “Sallust” maps). First, such nomenclature can give the misleading impression that the maps in question originated in the texts with which they are most commonly associated or were even the work of the original author.<sup>20</sup> This false conclusion obscures the interesting and problematic early history of medieval world maps, only some of which seem to go back to late antique origins, while others were most likely inventions of the early Middle Ages.<sup>21</sup> Second, there is abundant evidence that, although maps with certain sets of features might tend to be copied with certain texts, the associations are far from rigid or straightforward. Recent research emphasizes instead the frequency with which maps migrated from one work to another and the flexibility of medieval copyists in choosing maps to illustrate given works or in altering their cartographic models at will. The Evesham map, for example, is very similar to the maps that appear in the chronicle of Ranulf Higden, but it seems to have been produced as an independent document, rather than being copied as part of a manuscript.<sup>22</sup> Finally, the focus on the origins of medieval maps tends to obscure the importance of the specific choice that led to the production of a given map at a given moment and for a given purpose. Even a straightforward copy of an existing map takes on a new range of meaning and a new significance from having been selected and copied under a particular set of circumstances.<sup>23</sup>

A final issue concerning the forms of world maps is the question of whether a map’s formal structure provides clues to its function. It has been argued that zone maps were typically used to convey astronomical and astrological information, while tripartite maps tended either to focus on historical, ethnographical, and spiritual meanings or (in their more schematic form) to serve as a convenient icon indicating the earth.<sup>24</sup> In part, these associations stem from the assumption that certain map types belonged exclusively with certain texts, an idea that, as we have seen, has been called into question.<sup>25</sup> Nevertheless, in spite of the much more fluid relationship between maps and texts that we now know to have been typical, especially of the later Middle Ages, there does seem to be some truth to a correlation between form and meaning. This is best seen in the rather extreme example of Opicino de Canistris, who turned to the zone map as the foundation on which to elaborate his spiritual cosmography because of the emphasis that this map form placed on the earth as a part of the larger system of the universe, caught at the center of a web of astral forces (fig. 2.1).<sup>26</sup>

## WORLD MAPS: USES AND CONTEXTS

The current tendency in the study of medieval world maps is to deemphasize questions of origin, descent, or

19. Edson adopted a categorization based on a combination of formal characteristics (especially the distinction between T-O and zone maps) and degree of detail. Although interesting as an attempt to emphasize the context and purpose of the maps over their formal characteristics, this system seems unlikely to be adopted more generally. See her *Time and Space*, 2–9.

20. Gautier Dalché, “De la glose à la contemplation,” 701–2 and n. 27. Gautier Dalché attributes the continuation of this misleading approach to the influential catalog of medieval maps edited by Destombes, *Mappemondes A.D. 1200–1500*. For Gautier Dalché’s ongoing critique of Destombes, see “De la glose à la contemplation,” 699–702, and “*Mappae mundi* antérieures au XIII<sup>e</sup> siècle,” 105–8, esp. 107 for the problem of attributing maps to authors. Edson discusses the problems with the term “Orosian” for a category of maps that seldom appear in conjunction with the text of Orosius’s *Seven Books of History Against the Pagans* in *Time and Space*, 33; her discussion of the complex relationships between texts of Sallust’s histories and the maps that often illustrated them is also helpful in this regard (pp. 18–21).

21. Gautier Dalché, in “De la glose à la contemplation,” 706–8, suggests that the graphic T-O map was an invention of the early Middle Ages, although the concept of a tripartite division of the *oikoumene* was of ancient origin. On the other hand, for a helpful discussion of the possible influence of Roman cartography on Matthew Paris’s maps of Britain, see P. D. A. Harvey, “Matthew Paris’s Maps of Britain,” in *Thirteenth Century England IV: Proceedings of the Newcastle upon Tyne Conference 1991*, ed. P. R. Cross and S. D. Lloyd (Woodbridge, Suffolk: Boydell, 1992), 109–21, esp. 111–14.

22. Gautier Dalché, “*Mappae mundi* antérieures au XIII<sup>e</sup> siècle,” 107, and Barber, “Evesham World Map,” 27–28. Gautier Dalché argues in his discussion of Hugh of Saint Victor’s “*Descriptio mappe mundi*,” a text he sees as having been drawn from a map, that in the early twelfth century it was possible for a map to be understood as an artifact endowed with the authority normally reserved for written texts. See his *La “Descriptio mappe mundi”* (1988), 87–115, esp. 107 and 114–15. Finally, a subtle and penetrating discussion of the relationship of diagrams to the texts they accompany is in Harry Bober, “An Illustrated Medieval School-Book of Bede’s ‘De Natura Rerum,’” *Journal of the Walters Art Gallery* 19–20 (1956–57): 64–97, esp. 84 and 88.

23. Thus Woodward’s “Chronological List of Major Medieval *Mappaemundi*, A.D. 300–1460,” which organizes the maps by “content date,” lists Lambert of Saint-Omer’s maps under the fifth century (attributed to Martianus Capella) rather than as products of the intellectual and cultural world of the early twelfth century (for the autograph) or of the thirteenth, fourteenth, or fifteenth centuries (for the later copies); see Woodward, “Medieval *Mappaemundi*,” 359–67. On the important influences that the historical context had on Lambert’s work, see Derolez, *Lambertus qui librum fecit*. The Peutinger map is an example of a map that has drawn attention almost purely for what it can tell us of late Roman cartography, while the circumstances of its preservation through copying, probably in the twelfth century, have been little studied. It is to be hoped that Richard Talbert’s forthcoming edition and commentary will shed light on this important issue. See also Patrick Gautier Dalché, “La trasmissione medievale e rinascimentale della *Tabula Peutingeriana*,” in *Tabula Peutingeriana: Le antiche vie del mondo*, ed. Francesco Prontera (Florence: Olschki, 2003), 43–52, esp. 44–47.

24. Arentzen, in *Imago mundi cartographica*, 94, basing his argument on the maps of the *Liber floridus*.

25. See note 3.

26. Morse, “Complex Terrain,” 235–54.

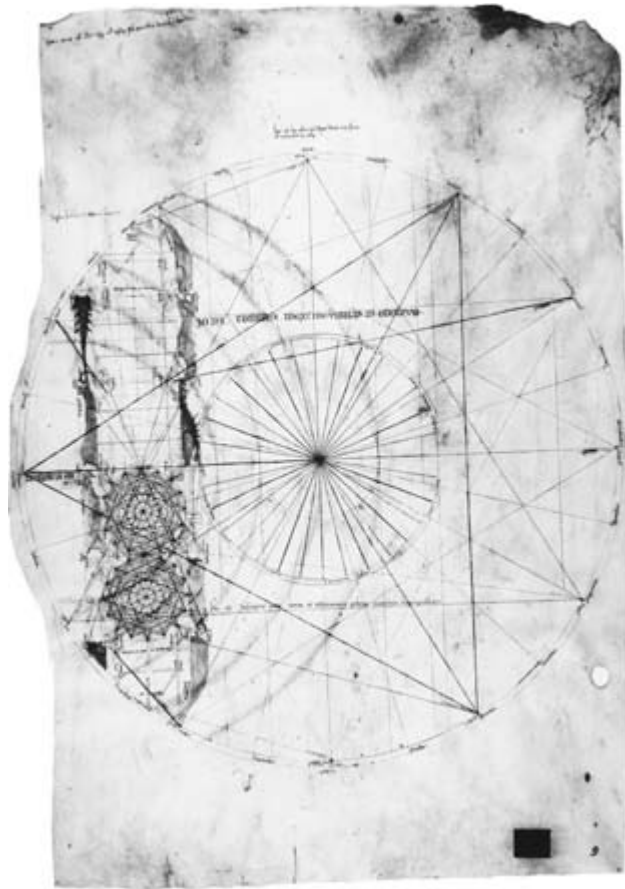


FIG. 2.1. ZONE MAP BY OPICINO DE CANISTRIS. This transitional map, probably from the 1340s, adopts the rhumb lines from a portolan chart as a marker for the Mediterranean region of the *oikoumene*. The habitable zone is surrounded by the zodiac, emphasizing its temporal nature, and the legends for the zones add a spiritual interpretation to the usual geographical information.

Photograph © Biblioteca Apostolica Vaticana, Vatican City (MS. Pal. Lat. 1993, fol. 9r).

classification and to look instead at function and context. A sign of the growing maturity of the field, this approach shows that the history of cartography is finding a place within the mainstream of medieval cultural history.<sup>27</sup> Students of medieval cartography must bear in mind that world maps are multivalent, weaving together various ideas about the world to form unique artistic and cultural statements. Thus, although it is necessary to try to sort out the component threads of meaning that make up individual maps, the task must be undertaken with sensitivity to the categories available within medieval culture as well as those that modern interpreters find helpful to impose on their medieval sources. Although the following discussion will often rely on terms like “history” or “religion” to discuss the roles and functions of the maps, it should be borne in mind that a medieval audience would not have made these distinctions in this way. Indeed, I will

attempt to indicate something of the complexity of the social and intellectual frameworks within which maps were produced and used.<sup>28</sup>

It is important to situate twelfth- and thirteenth-century mapmaking within a much larger interest in understanding the physical world. This interest arose in many different areas of high medieval culture, from philosophical and scientific efforts to explain the natural laws underlying the functioning of the universe, to the popularity of poetic depictions of the world and its places, to changes in descriptions of administrative and jurisdictional territories.<sup>29</sup> The world maps from this period were influenced by these broader concerns, and one of their defining characteristics is the very diversity of the purposes they served and the contexts within which they occurred.

One of the most influential contributions to the study of medieval cartography has been the idea that world maps were intended to describe time as well as space. Since the publication of two highly influential articles by von den Brincken on the close relationship between universal chronicles—those that attempted to sum up all of human history in one work—and world maps, it has been widely accepted that one function of these maps was to give an overview of the world, understood as the theater of human, and especially Christian, history.<sup>30</sup> As a result of this parallelism between map and chronicle, it is

27. Woodward, in “Medieval *Mappaemundi*,” 288–90, discusses the historiography of world maps and the growing willingness of scholars to read these documents on their own terms, rather than as failed attempts at providing geometrically accurate representations of places. See also Gautier Dalché’s comments, “Un problème d’histoire culturelle,” 6–7.

28. There is a helpful comment on the lack of a medieval concept of “geography” in Patrick Gautier Dalché, “Le renouvellement de la perception et de la représentation de l’espace au XII<sup>e</sup> siècle,” in *Renovación intelectual del occidente Europeo (siglo XII)* (Pamplona: Gobierno de Navarra, Departamento de Educación y Cultura, 1998), 169–217, esp. 169–70. Nicolás Wey Gómez emphasizes the importance of accepting and working with the medieval understanding of the disciplines that were considered relevant to the study of place, especially astrology, in *The Machine of the World: Scholastic Cosmography and the “Place” of Native People in the Early Caribbean Colonial Encounter* (forthcoming). Natalia Lozovsky dedicates chapter 1 of “*The Earth Is Our Book*”: *Geographical Knowledge in the Latin West ca. 400–1000* (Ann Arbor: University of Michigan Press, 2000), 6–34, to exploring “how geographical tradition fit into the system of knowledge of the time” (p. 6).

29. For a survey of the genres, including maps, that express this “passionate discovery of the reality of the world,” see Gautier Dalché, “Le renouvellement,” 177.

30. See especially Anna-Dorothee von den Brincken, “Mappa mundi und Chronographia: Studien zur *Imago Mundi* des abendländischen Mittelalters,” *Deutsches Archiv für die Erforschung des Mittelalters* 24 (1968): 118–86, esp. 119–23, and idem, “. . . Ut Describeretur universus orbis: Zur Universalkartographie des Mittelalters,” in *Methoden in Wissenschaft und Kunst des Mittelalters*, ed. Albert Zimmermann (Berlin: W. de Gruyter, 1970), 249–78, esp. 249–53. There is a brief statement of her views in her *Kartographische Quellen*, 32, and in Woodward, “Medieval *Mappaemundi*,” 288–90 and n. 22, tracing the

common to find, rubbing shoulders on world maps, what one author has called “landmarks of the six ages [of the world]”: ancient cities like Troy and Rome, biblical events like the Hebrews’ crossing of the Red Sea and the landing of Noah’s ark on Mount Ararat, and contemporary pilgrimage sites like Santiago de’ Compostela.<sup>31</sup> This approach to these documents has much to recommend it and has played a central role in freeing the study of medieval maps from anachronistic expectations about their purpose and content by focusing attention on the needs and attitudes of the culture that produced them. Salvation history has, however, become overgeneralized as an explanation for the world maps, serving occasionally more to circumvent than to explore the problem of the maps’ meanings. There are two issues to bear in mind. First, the Christian tradition had a complex idea of history, eschatology, and the salvational process, and it is essential to understand how these issues are being approached in any particular map and with what specific meaning.<sup>32</sup> Second, the assimilation of human knowledge and activity into the framework of creation and salvation did not in any way exclude the “lower” human meanings, nor was salvation history seen as detached from the physical aspects of the world.<sup>33</sup>

Within their broad function as representations of space and time, world maps could serve a wide variety of more specific rhetorical needs. One way to explore the functions of the world map in medieval society is through the multivalent meanings of the world itself in the learned culture of the time.<sup>34</sup> Part of the curiosity about the physical world that characterized the twelfth-century Renaissance was the desire to understand the earth as a part of a system. The concern among philosophers for the *machina universitatis* or the *machina mundi* led them to focus on the system underlying the universe and the laws that governed it. The details of the earth itself (*terra*, both the planet and the element earth) were of less interest to them than the grand mechanism of the world (*mundus*). Contrasted with this interest in the *machina mundi* was the equally vibrant idea of *contemptus mundi* (renunciation of the world), which drew on a related but different definition of the “world” to contrast the ascetic life with the life of ordinary secular affairs. “Secular” recalls the term *saeculum* that contrasted “the world of men and of time” with the eternal world of the Christian God.<sup>35</sup> Between these extremes were the views of historians, pilgrims (whether armchair or actual), and other travelers, for which locations and events on the earth did matter and needed to be recalled.

Many of the medieval world maps that have survived do so in the company of other schematic drawings, often of a cosmological nature, in *computus* manuscripts and encyclopedias. A staple of monastic education in the early Middle Ages, *computus* was the body of knowledge necessary to allow the calculation of the dates of the move-

idea of maps as histories back to early work on the Hereford map. The theme of maps and history is also developed in Edson, *Time and Space*, 18–35 and 97–144. On the close connections between time and space—both creations and both participating in homologous ways in the structure of the universe—see Danielle Lecoq, “Le temps et l’intemporel sur quelques représentations médiévales du monde au XII<sup>e</sup> et au XIII<sup>e</sup> siècles,” in *Le temps, sa mesure et sa perception au Moyen Âge*, ed. Bernard Ribémont (Caen: Paradigme, 1992), 113–32, esp. 115.

31. Edson, *Time and Space*, 100. For a description of world maps as “historical aggregations or cumulative inventories of events that occur in space” and the suggestion that this approach might be adopted in modern cartography to more fruitfully represent the historical meanings of landscape, see David Woodward, “Reality, Symbolism, Time, and Space in Medieval World Maps,” *Annals of the Association of American Geographers* 75 (1985): 510–21, esp. 519–20. A twelfth-century example of the world map as a framework in which information could be listed is illustrated in Woodward, “Medieval *Mappaemundi*,” 347 (fig. 18.53). See also Edson’s proposal of a separate category for “list maps” in her classification of world maps in *Time and Space*, 5–6 and fig. 1.3. A sense of places that appeared on world maps can be gained quickly from the listing in von den Brincken, “Mappa mundi und Chronographia,” 162–67, and now from the published legends of the Hereford world map in Westrem, *Hereford Map*. See also the transcription of place-names and other names from the Henry of Mainz (or Sawley) map in Danielle Lecoq, “La mappemonde d’Henri de Mayence ou l’image du monde au XII<sup>e</sup> siècle,” in *Iconographie médiévale: Image, texte, contexte*, ed. Gaston Duchet-Suchaux (Paris: Centre National de la Recherche Scientifique, 1990), 155–207, esp. 162. For the use of the name “Sawley map,” see P. D. A. Harvey, “The Sawley Map and Other World Maps in Twelfth-Century England,” *Imago Mundi* 49 (1997): 33–42, esp. 33.

32. Danielle Lecoq explores the nontemporal meanings of maps like the Ebstorf and Psalter maps that seek to express the eternity of divine wisdom and other related concepts in “Le temps et l’intemporel,” esp. 113.

33. See the suggestive comments in Gautier Dalché, “Le renouvellement,” 178 and 204–5; the author reminds us that descriptions of the world do not become less interesting just because their primary function was to enhance the reader’s knowledge of biblical history or exegesis (p. 178). A useful comparison from a related discipline is Bernard Ribémont’s remark that the authors of medieval encyclopedias, although they certainly conceived of the world as created, were not particularly interested in exploring the final causes of the natural phenomena they studied; see his “*Naturae descriptio*: Expliquer la nature dans les encyclopédies du Moyen Âge (XIII<sup>e</sup> siècle),” in *De Natura Rerum: Études sur les encyclopédies médiévales* (Orléans: Paradigme, 1995), 129–49, esp. 130. David Woodward comments on the juxtaposition of “spiritual” and “real” in “Medieval World Maps,” in *Géographie du monde*, 7–8. Compare his lengthier treatment in “Medieval *Mappaemundi*,” 334–37. It is surprising to find Edson still wondering that the collection of maps and diagrams dealing with astronomical topics in the Arnstein Bible “were thought to be religious enough to be bound with a Bible” in *Time and Space*, 94, especially after her extended treatment of *computus* and its relation to clerical culture. See Gautier Dalché, “Le renouvellement,” 207 and n. 82.

34. We know little of what non-elites thought about their world in the Middle Ages. Interesting evidence of the expectation that a wider audience would have seen a world map appears in the fifteenth century in a sermon by Bernardino da Siena in which he asks his listeners to recall Italy as they have seen it “nel Lappamondo,” referring to the world map in Siena’s *palazzo pubblico*. Cited in Marcia Kupfer, “The Lost Wheel Map of Ambrogio Lorenzetti,” *Art Bulletin* 78 (1996): 286–310, esp. 288.

35. Edson, *Time and Space*, 62–63. For the term *saeculum*, see R. A. Markus, *Saeculum: History and Society in the Theology of St. Augustine*, rev. ed. (Cambridge: Cambridge University Press, 1988), quotation on xxii, and Kupfer, “Medieval World Maps,” 265.

able feasts of the Christian year, especially Easter.<sup>36</sup> Branching out from the strict calculation of Easter, many *computus* manuscripts compiled other materials relating to time, the heavens, and theories of the interconnections between the heavens, the earth, and man that were fundamental to medieval science and medicine. Many of the excerpts commonly associated with *computus* were drawn from the works of the Venerable Bede, but the collections also included classical texts and others by medieval authors on a variety of subjects—including history—connected with the idea of time broadly conceived. In addition, they frequently contained diagrams designed to summarize and complement the textual presentations, and they sometimes contained maps.<sup>37</sup> These maps might appear as simple elements of more complex diagrams; this was a common use of the T-O maps, often labeled with the word *terra*, which might signify, for example, the earth at the center of a diagram explaining the effect of the moon on the tides.<sup>38</sup> Some manuscripts also included more highly elaborated world maps containing historical as well as cosmographical information. *Computus* has been convincingly described as an “organizing principle in clerical education,” so that, even after calculating the date of Easter became a less universally required skill with the development of reliable tables, these texts continued to be copied, sometimes in impressively produced manuscripts.<sup>39</sup> Knowledge of the information included in these works played a role in the formation of clerical identity and suggests the importance and familiarity that maps and associated diagrams of earthly and cosmological phenomena would have had among at least some parts of the clerical elite.

Medieval encyclopedias exhibit the same tendency to bring together diverse materials around a loose common theme of the structure and history of the world. They are one of the most interesting settings in which to study medieval representations of the world, because their very heterogeneity allowed for the inclusion of all sorts of map types, from zone and tripartite world maps to regional maps and from maps as separately conceived images to tiny T-O maps within larger cosmographical diagrams. Despite the diversity of topics and materials that characterizes encyclopedias, their larger goal was generally to demonstrate the fundamental unity of the created universe through a synthesis of human knowledge.<sup>40</sup> The maps too can be understood, as has already been noted, as different perspectives—offering different degrees of detail—on the single, complex, world system.<sup>41</sup>

The frequent appearance of maps in works designed to serve pedagogical and popularizing functions is an index of the popularity of what one scholar has called the “passionate discovery of the reality of the world” that characterized the intellectual movement known as the twelfth-century Renaissance.<sup>42</sup> Scholars sought to understand the laws that governed the universal system or

*machina universitatis* through the development of reasoned theories and careful speculation about such issues as the existence of the antipodes, a habitable zone in the southern hemisphere diametrically opposite the northern habitable zone of the *oikoumene*. This issue in particular was controversial, because the possibility of a habitable (and possibly inhabited) zone that was completely cut off from the known world by an impassable torrid zone called into question the completeness of the evangelization of the world and the universality of the Christian message.<sup>43</sup> The very use of speculative reason to under-

36. There is a summary of the technicalities of *computus* in Edson, *Time and Space*, 58–61, and see 52–96 on *computus* more generally. See also Arno Borst, *The Ordering of Time: From the Ancient Computus to the Modern Computer*, trans. Andrew Winnard (Chicago: University of Chicago Press, 1993), esp. 33–41 and 50–64, and Faith Wallis, “Images of Order in the Medieval *Computus*,” in *Ideas of Order in the Middle Ages*, ed. Warren Ginsberg (Binghamton: Center for Medieval and Early Renaissance Studies, State University of New York at Binghamton, 1990), 45–68, esp. 45–52. Wallis argues that *computus* was seen “not so much [as] a science through which one studies time as an art by which one imposes a rational and human order upon time” (p. 51).

37. For a sensitive account of the ways in which a diagram might function as a “schematic prelude” for a textual discussion, highlighting the relationships among concepts, see Bober, “Medieval School-Book,” 81–85, quotation on 83. For maps in *computus* manuscripts, see Edson, *Time and Space*, 72–96.

38. Arentzen, *Imago mundi cartographica*, 90–91, on the symbolic use of basic T-O maps.

39. Edson, *Time and Space*, 73, referring to Faith Wallis, “MS Oxford, St. John’s College 17: A Mediaeval Manuscript in Its Context” (Ph.D. diss., University of Toronto, 1987), 610–39. See also Valerie I. J. Flint, “World History in the Early Twelfth Century: The ‘Imago Mundi’ of Honorius Augustodunensis,” in *The Writing of History in the Middle Ages: Essays Presented to Richard William Southern*, ed. R. H. C. Davis and J. M. Wallace-Hadrill (Oxford: Clarendon, 1981), 211–38, esp. 215, reprinted in Valerie I. J. Flint, *Ideas in the Medieval West: Texts and Their Contexts* (London: Variorum, 1988), 211–38.

40. In the case of the twelfth-century *Liber floridus*, Danielle Lecoq describes this synthetic vision as a “global view of space and time” in her “La mappemonde du *Liber floridus*,” 9. Lecoq rightly emphasizes the beauty of the world that Lambert describes, a beauty still accessible to the modern scholar in the striking illustrations of the autograph and deriving, for a medieval audience, from the strongly symmetrical and hierarchical structure of the universe (p. 44). See also Margriet Hoogvliet on the moral interpretation provided by most encyclopedias in her “*Mappae Mundi* and Medieval Encyclopaedias: Image Versus Text,” in *Pre-Modern Encyclopaedic Texts: Proceedings of the Second COMERS Congress, Groningen, 1–4 July 1996*, ed. Peter Binkley (Leiden: Brill, 1997), 63–74, esp. 72–73. Flint argues that part of Honorius Augustodunensis’s agenda in writing the *Imago mundi* was to channel a contemporary upsurge of interest in astrology in directions that were theologically acceptable; see “World History,” esp. 223–24, 229–30, and 232–33.

41. See p. 28 and note 17.

42. Gautier Dalché, “Le renouvellement,” 177.

43. On the focus on laws and a system, see Danielle Lecoq, “L’image de la terre à travers les écrits scientifiques du XIIe siècle: Une vision cosmique, une image polémique,” in *L’image et la science: Actes du 115<sup>e</sup> Congrès National des Sociétés Savantes (Avignon, 1990)* (Paris: Editions du Comité des Travaux Historiques et Scientifiques, 1992), 15–37, esp. 16; see also what Lecoq says about the relative neglect of the



stand the world was suspect to some, moreover, because it seemed to deny the absolute power of God and to privilege a kind of natural determinism at the expense of mankind's free will.<sup>44</sup>

The scientific or philosophical approach to the world was, then, a controversial one that needed to be justified and explained to a potentially hostile audience.<sup>45</sup> Curiously little has been done as yet to explore the roles of the maps that frequently illustrated the arguments of such works as William of Conches's *Dragmaticon philosophiae* in stating these claims. Instead, William's attention to providing helpful visual aids is usually explained as part of a general upswing in the use of visual material to help explain complex problems; the twelfth-century scholar's own appreciation of the power of world maps to organize information is illustrated by one author's choice to classify a randomly ordered list of place-names based on an imagined *mappamundi*.<sup>46</sup>

The idea of the earth as a point in a complex system of natural forces was developed in the thirteenth century, especially with reference to the influence of the astral bodies on the nature of earthly places. This form of astrological thought seems to have provided the impetus for Roger Bacon's discussion of a *figura* or drawing showing major cities located according to their longitude and latitude.<sup>47</sup> Bacon has in the past been credited with considerable innovations in geographical thought, most particularly in his understanding of the use of coordinates to create an accurate graphic representation of the world's places.<sup>48</sup> Recent research on the concepts of longitude and latitude in the Middle Ages suggests that Bacon was less of an innovator in this respect than previous scholars have thought, since he could draw on a well-established body of texts and techniques, including translations of Arabic scientific texts and handbooks on the use of the astrolabe, that explained the underlying theory and offered lists of coordinates for selected cities. Moreover, he probably knew of the idea of using the coordinates provided by Ptolemy's *Geography* to create a map thanks to the fairly well-known translations of *Maqālah fī hay'at al-'ālam* (treatise on the configuration of the world) by Ibn al-

rope, ed. Jean-Philippe Genet (Paris: Éditions du Centre National de la Recherche Scientifique, 1991), 263–75, esp. 275. On the antipodes, see Gautier Dalché, "Le renouvellement," 192–95; Danielle Lecoq, "Au-delà des limites de la terre habitée: Des îles extraordinaires aux terres antipodes (XI<sup>e</sup>–XIII<sup>e</sup> siècles)," in *Terre à découvrir, terres à parcourir: Exploration et connaissance du monde, XII<sup>e</sup>–XIX<sup>e</sup> siècles*, ed. Danielle Lecoq and Antoine Chambard (Paris: L'Harmattan, 1998), 15–41, esp. 28–33; and Woodward, "Medieval Mappaemundi," 319.

44. Lindberg, *Beginnings of Western Science*, 200–201; Lecoq, "L'image de la terre," 35–37; and Gautier Dalché, "Le renouvellement," 192–93.

45. For some of their responses to their critics, see Lecoq, "L'image de la terre," 35–37.

46. For the use of a *mappamundi* to order place-names, see Gautier Dalché, "Le renouvellement," 211. On the development in the twelfth century of complex images designed to organize and analyze material, see Jean-Claude Schmitt, "Les images classificatrices," *Bibliothèque de l'École des Chartes* 147 (1989): 311–41, esp. 312–13, and John E. Murdoch, *Antiquity and the Middle Ages* (New York: Scribner, 1984), 328–64. Barbara Obrist has studied the diagrams of winds that occupied an important place in medieval cosmology in her "Wind Diagrams and Medieval Cosmology," *Speculum* 72 (1997): 33–84. An important introduction to medieval diagrams is Michael Evans's "The Geometry of the Mind," *Architectural Association Quarterly* 12, no. 4 (1980): 32–55; see also Lucy Freeman Sandler, *The Psalter of Robert de Lisle in the British Library* (London: H. Miller, 1983), and the discussion of Hugh of Saint Victor later in this chapter. For "list maps," which provide a graphic framework for lists of names of peoples, see Edson, *Time and Space*, 5–6. In light of this work on visualization, it is hard to agree with David Woodward that Bacon was "unusual for the thirteenth century [in] his emphasis on the need for pictures and maps in order to visualize the geography of landscapes and places"; see David Woodward with Herbert M. Howe, "Roger Bacon on Geography and Cartography," in *Roger Bacon and the Sciences: Commemorative Essays*, ed. Jeremiah Hackett (Leiden: E. J. Brill, 1997), 199–222, esp. 219.

47. Lindberg articulates clearly an important medieval distinction between astrology "as a set of beliefs about physical influence within the cosmos" and "astrology as the art of casting horoscopes," in *Beginnings of Western Science*, 274. Wey Gómez's study of the Columbian encounter and its intellectual background alerts us to the central role of astrology in providing meaning and context for the study of geography in providing meaning and context for the study of geography in scholastic thought; see Wey Gómez, *Machine of the World*. On the concept of "geographical determinism" in Bacon and Albert Magnus, see Woodward with Howe, "Roger Bacon on Geography," 210–11. On astrology and geography, see also Patrick Gautier Dalché, "Connaissance et usages géographiques des coordonnées dans le Moyen Âge latin (du Vénéral Bède à Roger Bacon)," in *Science antique, science médiévale (autour d'Avanches 235)*, ed. Louis Callebaut and O. Desbordes (Hildesheim: Olms-Weidmann, 2000), 401–36, esp. 432–33.

48. David Woodward provides a survey of opinions about Bacon's place in the history of geographical thought in "Roger Bacon's Terrestrial Coordinate System," *Annals of the Association of American Geographers* 80 (1990): 109–22, esp. 115–18, and in Woodward with Howe, "Roger Bacon on Geography," 215–16 and 220–21. Although cautious in declaring Bacon an innovator, Woodward goes further in this direction than Gautier Dalché, who minimizes Bacon's original contribution in his "Connaissance et usages géographiques des coordonnées," 428–32. An English translation of the sections of geographical interest in Roger Bacon's "Opus maius" is available online; see Roger Bacon, "The Fourth Part of The Opus Maius: Mathematics in The Service of Theology," trans. Herbert M. Howe (1996) <<http://www.geography.wisc.edu/faculty/woodward/bacon.html>>. For a brief but thought provoking discussion of Bacon's place in the development of English cartography, see Catherine Delano-Smith and Roger J. P. Kain, *English Maps: A History* (London: British Library, 1999), 17.

earth itself brought about by this focus on the larger system (p. 30). See more generally David C. Lindberg's account of Thierry of Chartres and William of Conches and their interest in natural causation in *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, 600 B.C. to A.D. 1450* (Chicago: University of Chicago Press, 1992), 197–203. Janet Coleman places Thierry of Chartres's "Tractatus de sex dierum operibus" in the context of theological interpretation, emphasizing that for Thierry "reasoning about how elements come together and create the world as we know it, is . . . not the whole abstract truth about creation but rather a limited perspective which requires further interpretation for us to understand it truly." See her "Universal History *Secundum Physicam et ad Litteram* in the Twelfth Century," in *L'historiographie médiévale en Eu-*

Haytham (Alhazen).<sup>49</sup> Bacon was thus not unique in his interest in locating the places of the world accurately within a system that connected them to the heavens. The lesser-known (and unillustrated) works of William of Saint-Cloud and Gerard of Feltre shared an understanding of space as a “whole composed of a set of rigorously defined points,” as did the work of the Dominican Albert Magnus.<sup>50</sup> Far from being in itself a trigger that would revolutionize the medieval understanding of geographical space, the knowledge of Ptolemy’s use of coordinates to map the features of the world was an accepted part of medieval geographical knowledge and was enlisted to render more precise an analysis of place based on astronomical and climatological criteria.

The enthusiasm for knowing the physical world, discussed in the previous sections, played a significant role in medieval pedagogy, especially in the monastic teaching of the Carolingian and twelfth-century Renaissances.<sup>51</sup> This was due in part to the heightened attention given in the twelfth century to the literal sense of biblical exegesis: understanding the names, places, and history described in the Bible was seen as the necessary foundation for examining other meanings (moral, Christological, or eschatological).<sup>52</sup> One of the proponents of this form of monastic education was Hugh of Saint Victor, whose work also includes several items important for the history of cartography. Hugh was sensitive to the role that images could play in teaching and learning, and his extant works incorporate a wide range of visual aids, including tables and circular diagrams.<sup>53</sup> According to his well-known *De archa noe mystica*, he incorporated a world map into the elaborate diagram of Noah’s ark that he drew to help his fellow canons explore the many meanings of this symbol of the Church and Christian salvation.<sup>54</sup> Recent research has also attributed to him a treatise, “*Descriptio mappe mundi*,” that describes a detailed world map; the text is probably based on lecture notes from lessons that involved the discussion of an actual wall map.<sup>55</sup> Although there are no extant maps or diagrams associated with either text, Hugh’s interest in maps as representations of the physical world and as tools for teaching is clear. Indeed, one recent author considers his approach in the “*Descriptio mappe mundi*” revolutionary in its acceptance of a map, as opposed to a written text, as an authoritative source of information about the world.<sup>56</sup>

49. For knowledge of coordinates in the Middle Ages, including the influence of Ptolemy’s *Geography*, see Gautier Dalché, “Connaissance et usages géographiques des coordonnées,” and esp. 414–15 for the familiarity of these ideas by the second quarter of the twelfth century. On knowledge of Ptolemy more particularly, see Patrick Gautier Dalché, “Le souvenir de la *Géographie* de Ptolémée dans le monde latin médiéval (VI<sup>e</sup>–XIV<sup>e</sup> siècles),” *Euphrosyne* 27 (1999): 79–106. For Bacon’s use of Ibn al-Haytham, see Gautier Dalché, “Connaissance et usages géographiques des coordonnées,” 428–29.

50. Gautier Dalché, “Connaissance et usages géographiques des coordonnées,” 429–34. Gautier Dalché argues in the same article (p. 434 and n. 85) that Albert did not envision drawing a map to support his geographical discussions. This is against the claims of Józef Babicz and Heribert M. Nobis, “Die Mathematisch-Geographischen und Kartographischen Ideen von Albertus Magnus und Ihre Stelle in der Geschichte der Geographie,” in *Die Kölner Universität im Mittelalter: Geistige Wurzeln und Soziale Wirklichkeit*, ed. Albert Zimmermann (Berlin: De Gruyter, 1989), 97–110, esp. 103–9.

51. Gautier Dalché, *La “Descriptio mappe mundi”* (1988), 122–23. For a broader view of possible pedagogical contexts for the large world maps of the thirteenth century, see Marcia Kupfer, “Medieval World Maps,” 269–73, and for teaching the laity, see Mary Carruthers, *The Craft of Thought: Meditation, Rhetoric, and the Making of Images, 400–1200* (Cambridge: Cambridge University Press, 1998), 213–20.

52. On Hugh’s place in twelfth-century exegesis, see Beryl Smalley, *The Study of the Bible in the Middle Ages* (Notre Dame: University of Notre Dame Press, 1964), and idem, “The Bible in the Medieval Schools,” in *The Cambridge History of the Bible*, vol. 2, *The West from the Fathers to the Reformation*, ed. G. W. H. Lampe (Cambridge: Cambridge University Press, 1969), 197–220, esp. 216–20. Hugh’s discussion of the organization of knowledge is available in translation: *The Didascalicon of Hugh of Saint Victor: A Medieval Guide to the Arts*, trans. Jerome Taylor (New York: Columbia University Press, 1991). See also Barbara Obrist’s comments on the relationship between literal exegesis and the “real” world in her review of Gautier Dalché’s *La “Descriptio mappe mundi”* (1988), in *Cahiers de Civilisation Médiévale X<sup>e</sup>–XII<sup>e</sup> siècles* 34 (1991): 73. Barbara Obrist’s “Image et prophétie au XII<sup>e</sup> siècle: Hugues de Saint-Victor et Joachim de Flore,” *Mélanges de l’École Française de Rome: Moyen-Age Temps Modernes* 98 (1986): 35–63, esp. 39–41, contains a helpful discussion of Hugh’s use of images in aiding comprehension and contemplation.

53. Mary Carruthers discusses Hugh’s use of visual aids in the context of memory training; in her view, medieval thinkers privileged memory as key to learning and knowledge, so that book design and teaching aids were geared toward efficient memorization of large amounts of material. This is the context in which she places the attention to visual presentation of ideas that we have noted as characteristic of this period. See her *The Book of Memory: A Study of Memory in Medieval Culture* (Cambridge: Cambridge University Press, 1990), 93, 231, and 253–57. See also Patrice Sicard, *Diagrammes médiévaux et exégèse visuelle: Le Libellus de formation arche de Hugues de Saint-Victor* (Paris: Brepols, 1993), 141–54, on the idea of “visual exegesis.” For Hugh’s use of images to support his contemplative theology, see Grover A. Zinn, “Hugh of St. Victor, Isaiah’s Vision, and *De Arca Noe*,” in *The Church and the Arts*, ed. Diana Wood (Oxford: Published for the Ecclesiastical History Society by Blackwell, 1992), 99–116.

54. On Hugh’s map, see Danielle Lecoq, “La ‘Mappemonde’ du *De Arca Noe Mystica* de Hugues de Saint-Victor (1128–1129),” in *Géographie du monde*, 9–31. Sicard provides important context for Hugh’s work in *Diagrammes médiévaux*. Carruthers suggests that Hugh’s treatise described a mental picture, not one that was actually drawn; see *Craft of Thought*, 243–46, esp. 245–46, and also Kupfer, “Medieval World Maps,” 269.

55. Gautier Dalché, *La “Descriptio mappe mundi”* (1988), 41–58, for the attribution to Hugh of Saint Victor, and 101–7, for his use of the map in teaching. See also his “*Descriptio mappe mundi* de Hugues de Saint-Victor: Retractatio et additamenta,” in *L’abbaye parisienne de Saint-Victor au Moyen Age*, ed. Jean Longère (Paris: Brepols, 1991), 143–79.

56. Gautier Dalché, *La “Descriptio mappe mundi”* (1988), 110–11: “The contribution of the twelfth century, and especially of Hugh of Saint Victor, was to remove the examination of maps from exclusively monastic preoccupations, to give it primacy over the text, and thus to open the West to one of the intellectual conditions of its expansion” (pp. 126–27). For the new geographical conclusions that Hugh was able to derive from his use of the map, see pp. 113–15.

The views of the world expressed by the opponents of the new systematic interest in nature in the twelfth and thirteenth centuries can also be found expressed in maps. The world map on the floor of the cathedral of San Salvatore in Turin has been explained as a demonstration of the vanity of this earthly world—since it is quite literally trodden under foot—in the face of the hope of a future world expressed by the decorative program in the upper parts of the church.<sup>57</sup> A more complex example of the representation of the world as the object of renunciation is provided by the twelfth-century world map once in the parish church of Chalivoy-Milon. Kupfer has argued persuasively that this map can only be understood as part of the complete program of the church's decoration, which dramatized both the history of salvation and the social structure that privileged the monks (the church was a monastic parish) over the laity.<sup>58</sup> The world map was located at the west end of the church, where the lay parishioners would see it as they entered, capped, in Kupfer's reconstruction, with images of the fall of Adam and Eve and the entry of sin into the world. The map thus functioned in several coordinated ways: it was part of the overall portrayal of the historical progression from sin to salvation, expressed in the church building as movement from the west to the east; it also represented graphically the separation of the worldly life of the laity from the cloistered life of the monks, both to fortify the latter group's prestige and to remind them of its burden and its renunciations. Finally, like the many contemporary maps illustrating the commentary on the Apocalypse of Beatus of Liebana, it presented the world as essentially the theater for apostolic, pastoral action.<sup>59</sup> Both of these readings of maps in their monumental contexts reiterate the importance of the setting in determining meaning, while also alerting us to the potential range of meanings of any single artifact.

As we have already seen in the context of the small symbolic T-O maps, world maps could also serve political functions in the Middle Ages. The court of the Plantagenet kings of England in the later twelfth century provides a rich example of the interlocking roles of geography and cartography in the construction of royal power. The imperial aims of the Plantagenets, who were expanding their power in Ireland and France, coupled with the strong interest in classical and courtly literature at their court, resulted in a climate of active interest in geography and maps.<sup>60</sup> The artifacts that arose from or were influenced by this milieu range from illustrations in manuscripts of works like the "Roman d'Alexandre" (a widely distributed romance detailing the exploits of Alexander the Great, an obvious model for would-be emperors) to the description in a poem by Baudri of Bourgueil of a world map decorating the floor of the chamber of the Countess Adèle of Blois.<sup>61</sup> This map is generally thought to have been a purely literary conceit, designed to glorify the military triumphs of Adèle's family line and

to praise her broad knowledge of the cosmos and its workings, but it also demonstrates the power of the map as a symbol of rulership and knowledge and suggests the familiarity of such a symbol to the poem's audience.<sup>62</sup>

The political uses of maps seem to have been particularly highly developed in thirteenth-century England, although examples like al-Idrīsī's "Nuzhat al-mushtāq fi'khtirāq al-āfāq" (also known as the *Book of Roger*), written for Roger II of Sicily in the twelfth century, and the lost silver world map associated with it suggest that these expressions of royal power and knowledge were employed elsewhere as well.<sup>63</sup> Nor was the use of the map as a symbol of humility foreign to political purposes. A world map decorated Henry III's bedchamber in Westminster Palace as part of a program designed to promote

57. Ernst Kitzinger, "World Map and Fortune's Wheel: A Medieval Mosaic Floor in Turin," in *The Art of Byzantium and the Medieval West: Selected Studies by Ernst Kitzinger*, ed. W. Eugene Kleinbauer (Bloomington: Indiana University Press, 1976), 327–56, esp. 353–55. See also Kupfer, "Medieval World Maps," 275–76.

58. Marcia Kupfer, "The Lost *Mappamundi* at Chalivoy-Milon," *Speculum* 66 (1991): 540–71, esp. 565–71.

59. Kupfer, "Lost *Mappamundi*," 566 and 569. For a list of maps illustrating Beatus's Apocalypse commentary, see Woodward, "Medieval *Mappaemundi*," 360; note that, although Beatus is listed under the eighth century, many of the manuscripts date from the late eleventh or twelfth century. For another example of maps (here based on maps from the Beatus commentary) as church decoration, see Serafin Moralejo, "El mapa de la diáspora apostólica en San Pedro de Rocas: Notas para su interpretación y filiación en la tradición cartográfica de los 'Beatos,'" *Compostellanum: Revista de la Archidiócesis de Santiago de Compostela* 31 (1986): 315–40.

60. Nathalie Bouloux, "Les usages de la géographie à la cour des Plantagenêts dans la seconde moitié du XII<sup>e</sup> siècle," *Médiévales* 24 (1993): 131–48; see especially the world map as symbol of royal power and the idea that a king should possess geographical knowledge of the regions he ruled, pp. 144–48; on the relations of clerics to royal administration and geographical writing, see pp. 136–43. See also Robert Bartlett, *Gerald of Wales, 1146–1223* (Oxford: Clarendon, 1982). David J. Corner suggests a Welsh origin for the strong interest in topography in twelfth- and thirteenth-century English writers from Giraldus Cambrensis to Matthew Paris; see his "English Cartography in the Thirteenth Century: The Intellectual Context," *Bulletin of the Society of University Cartographers* 17 (1984): 65–73.

61. For the *Roman d'Alexandre* and other romances with geographical content, see Bouloux, "Les usages de la géographie," 137–39; Bouloux sees geography as a topic of considerable interest to the audiences of romances. See also Alan Deyermond, "Building a World: Geography and Cosmology in Castilian Literature of the Early Thirteenth Century," *Canadian Review of Comparative Literature/Revue Canadienne de Littérature Comparée* (1996): 141–59, esp. 146–53.

62. Bouloux, "Les usages de la géographie," 145, n. 53; Kupfer, "Medieval World Maps," 277; and Carruthers, *Craft of Thought*, 213–20.

63. For al-Idrīsī's role at Roger's court and his geographical works, see S. Maqbul Ahmad, "Cartography of al-Sharīf al-Idrīsī," in *HC* 2.1: 156–74, esp. 158–60. Like Henry II, Roger "wished that he should accurately know the details of his land and master them with a definite knowledge" (p. 159 and n. 26). A book on the Ebstorf map that I have not been able to consult is Jürgen Wilke, *Die Ebstorf Weltkarte* (Bielefeld: Verlag für Regionalgeschichte, 2001).

the virtues of a Christian kingship, especially charity and the controlled use of power.<sup>64</sup>

At a more local scale, a recent interpretation of the Hereford map emphasizes its role in the ecclesiastical politics of canonization, the enforcement of ecclesiastical rights against the lay aristocracy, and relations between royal and episcopal power.<sup>65</sup> According to this view, the map catered in many of its details to aristocratic lay pilgrims, joining to its political message the equally important function of providing entertainment and moral improvement: its representations of animals and monstrous races engage the popular aristocratic spirituality embodied in the bestiaries, while at the same time providing a kind of geographical entertainment familiar from contemporary romances.<sup>66</sup>

In conclusion, the surviving examples of world maps, along with other texts, images, and references to maps, bear witness to the passionate interest in the real world described by Gautier Dalché.<sup>67</sup> The variety of functions that these maps could play reflects the multifarious meanings of the world in medieval culture, as the maps served to describe, analyze, summarize, and create knowledge and perceptions about the fundamental spaces of human existence. These were works destined for both elite and somewhat more popular audiences—including pilgrims, parishioners, and consumers of romances—to whom they helped provide visual, intellectual, and imaginative access to the larger world. As we have seen, the sensitivity of recent scholarship to the specific contexts in which maps appeared and the ways in which they were used has given us new insights into the complexity and subtlety of the potential meanings of medieval world maps, although much remains to be uncovered about the perception and representation of space in this fertile period.

#### PORTOLAN CHARTS

Treatments of medieval mapmaking still occasionally imply that the portolan charts—remarkably accurate charts of the coasts of the Mediterranean and Black seas with part of the Atlantic coast of Europe—were an aberration on the medieval scene.<sup>68</sup> This view has recently become even less sustainable with the suggestion that the later thirteenth-century date most commonly proposed for their origins be pushed back by a hundred years.<sup>69</sup> Geographically accurate and intended—at least in part—for the purpose of route finding, the portolan charts reflected a different set of assumptions and expectations about the purpose of a map than did contemporary world maps: nevertheless, room must be found in our view of medieval cartography for these fascinating and problematic inventions.

Much of the history of the portolan charts belongs in the later part of this chapter, because most of the extant

examples come from the fourteenth century and later, as does the first clear evidence of their impact on other map forms.<sup>70</sup> It is worth pausing, nonetheless, to consider

Another example of royal patronage of geography is Gervase of Tilbury's "Otia imperialia" (1211), written for the German Emperor Otto IV; Gervase of Tilbury, *Otia Imperialia: Recreation for an Emperor*, ed. and trans. S. E. Banks and J. W. Binns (Oxford: Clarendon, 2002). The text includes a reference to an accompanying map; see Edson, *Time and Space*, 132. The Ebstorf map (now lost) draws in part on this text, although the relationship between the two works remains debatable. The map has been interpreted as, in part, a political document associated with the reign of Otto the Child, Duke of Brunswick, because the place-names focus heavily on his family's possessions; see Armin Wolf, "News on the Ebstorf Map: Date, Origin, Authorship," in *Géographie du monde*, 51–68, esp. 53–61.

64. A painted world map also decorated the great hall at Winchester Castle, here in company with an image of fortune's wheel, recalling, like the floor of San Salvatore in Turin, the transitoriness of earthly power; see Kupfer, "Medieval World Maps," 277–79.

65. Flint, "Hereford Map." For criticism of her identification of the map's author, see Westrem, *Hereford Map*, xxiii and n. 23. The map of Europe contained in a manuscript of works by Giraldus Cambrensis (Dublin, National Library of Ireland, MS. 700) has also been interpreted as a statement about ecclesiastical politics, here the centrality of Rome to the functioning of the English church; see Thomas O'Loughlin, "An Early Thirteenth-Century Map in Dublin: A Window into the World of Giraldus Cambrensis," *Imago Mundi* 51 (1999): 24–38, esp. 28–31.

66. On pilgrimage and the literary context of the Hereford map, see Jocelyn Wogan-Browne, "Reading the World: The Hereford *Mappa Mundi*," *Parergon* n.s. 9, no. 1 (1991): 117–35, esp. 132–35. Valerie Flint developed these ideas in a talk entitled "Maps and the Laity: The Hereford *Mappa Mundi*," at the conference Maps from the Middle Ages, University of Minnesota, November 14, 1998.

67. Gautier Dalché, "Le renouvellement," 177.

68. Scott Westrem comments that the "'familiarity' to the modern eye of maps used by navigators . . . may be deceptive, causing us to see them only as 'precursors' of the 'realistic' cartography of today, thus distracting us from some of their essential medieval qualities"; see *Hereford Map*, xxxviii n. 60. Even Campbell refers to portolan charts as "preconscious in their precision," although elsewhere he describes them as "a necessary if specialized element of medieval life"; see "Portolan Charts," 371 and 446.

69. Campbell, in "Portolan Charts," provides a reliable survey of these maps; on their origins and methods of compilation, see pp. 380–90. More recently, and on the basis of new evidence, Patrick Gautier Dalché argues for a twelfth-century date in his *Carte marine et portulan au XII<sup>e</sup> siècle: Le Liber de existencia riveriarum et forma maris nostri mediterranei (Pise, circa 1200)* (Rome: École Française de Rome, 1995), 1–37. For further discussion, see later in this chapter. Gautier Dalché also offers further evidence for the existence in the twelfth century of portolans—written sailing directions, as opposed to the maps conventionally called portolan charts in English—in his "D'une technique à une culture: Carte nautique et portulan au XII<sup>e</sup> et au XIII<sup>e</sup> siècle," in *L'uomo e il mare nella civiltà occidentale: Da Ulisse a Cristoforo Colombo* (Genoa: Società Ligure di Storia Patria, 1992), 283–312, esp. 287–97. On the complex terminology of these maps, which Gautier Dalché prefers to call *cartes marines*, see Campbell, "Portolan Charts," 375, and Gautier Dalché, *Carte marine*, x–xi.

70. The earliest surviving dated chart is from 1311; two undated charts, the so-called Carte Pisane and the Cortona chart, are often thought to be earlier, dating perhaps from the end of the thirteenth century; see Campbell, "Portolan Charts," 404. Textual references to charts

what the twelfth- and thirteenth-century evidence can tell us about the reception of the geographical knowledge represented by these charts.

The very earliest evidence that we have of the existence of both portolans and portolan charts stems, not surprisingly, from the intersection between learned culture and the practices of Mediterranean trade and seafaring. In the case of written sailing directions, the first traces appear not in local sources, but in the chronicles of northern European crusaders and pilgrims, for whom Mediterranean navigation was a foreign world and who borrowed from portolans as a helpful framework for writing about unknown coasts and seas.<sup>71</sup> In contrast, the “*Liber de existencia rive-riarum et forma maris nostri Mediterranei*,” the first known work to be based in part on what may have been a portolan chart, was an entirely Italian undertaking, but, like the works just mentioned, the product of a mixture of information and ideas from both learned and “practical” knowledge spheres. The text we have indicates that the author began by creating a map, which he later supplemented with the text in response to a demand for more historical and learned material by a member of the local clergy.<sup>72</sup>

Both of these examples give early evidence of an interdependence of learned and “practical” cultures and of the cross-fertilization of ideas from cultural communities usually taken as distinct in the Middle Ages.<sup>73</sup> This creative interaction of types of knowledge has been seen as key in Renaissance developments, while, conversely, the separation of medieval knowledge communities has been seen as a limitation on creativity and innovation.<sup>74</sup> Spheres of knowledge did in fact remain quite distinct, but these examples suggest several settings in which contact could occur: the intensely self-conscious world of the nascent Italian communes, heavily influenced by merchant culture and open to any means of expressing civic consciousness; and the Crusades, with their mass movement of northerners out of their habitual intellectual and physical territories into a strange new Mediterranean world. As far as we now know, the interdependence of map, portolan, and learned geographical text that underlies the “*Liber*” was not replicated until the late thirteenth or early fourteenth century, although new discoveries (like the “*Liber*” itself) have been frequent enough in recent years to justify a healthy skepticism about the extent of our knowledge in these areas.<sup>75</sup> Nevertheless, the examples that do exist suggest that in certain circumstances fruitful exchanges could and did occur.

#### REGIONAL MAPS

Compared with the numbers of extant world maps, relatively few maps of smaller areas—regions, cities, estates, or routes—survive from the high Middle Ages. Once again, however, a number of new examples have recently come to light, suggesting the possibility that our percep-

tion of this type of medieval cartography may yet be dramatically altered by further discoveries.<sup>76</sup> It remains true, however, that many functions accomplished in other

predate the extant examples: the earliest and most famous records the use in 1270 of a chart by the crew of a ship bound for Damietta to try to calm the fears of King Louis IX of France and his fellow crusaders during a storm. See Campbell, “Portolan Charts,” 439; Patrick Gautier Dalché, “Les savoirs géographiques en Méditerranée chrétienne (XIII<sup>e</sup> s.),” *Micrologus: Natura, Scienze e Società Medievali* 2 (1994): 75–99, esp. 83–84; and idem, “D’une technique à une culture,” 307–8, discuss some of the more problematic aspects of this episode.

71. Gautier Dalché, “D’une technique à une culture,” 287–96, esp. 296, on the novelty of the experience of the crusade for writers and participants and the emphasis on the voyage itself as a key part of the undertaking.

72. Gautier Dalché, *Carte marine*, 7–16. See the review by Tony Campbell in *Imago Mundi* 49 (1997): 184; Campbell is skeptical about Gautier Dalché’s identification of this map as a portolan chart or proto-portolan chart.

73. This evidence is corroborated by the available information on the early use and ownership of portolan charts. In addition to pilots and merchants, as we might anticipate, notaries were relatively strongly represented among owners of these charts. Patrick Gautier Dalché suggests that they used them to aid in drawing up contracts involving far-flung trading ventures that required a specific and accurate understanding of Mediterranean, Black Sea, and Atlantic coastal geography. He is also concerned to note the mixed evidence for the actual nature of shipboard usage of these charts. See his “L’usage des cartes marines aux XIV<sup>e</sup> et XV<sup>e</sup> siècles,” in *Spazi, tempi, misure e percorsi nell’Europa del basso-medioevo* (Spoleto: Centro Italiano di Studi sull’Alto Medioevo, 1996), 97–128, esp. 109 and 113–24, respectively. Compare Campbell, “Portolan Charts,” 439–44, where the author states that “the evidence that portolan charts were used on board ship is overwhelming,” but who is similarly cautious about the role of the charts in navigation (p. 439). There are also interesting connections between the role of portolan charts as markers of participation in a community of men who gained their livelihood in connection with the sea, an element of display that has something in common with the later importance of maps as prints in the more highly commercialized world of the sixteenth century. See Woodward, *Maps as Prints*, 2–5 and 75–102, and Gautier Dalché, “D’une technique à une culture,” 311.

74. For boundaries between medieval communities of knowledge, see Gautier Dalché, “Un problème d’histoire culturelle,” 12. For ideas of cross-fertilization from the Renaissance itself, see the example of Benedetto Cotrugli, who explained the desirability for merchants of learning both the liberal arts and practical disciplines in his “*Della mercatura et del mercante perfetto*” of 1458 (cited in Gautier Dalché, “L’usage des cartes marines,” 111).

75. For other examples, see the articles by Gautier Dalché mentioned in note 111, and Bouloux, *Culture*. For Gautier Dalché, the contact between portolans and portolan charts and the learned world would have occurred early and been relatively extensive; see his “L’usage des cartes marines,” 109.

76. Harvey surveys the field in his “Local and Regional Cartography,” discussing the numbers and familiarity of these maps (pp. 464–65) and the possibility of further discoveries (pp. 486–87). See also his *The History of Topographical Maps: Symbols, Pictures and Surveys* (London: Thames and Hudson, 1980), and, more recently, the helpful book by Delano-Smith and Kain, *English Maps*, 8 and 12–18, esp. 12 for increasing numbers of maps generally in the twelfth century and the first local maps of England. Von den Brincken, *Kartographische Quellen*, 42–46, offers a discussion of categories using a different terminology than that adopted here.

periods by means of a map (the description of landed possessions, for example) were most often handled in the Middle Ages through written lists and descriptions. The Domesday Book in England and countless inventories of the lands of monasteries were purely textual documents, while boundaries were typically indicated in charters by such written means as listing the names of the holders of neighboring parcels.<sup>77</sup> The few known exceptions come from England, including an early thirteenth-century sketch map of the divisions of a meadow, in which the drawing replaces a textual description of the sizes of the portions (fig. 2.2).<sup>78</sup> Somewhat more common were the maps of routes, regions, and cities that depicted graphically the relationships usually described in writing. These maps can tell us a great deal about the representation and meaning of space in medieval society.<sup>79</sup>

The principal types of regional and local maps in the Middle Ages were itinerary maps, maps of regions like England or Palestine, city plans, and, especially from the very late Middle Ages, maps of disputed lands or boundaries of properties. Most of these maps appear to have belonged to separate traditions, although the extensive corpus of maps in Matthew Paris's chronicles, combining as it does multiple map types, suggests the degree to which a graphically inclined author might be familiar with and able to deploy images from all the known categories of maps, in addition to other types of drawings and diagrams.<sup>80</sup>

Written itineraries were well known in the Middle Ages and were apparently used both as travelers' aids and for armchair travel, often for the purpose of either actual or mental pilgrimage.<sup>81</sup> Only two maps structured as itineraries survive, the more elaborate of which is the Peutinger map. A twelfth- or early thirteenth-century copy of a Late Antique original, the map has usually been studied for what it can tell us of ancient cartography or of the interest in the ancient world on the part of the fifteenth-century

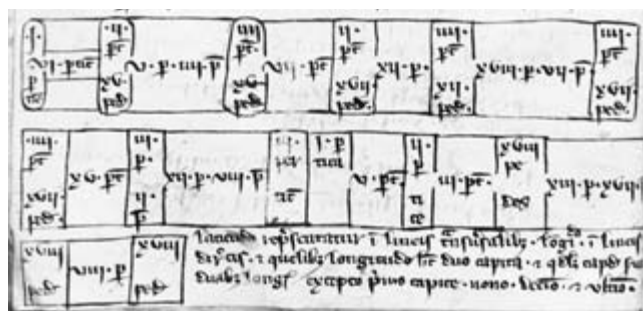


FIG. 2.2. THE DIVISIONS OF A MEADOW, BEFORE 1208. From a cartulary, this map shows the “length and breadth” of the parcels.

Size of the original: 9.1 × 17 cm. Photograph courtesy of the Trustees of Lambeth Palace Library, London (MS. Court of Arches Ff. 291, fol. 58v).

German humanists who rediscovered it. It is, however, extremely important to remember the commitment of time and resources involved in producing the medieval copy: the question then arises of what this map meant to the society that found the human and financial resources to copy it. It has been plausibly explained in the context of the strong interest in the classical world that we have already seen influencing the toponyms of later medieval world maps; however, more research should be done to elucidate the importance and the influence of this map.<sup>82</sup>

77. On notaries' representation of space, see Coste, “Description et délimitation de l'espace rural,” esp. 198–200; Monique Bourin, “La géographie locale du notaire languedocien (X<sup>e</sup>–XIII<sup>e</sup> siècle),” in *Espace vécu, mesuré, imaginé: Numéro en l'honneur de Christiane Deluz*, ed. Christine Bousquet-Labouërie (Paris: Librairie Honore Champion, 1997), 33–42; and idem, “Delimitation des parcelles.” Robert Brentano's discussions of thirteenth- and fourteenth-century Italian disputes and wills are less specific about boundary clauses but extremely helpful for their evocation of the ways in which lands were discussed, experienced, and imagined, as are his important chapters on the changing definitions of diocesan boundaries; see *New World*, 64–142 and 276–78. On the geographical organization of the Carolingian polyphtics, see Gautier Dalché, *La “Descriptio mappe mundi”* (1988), 123. For a discussion of English cartularies, in which the documents were often organized topographically and, on one occasion, with the indication that they belonged to the northern or eastern part of Gloucestershire, see David Walker, “The Organization of Material in Medieval Cartularies,” in *The Study of Medieval Records: Essays in Honor of Kathleen Major*, ed. D. A. Bullough and R. L. Storey (Oxford: Clarendon, 1971), 132–50, esp. 140 and 142.

78. Reproduced and discussed, with other early English examples, in Delano-Smith and Kain, *English Maps*, 13–14 and fig. 2.6.

79. See the bibliography in note 12.

80. Harvey notes the connection between Paris's “general interest in diagrammatic representation” and the exuberant creativity of his map production; this connection between the impulse to draw maps and the solidly established tradition of drawing diagrams to explain relationships among concepts deserves more study. See Harvey, “Matthew Paris's Maps,” quotation on 121. On diagrams, see later in this chapter.

81. Harvey, “Local and Regional Cartography,” 495–98, esp. 495, and the evidence for Matthew Paris's use of a written itinerary for his draft map of the Holy Land (pp. 495–96). There is a helpful brief discussion of the practicalities of medieval wayfinding in Delano-Smith and Kain, *English Maps*, 142–45, which downplays the use of any planning aid. For an example of a pilgrims' guide, see William Melczar, trans., *The Pilgrims' Guide to Santiago de Compostela* (New York: Italica Press, 1993). For the crusade itineraries of Richard I and Philip II in Roger of Howden's chronicle, see Bouloux, “Usages de la géographie,” 140–43, with comments on the relationship between the itineraries and English crusading strategy (p. 143), and Gautier Dalché, “D'une technique à une culture,” 287–97, for their relationship with portolans.

82. For the ancient map, see O. A. W. Dilke, “Itineraries and Geographical Maps in the Early and Late Roman Empires,” in *HC 1*: 234–57, esp. 238–42. Among the many facsimiles, see Ekkehard Weber, ed., *Tabula Peutingeriana: Codex Vindobonensis 324* (Graz: Akademische Druck- und Verlagsanstalt, 1976), with a helpful introduction. Pascal Arnaud calls for attention to the map as a medieval artifact in his “Images et représentations dans la cartographie du bas Moyen Âge,” in *Spazi, tempi, misure e percorsi nell'Europa del basso-medioevo* (Spoleto: Centro Italiano di Studi sull'Alto Medioevo,

The other significant extant example of an itinerary map is the one that appears in various redactions in manuscripts of Paris's "Chronica majora."<sup>83</sup> The map shows the route from England to Apulia, marking each day's journey and prominent topographic features like mountains and rivers. Suited to its location in a chronicle, the map serves a historical purpose in demonstrating the route of a well-known contemporary diplomatic expedition, Richard of Cornwall's expedition to Sicily in 1253 as the claimant to the crown, although the map contains information drawn from multiple journeys and routes.<sup>84</sup>

In addition to these surviving examples of itinerary maps, the significance of the itinerary—especially the written or narrated itinerary—is demonstrated by the frequency with which itineraries served as at least one source for other types of maps. For example, some of the information on the Hereford world map was based on an itinerary that may show a route familiar to English traders in France.<sup>85</sup> Even more substantial is the role played by itineraries in the creation of regional maps. These interconnections are especially striking in the rich cartographic production of Matthew Paris, although, as we will see when we turn to earlier maps of Britain, his work is far from unique in this respect.

Paris created a number of regional maps of England and Palestine, as well as two historical maps representing features of early Britain. In at least three of these maps, he drew heavily on itineraries and routes. Of the historical maps, one is a sketch showing the location of four pre-Roman roads in Britain. The map of the seven Anglo-Saxon kingdoms, on the other hand, demonstrates how closely maps could be linked with another important medieval genre, the diagram (fig. 2.3). This map is designed as a circular diagram (*rota*) laid out with petal-shaped divisions, a highly schematic presentation common in school texts and often intended to aid in memorization; however, the kingdoms fall in roughly the proper geographical locations, justifying our use of the term "map," even though, as Paris noted, the oblong shape of the island has been compressed into a circle to fit within the conventions of the diagrammatic tradition.<sup>86</sup>

It is possible to describe the sources and creation of Paris's maps of England in considerable detail, an approach very welcome in the study of medieval cartography, thanks to a study by Harvey.<sup>87</sup> According to his reconstruction, Paris began by adopting the outline of the island from a world map, probably of Roman origin. He then drew on an itinerary from Dover to the Scottish border to develop his representation of the interior, filling in extra place-names around this core. His subsequent revisions of the map reflect his discoveries of new sources, providing the river network, for example, and improvements in the coastline. Collectively, these maps demon-

1996), 129–53, esp. 129–30. Harvey notes the map's medieval incarnation only briefly in "Local and Regional Cartography," 495. For the antiquarian interests of the copyists, see Anna-Dorothee von den Brincken, "Mappe del cielo e della terra: L'orientamento nel basso medioevo," also in *Spazi, tempi, misure e percorsi*, 81–96, esp. 85–86.

83. On the physical form of these maps with the suggestion that Paris's map was originally designed as a freestanding folding map like the Peutinger map rather than as an illustration for the chronicle, see Suzanne Lewis, *The Art of Matthew Paris in the Chronica Majora* (Berkeley: University of California Press in collaboration with Corpus Christi College, Cambridge, 1987), 326–32.

84. Delano-Smith and Kain explain the itinerary maps as compilations of everything that Matthew Paris knew about the well-traveled routes from England to Sicily in *English Maps*, 150–52. On the uses of itinerary maps, compare their comments on the limited utility of John Ogilby's strip-maps in the seventeenth century and on his possible debt to Matthew Paris in originating this type of map, pp. 168–70. Edson sees Paris's itinerary as a compilation of travelers' reports; unfortunately, although she presents his work in a section on maps in historical works, she does not explore the ways in which these maps relate to and enhance the meaning of the Chronicle; *Time and Space*, 118–25, travelers' reports on 122. See also Harvey, "Local and Regional Cartography," 495–96. On the larger graphic context of Paris's work, see Lewis, *Art of Matthew Paris*, esp. 321–76 on his cartography and 323–64 on the itinerary maps with good black and white reproductions (figs. 204–12). Lewis discusses the evidence for associating this map with Richard of Cornwall and the plurality of routes through northern Italy (suggesting a broader geographical purpose for the map than simply recording one expedition), 323–24 and 340–42, respectively. For the geographical detail of the map, see for example 338. On Matthew Paris more generally, the standard treatment is Richard Vaughan, *Matthew Paris* (Cambridge: Cambridge University Press, 1958).

85. For example, the Hereford map incorporates an itinerary through France and possibly one in Germany. Harvey, *Mapa Mundi*, 50–53, reporting the work of G. R. Crone, "New Light on the Hereford Map," *Geographical Journal* 131 (1965): 447–62, esp. 451–56. On Matthew Paris's use of an itinerary in creating his maps of England, see Delano-Smith and Kain, *English Maps*, 45–46. Paris's map of Palestine draws on the kind of information about the length of the journey from city to city that would normally be found in an itinerary as an indication of scale for the map. See Edson, *Time and Space*, 121, and Harvey, "Local and Regional Cartography," 495–98, in the context of a larger discussion of the relationship between itineraries and the idea of a consistent scale.

86. Diagrams were heavily used in medieval teaching to show analytical relationships and as an aid to memorization. The best introductions to the variety and use of these images are Evans, "Geometry of the Mind," 32–55, and Bober, "Medieval School-Book." Carruthers has worked with these images in her study of memory and the patterns of medieval thought, especially in *Book of Memory*, 248–57; see also Madeline H. Caviness, "Images of Divine Order and the Third Mode of Seeing," *Gesta* 22 (1983): 99–120. A beautiful example of a late medieval psalter illustrated with many such diagrams is Sandler, *Psalter of Robert de Lisle*. A good starting point in the large literature on scientific diagrams is Obrist, "Wind Diagrams," and her bibliography. Murdoch, in *Antiquity and the Middle Ages*, provides a helpful range of illustrations. On Matthew Paris's diagrammatic maps, see Delano-Smith and Kain, *English Maps*, 16–17 and figs. 2.9 and 2.10, and Edson, *Time and Space*, 123–25 and fig. 6.8.

87. Harvey, "Matthew Paris's Maps," 111–21; Harvey's findings are summarized in Delano-Smith and Kain, *English Maps*, 45–46 and figs. 2.27–2.33, which allow for a convenient comparison of Matthew Paris's maps with other twelfth- and thirteenth-century maps.

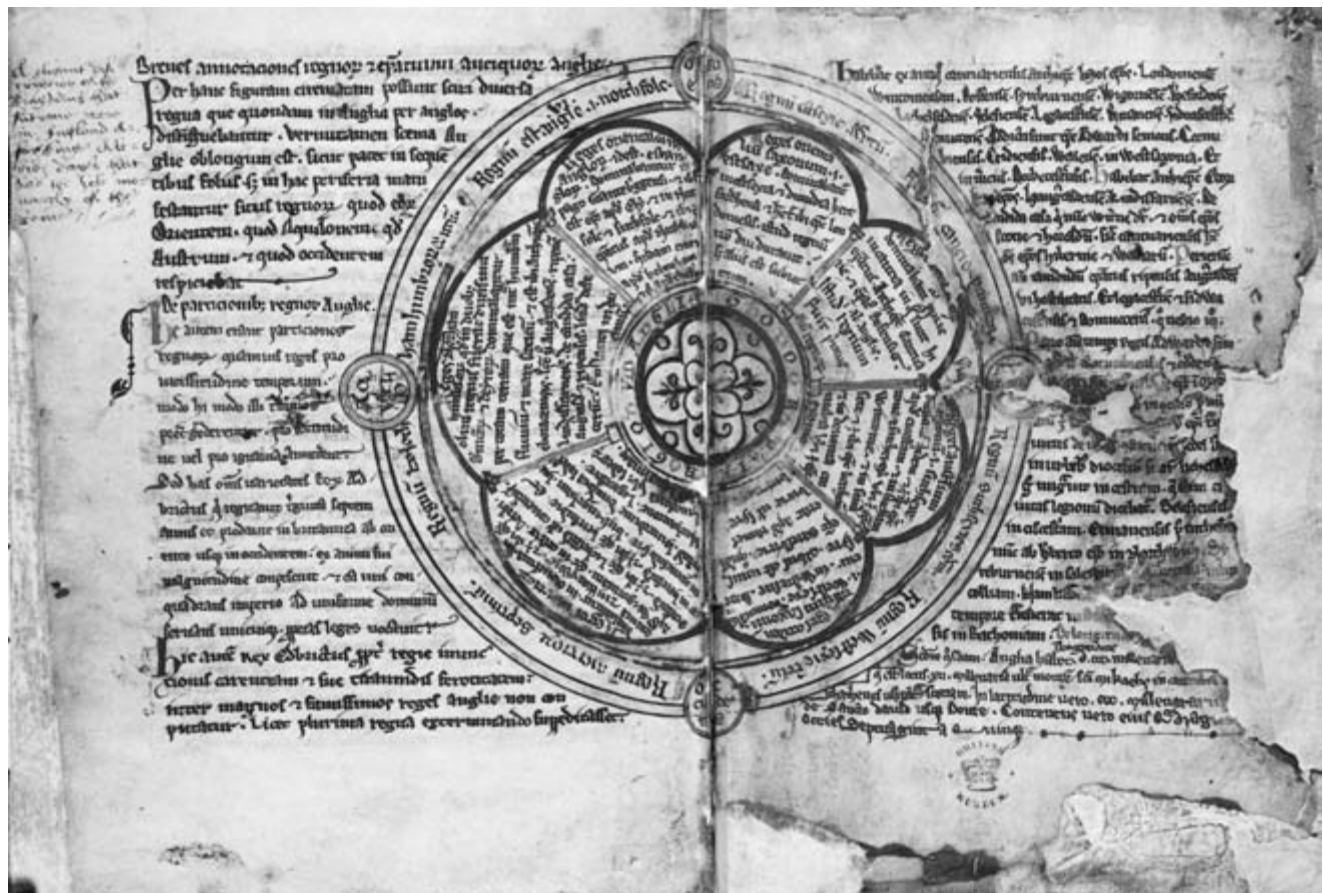


FIG. 2.3. DIAGRAMMATIC MAP OF THE ANGLO-SAXON KINGDOMS OF BRITAIN BY MATTHEW PARIS. The text accompanying the map indicates that it is meant to give the names of the kingdoms and their location in terms of the car-

dinal points, but that it does not respect the oblong shape of Britain.

Diameter of the map: 12.5 cm. Photograph courtesy of the BL (Cotton MS. Julius D.VII., fols. 49v–50r).

strate how powerful a process the compilation of geographical information from various sources could be and how central a role itineraries and world maps could play in the elaboration of regional maps.

Although Britain was shown on a few world maps in a surprising degree of detail, it was more usually highly simplified owing to its awkward position at the margins of Europe in the narrow encircling ocean typical of the *map-paemundi*.<sup>88</sup> The first extant maps to present Britain either alone or as the main focus of attention demonstrate a concern to describe the relationship of the British Isles to one another and to the continent more accurately than these simplified representations allowed. Works on the topography and Norman conquest of Ireland by Giraldus Cambrensis form the context for a schematic map showing the relative positions of Britain, Ireland, and the Orkneys.<sup>89</sup> Another manuscript of his works on Ireland contains a map in which (reading from the top down) Rome, France, Flanders, Britain, Wales, and Ireland are aligned vertically down the page as in an itinerary (fig. 2.4). O'Loughlin has argued that this schematization of the ge-

ographical forms is meant to emphasize the ecclesiastical connections between Rome and the British Isles, simultaneously reflecting the actual routes traveled by English ecclesiastics and demonstrating graphically that the seemingly marginal position of the islands was illusory compared with the closeness of its contacts with the center of Latin Christendom.<sup>90</sup>

88. Delano-Smith and Kain, *English Maps*, 40–48, esp. 40.

89. Giraldus did not necessarily play a role in the creation of this map, which may well have been added by the scribe who copied the manuscript ca. 1200; see Delano-Smith and Kain, *English Maps*, 15 and fig. 2.7. On Giraldus and his historical works, see Bartlett, *Gerald of Wales*; for the cartographic thought of the twelfth-century English court, see note 60.

90. O'Loughlin, "Early Thirteenth-Century Map," 28–31, and Delano-Smith and Kain, *English Maps*, 15–16. O'Loughlin suggests that the map's author was Giraldus himself or at least someone closely associated with him (pp. 32–33); for his highly suggestive comments on the influence of both itineraries and world maps on the form of this regional map, see pp. 29–32. The argument that the alignment on the map of Rome and the British Isles signified the close ecclesiastical connections between the two places is convincing. The author's further



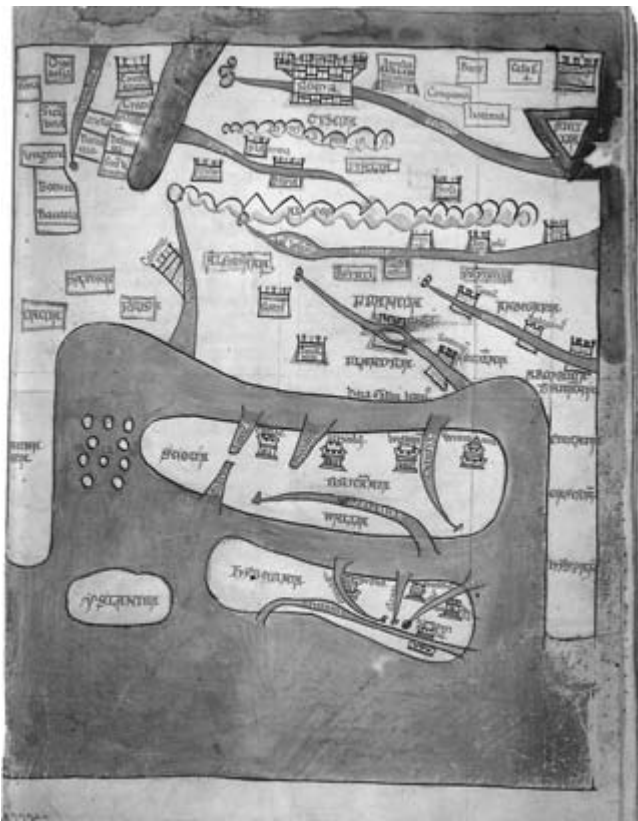


FIG. 2.4. MAP OF EUROPE. The map is located in a manuscript from ca. 1200 of Giraldus Cambrensis's works on the topography of Ireland. It aligns Ireland with Rome. Size of the original: ca. 21.5 × 17.1 cm. Photograph courtesy of the National Library of Ireland, Dublin (MS. 700, fol. 48r).

Other maps of selected regions include Lambert of Saint-Omer's map of Europe (early twelfth century), which pays special attention to Flanders; Guido of Pisa's map of Italy; Matthew Paris's "world map," which focuses on Europe almost exclusively and places Italy at center stage (thirteenth century); and the so-called "Jerome" map of Asia. The latter map, which appears in a twelfth-century French manuscript of Saint Jerome's works, may have been based on an ancient model, while the two maps of Europe may either likewise have ancient roots or have been developed as details of world maps.<sup>91</sup>

Aside from Britain, Palestine was the region most frequently represented during the twelfth and thirteenth centuries, although the maps fall into distinct categories. The previously mentioned twelfth-century map of Asia in Saint Jerome's "De situ et nominibus locorum hebraicorum liber" shares a folio with a map of Palestine that shows the topography and toponymy of the Bible.<sup>92</sup> A related concern for the knowledge of Holy Land topography led Richard of Saint Victor, a twelfth-century exegete, to include in his commentary on Ezekiel a map of Canaan that shows the division of the land among the

tribes of Israel (fig. 2.5). Richard used images in exegesis specifically because he, like Hugh of Saint Victor before him, believed that the higher levels of spiritual interpretation needed to rest on a firm literal and historical foundation, which his plans and maps helped provide. This concern for the visual understanding of complex textual descriptions also led Richard to include a number of ground plans of the temple described in Ezekiel 40–48.<sup>93</sup> Richard may well have drawn his inspiration for his map of Canaan from the schematic maps of Israel that appeared in the commentaries of Solomon ben Isaac (Rashi), one of the most influential European Jewish exegetes (fig. 2.6). These maps are very similar to Richard's (they may indeed be the source of Richard's), but they were designed to show the limits of the Holy Land, within which, in Jewish thought, God's commandments were binding.<sup>94</sup>

Matthew Paris's maps of Palestine, in contrast to the maps discussed previously, are best described as maps not so much of the Holy Land as of the Crusader kingdom, especially since a plan of the city of Acre, the principal port of the kingdom, dominates the coastline.<sup>95</sup> In many ways they continue the itinerary from England to Sicily

comment that the map would have facilitated appeals to Rome by making the distances seem insignificant surely posits too naïve an understanding of European geography among churchmen who had extensive anecdotal experience of such trips; see pp. 28–31.

91. Harvey, *Medieval Maps*, 71. For the "affinity" between world maps and regional maps and itineraries, see Woodward, "Medieval *Mappaemundi*," 292. On Lambert's local interests, see Derolez, *Lambertus qui librum fecit*, 472, and Lecoq, "La mappemonde du *Liber floridus*," 32. On the maps associated with Saint Jerome's "Liber locorum" in London (BL, Add. MS. 10049), and for Guido of Pisa, see Edson, *Time and Space*, 26–30, fig. 2.3, and 117–18. For the mapping of Africa, see Francesc Relaño, *The Shaping of Africa: Cosmographic Discourse and Cartographic Science in Late Medieval and Early Modern Europe* (Aldershot: Ashgate, 2002).

92. Edson, *Time and Space*, 27–30; Edson comments that, although the map has been thought of as a straightforward close copy of an ancient original, the coincidence of this map's copying (and, one might add, that of Jerome's text as well) with the Crusades deserves more study (p. 30).

93. On the plans, see Walter Cahn, "Architecture and Exegesis: Richard of St.-Victor's Ezekiel Commentary and Its Illustrations," *Art Bulletin* 76 (1994): 53–68, esp. 58–59. A version of the map of Canaan in an early thirteenth-century English manuscript is reproduced and briefly discussed in Delano-Smith and Kain, *English Maps*, 18 and fig. 2.12. On Richard as an exegete, see Cahn, "Architecture," 55–56, and Smalley, *Study of the Bible*, 106–11.

94. Catherine Delano-Smith and Mayer I. Gruber, "Rashi's Legacy: Maps of the Holy Land," *Map Collector* 59 (1992): 30–35, esp. 30–32. More images of the maps from Rashi's commentaries may be found in E. Wajntraub and G. Wajntraub, *Hebrew Maps of the Holy Land* (Vienna: Brüder Hollinek, 1992), especially the two thirteenth-century examples, 2–5 (W.1 and W.2). See Cahn, "Architecture," 67–68, for the evidence that Richard may have borrowed his map from a commentary by Rashi.

95. Lewis, *Art of Matthew Paris*, 357.

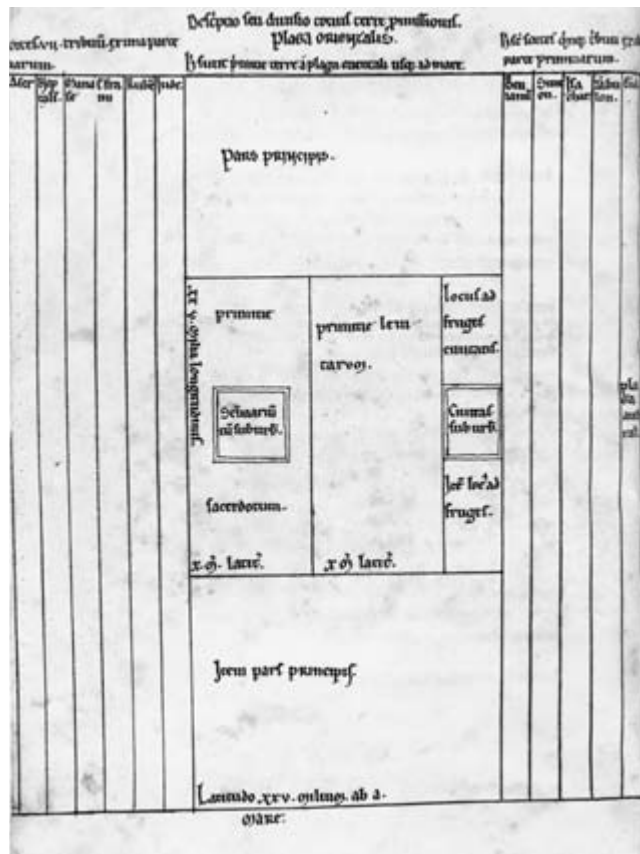


FIG. 2.5. DIAGRAM OF THE DIVISION OF THE PROMISED LAND FROM RICHARD OF SAINT VICTOR, "IN EZECHIELEM." The drawing illustrates Ezekiel 45, in which the land of Canaan is divided among the tribes of the Israelites; the center portion is the land reserved for the Levites and the Temple. The Mediterranean is at the bottom of the drawing, east at the top. Photograph courtesy of the Bodleian Library, University of Oxford (Bodley MS. 494, fol. 166v).

(Otranto in Apulia was a common point of embarkation for Acre). Harvey has suggested that the maps of England and the Holy Land might be seen as enlargements of the end points of the itinerary.<sup>96</sup> Paris's goal in creating the maps seems to have been to provide a "visualization of all the important political and military sites mentioned in his chronicles of the Crusades."<sup>97</sup>

The city plans from the twelfth and thirteenth centuries generally showed famous monuments in elevation within a schematized, usually circular, plan of the city's walls.<sup>98</sup> Most common were plans of Jerusalem: the popularity of the so-called *situs* maps provides striking testimony of the impact of the crusades on the Latin Christian imagination (fig. 2.7).<sup>99</sup> Ancient Rome, however, is also represented by one bird's-eye view from the twelfth century, showing seven monuments and topographic features with a highly stylized ring of walls. The main exceptions to this pattern are, again, the maps of Matthew Paris, which present a much less idealized image of crusader Acre, and a plan of



FIG. 2.6. MAP OF CANAAN FROM A COMMENTARY ON THE PENTATEUCH BY SOLOMON BEN ISAAC (RASHI), CA. 1233. This map shows the Exodus and the boundaries of the land of Canaan. Photograph courtesy of the Bayerische Staatsbibliothek, Munich (Cod. Heb. 5, fol. 140).

Venice. The latter map exists only in fourteenth-century copies in the works of Paolino Minorita, but these copies are generally agreed to derive from an early twelfth-century original. The plan is remarkable for its accuracy and for the portrayal of the principal waterways; given that Venice was not founded until the seventh century, this is one case in which Roman origins can be ruled out.<sup>100</sup> Finally, drawings in plan of the heavenly Jerusalem appeared in a number of contexts, especially the Apocalypse commentaries by Beatus. These images give us insights into the ideal vision of a city and, like the maps of Canaan already mentioned, provided a visual referent for the reader of the Apocalypse.<sup>101</sup>

96. Harvey, "Matthew Paris's Maps," 121; Lewis, in *Art of Matthew Paris*, 325–26, sees a close connection between the itinerary maps and the map of Palestine, to the point of noting that the itinerary "should be more accurately regarded as an itinerary from London to Acre, meant to serve as a political sketch or diagram encompassing most of the known world within Matthew's purview ca. 1250–1255" (p. 326).

97. Lewis, *Art of Matthew Paris*, 326.

98. On city plans, see Harvey, "Local and Regional Cartography," 473–78, and Pascal Arnaud, "Les villes des cartographes: vignettes urbaines et réseaux urbains dans les mappemondes de l'occident médiéval," *Mélanges de l'École Française de Rome: Moyen Âge Temps Modernes* 96 (1984): 537–602.

99. Von den Brincken, *Kartographische Quellen*, 45–46, and Arnaud, "Les villes des cartographes," 561–72. See also the reproduction and commentary on one such plan in Kenneth Nebenzahl, *Maps of the Holy Land: Images of Terra Sancta through Two Millennia* (New York: Abbeville Press, 1986), 32.

100. Harvey, "Local and Regional Cartography," 478 and n. 50.

101. Delano-Smith and Kain, *English Maps*, 11; the authors note the diverse ways in which the illuminators of these manuscripts represented a city, ranging from plan to elevation to a drawing of a church.



FIG. 2.7. PLAN OF JERUSALEM, 1140s. The crusading context is emphasized by an indication of the place where the crusaders entered the city. The plan indicates the major buildings, streets, and gates; the shape of the walls is more accurate than on later plans, where an idealized circular form was preferred. Photograph courtesy of the Médiathèque Municipale, Cambrai (MS. 466, fol. 1r).

The last category of local maps from this period comprises the very few sketches of water systems and smallish tracts of land, which would become considerably more widespread in the fourteenth and fifteenth centuries. From the twelfth and thirteenth centuries there are two extant plans of water systems and two sketch maps of lands and their boundaries. All of these examples are English, and most show clearly how closely linked early topographical mapping was with the textual diagrams that helped articulate relationships among concepts.<sup>102</sup>

The least diagrammatic is the mid-twelfth-century plan of the monastic complex at Canterbury cathedral. The artist showed the buildings in elevation but drew the course of the underground water system in plan. Associated with the large plan is a smaller diagram showing the route of the water from springs located well beyond the monastery. The purpose of these maps is not entirely clear, but they were probably intended to glorify the reign of the

prior under whom the work was carried out by offering what has been termed “a spectacle of his construction programme.”<sup>103</sup>

A second water system, for Waltham Abbey in Hertfordshire, was carefully recorded in the abbey’s cartulary in multiple ways: a narrative of the work undertaken, a description of the water system, the accompanying diagram, and a collection of the charters that granted permission for the pipes to pass underground through various owners’ property. The author of the written description of the system referred to the plan, recalling in particular its importance for keeping alive the knowledge of the springs and the underground pipes.<sup>104</sup> The drawing closely resembles logic and other diagrams: Harvey speculates that the idea of using a philosophical tool to describe a water system may owe something to Matthew Paris’s influence at the nearby abbey of Saint Albans.<sup>105</sup>

The connection between the earliest examples of practical mapping and cartularies—the record books of monasteries and other institutions—seems an important and natural one.<sup>106</sup> Cartularies, like these maps, were devoted to keeping records about space, usually the boundaries of parcels of lands, but also including, as we have seen in the case of the map from Waltham Abbey, the memory of a complex and buried system of water pipes. We have already noted the early map showing the divisions of a meadow, located again in a cartulary, where the drawing replaces a textual description of the boundaries.

The final example of a local map from before the fourteenth century is the plan of Wildmore Fen from the psalter of Kirkstead Abbey. Less specifically focused on rights than a monastery’s cartularies, psalters seem nonetheless to have been common places to record information important to the house that owned them, thus the

102. Harvey, “Local and Regional Cartography,” 470–71, on connections with diagrams. The earliest extant map from the Low Countries dates from 1307 and shows a similar emphasis on organizing text to reflect the spatial situation being described (p. 470 and fig. 20.6). Compare the Rashi maps of the Holy Land, which similarly deploy text geographically to express routes and relationships among places. See Delano-Smith and Gruber, “Rashi’s Legacy,” 30–32.

103. William Urry, “Canterbury, Kent, circa 1153 x 1161,” in *LMP*, 43–58, quotation on 50, and Harvey, “Local and Regional Cartography,” 467–69. See also the recent study of the psalter into which these maps were inserted: Margaret Gibson, T. A. Heslop, and Richard W. Pfaff, eds., *The Eadwine Psalter: Text, Image, and Monastic Culture in Twelfth-Century Canterbury* (London: Modern Humanities Research Association, 1992), including a detailed discussion of the archaeology of the water system by Francis Woodman, “The Waterworks Drawings of the Eadwine Psalter,” 168–77.

104. P. D. A. Harvey, “Wormley, Hertfordshire, 1220 x 1230,” in *LMP*, 59–70, esp. 64. Harvey publishes the narration of the work and the description of the water system (pp. 65–70).

105. Harvey, “Local and Regional Cartography,” 470 caption to fig. 20.5.

106. On maps designed by “thinkers” and “doers” and the “practical use” of maps, see Delano-Smith and Kain, *English Maps*, 2.

inclusion of the plans of Canterbury's water system in the Eadwine Psalter.<sup>107</sup> Like the map of the water system at Waltham Abbey, the Wildmore Fen map provides both a narrative of a dispute over grazing rights and the map to accompany it. In a different style than the former, the Wildmore Fen map shows an equally strong affinity with textual diagrams and, indeed, with such diagrammatic maps as the Rashi maps of the Holy Land.<sup>108</sup>

In conclusion, few local maps have been preserved from (and probably few existed in) the twelfth and thirteenth centuries, when textual and verbal descriptions of lands and boundaries were the norm. Those images that we do have suggest strongly that they grew out of the same effort to make complex texts easier to grasp and memorize that generated the lively tradition of textual diagrams in philosophical, theological, and scientific works. More specifically, these early maps deployed many of the same graphic techniques and conventions as the diagrams. The location of many of these maps in cartularies and psalters indicates their status as records of important projects and settlements that influenced the well-being of the recording institution and that might call for attention from successive generations to preserve and protect.

Of regional mapping more generally it is fair to say that, although these smaller-scale maps may have been relatively few in number and confined to separate traditions, there were enough available to inspire an unusually graphically minded person like Paris to compile an impressive array of map types in his chronicles. It is also clear that quite accurate plans could be created (as in the case of the plan of Venice), but that most maps were made to aid in understanding, not primarily to represent space in a geometrically correct way. As Delano-Smith and Gruber point out, "a diagram is the most appropriate style for any map used in explanation," a dictum with which medieval cartographers would have agreed wholeheartedly.<sup>109</sup>

## THE FOURTEENTH CENTURY

The fourteenth century witnessed several profoundly important developments in expectations about the content of maps, in the uses of maps and other representations of territory in administrative settings, and in broader attitudes toward space and its representation. Many of these changes are first apparent in Italy, but there are signs of their impact on other parts of Europe as well. In some cases the changes lie primarily in the number and increasingly widespread use of certain map types, like local maps, which began in this period to be made in increasingly large numbers and in some other parts of Europe outside England. Other developments have been traced in users' attitudes toward their maps, especially concerning the authority of geographical information. Although tidy

chronological divisions are obviously artificial, there were enough changes and developments in European cartography in the fourteenth century to make it worthwhile to give this period special attention.

### TRANSITIONAL MAPS

Of these developments, the best known to modern scholarship, although still too little studied, were the hybrid map forms that combined the representation of the Mediterranean coastlines derived from portolan charts with the image of the world as a whole of the *mappaemundi*. These transitional maps are important evidence of the process of change in the geographical worldview.<sup>110</sup> Clearly a map was still expected to portray the overall structure of the known world, while the adoption of the image of the Mediterranean and Black seas from the portolan charts shows that the makers of these maps had an appreciation for the spatial accuracy offered by these newer cartographic forms. These images further suggest that the two map forms were in no way considered incompatible. Rather, in the same way that the various types of world map were understood as aspects of a larger whole, portolan charts and world maps were seen as coordinating views of the same reality.<sup>111</sup>

Examples of transitional maps stemming from the Mediterranean ambit, or by mapmakers familiar with portolan charts, adopt the Mediterranean and Black sea outlines into larger world map frameworks without apparent hesitation. An exception to this easy cohabitation of images is the fragmentary Aslake world map (fig. 2.8). This map was closely related to the thirteenth-century English family of world maps, and especially to the

107. See Urry, "Canterbury, Kent," 48–49, on the severe cropping that the maps underwent in being placed in the psalter.

108. H. E. Hallam, "Wildmore Fen, Lincolnshire, 1224 x 1249," in *LMP*, 71–81, with the text describing the dispute on 79–81.

109. Delano-Smith and Gruber, "Rashi's Legacy," 32.

110. For the terminology and a discussion of the importance of these maps, see Woodward, "Medieval *Mappaemundi*," 296–99. See also Gautier Dalché's comments on the power of the world map to incorporate portolan charts in his "Un problème d'histoire culturelle," 14; and Arnaud, "Images et représentations," 148, on the spread of transitional maps.

111. Patrick Gautier Dalché argues that Marino Sanudo, who appended a large collection of maps (including a transitional world map and maps based on portolan charts) to his plea for a new crusade, did not distinguish among the various map types, treating them all as equally adapted to showing the reader the places and strategic relationships that he wished to discuss, in his "Remarques sur les défauts supposés, et sur l'efficace certaine de l'image du monde au XIV<sup>e</sup> siècle," in *La géographie au Moyen Âge: Espaces pensés, espaces vécus, espaces rêvés* (Paris: Société de Langue et de Littérature Médiévale d'Oc et d'Oil, 1998), 43–55. On Marino Sanudo, see note 115 in this chapter and Antony Leopold, *How to Recover the Holy Land: The Crusade Proposals of the Late Thirteenth and Early Fourteenth Centuries* (Aldershot: Ashgate, 2000).

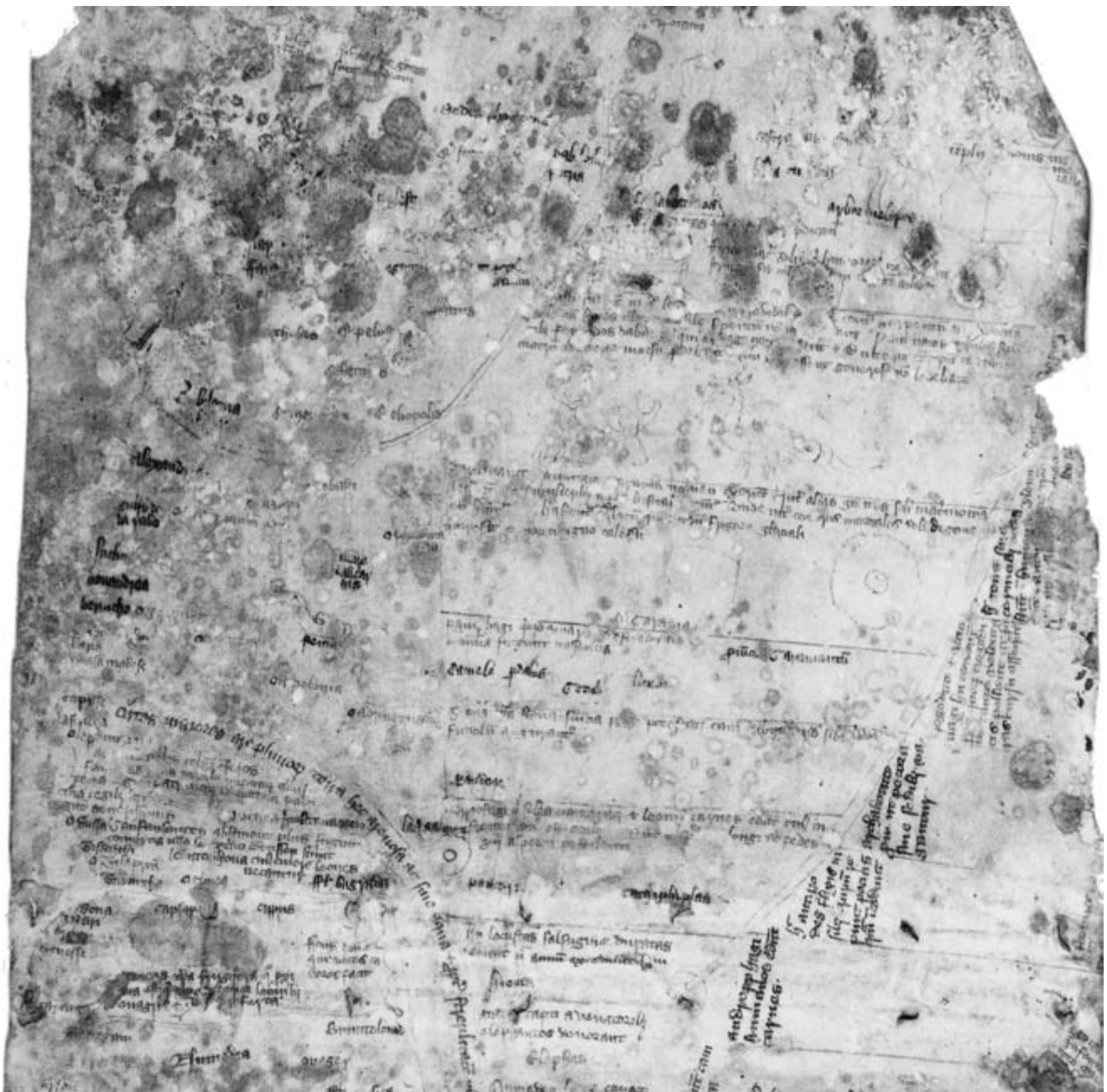


FIG. 2.8. DETAIL OF THE ASLAKE WORLD MAP, FOURTEENTH CENTURY. The map belongs to the family of English world maps, but it also includes place-names, shown

Psalter map.<sup>112</sup> The mapmaker must, however, have used a portolan chart as a model for the surviving section of the Mediterranean coast, because the place-names, along with their positioning at right angles to the coast, replicate quite exactly those on surviving portolan charts. Instead of adopting the layout of the Mediterranean fully in his own map, the English artist (who was probably less familiar with portolan charts than his Italian and Catalan contemporaries) has reduced and reshaped the new in-

formation to fit his world map, in an attempt to “harmonise as much of the new information as possible with the traditional world view.”<sup>113</sup>

here, drawn from the portolan charts of the Mediterranean. Size of the detail: ca. 22.6 × 22.6 cm. Photograph courtesy of the BL (Add. MS. 63841 A).

112. Peter Barber, “Old Encounters New: The Aslake World Map,” in *Géographie du monde*, 69–88, esp. 76–82.

113. Barber, “Old Encounters New,” 84–88, esp. 87. See Gautier Dalché, “Remarques,” 44–45, for a trenchant reminder of the limited utility of phrases like “the traditional world view,” however necessary they may be as linguistic shorthand.

Both the examples of the smooth incorporation of the portolan chart with the world map and its more tentative acceptance in the Aslake world map indicate that, in spite of regional limitations of access to these map forms, mapmakers were eager to adapt new cartographic information to their own purposes when it came their way. The readiness of even a hesitant northern mapmaker to adopt a radically new depiction of space suggests that, in the fourteenth century, the idea was becoming fairly widely accepted that world maps could and should contain at least some detailed topographic information in addition to the historical and toponymic information presented by earlier world maps.

#### CHANGES IN LOCAL AND REGIONAL MAPPING

A second major area of innovation in the fourteenth century, at least in certain parts of Europe, was in local mapping. These changes range from experimentation with map forms to the increasing use of maps in governmental and legal contexts. Although England and the Low Countries in particular participated in these developments, northern Italy was the most fertile seedbed for such experimentation.

As we saw in the case of Matthew Paris, one individual's works can sometimes serve as an index of the range of cartographic material available at a given place and time. The works of two northern Italian authors can fulfill this role, illustrating the richness of the cartographic record in that region in the first decades of the fourteenth century. Paolino Minorita, a historian, and Opicino de Canistris, a religious writer, both compiled impressive collections of maps and related artifacts, which they deployed in their works with considerable sophistication. Neither was a professional cartographer (at a time and place in which the profession was beginning to develop); each was, however, aware of the power of maps to convey unique information and to add to the explanatory power of written works.<sup>114</sup>

Paolino Minorita's historical works contain a number of maps and plans made by the workshop of the Venetian chartmaker Pietro Vesconte, many of which appear both in Paolino's chronicles and in the crusade proposals of his contemporary, Marino Sanudo.<sup>115</sup> In addition to this shared group of maps, however, Paolino's works include other cartographic works of differing origins and styles. They thus provide us with a sense of the range of models available and of the author's principles of selection that led him beyond a single coherent group of maps to include others that served different purposes. Paolino was also the author of a much-studied discussion of the necessary role of geography in explicating history.<sup>116</sup>

The maps stemming from the Vesconte workshop include one of the earliest surviving transitional world

maps, maps of Palestine and of the eastern Mediterranean, and plans of Antioch, Acre, and Jerusalem.<sup>117</sup> The reasons why the interests of the crusading propagandist and the historian would overlap in the Holy Land are clear and recall the cartography of Matthew Paris, much of which was motivated by English crusading activities and contacts with the crusader kingdom of Jerusalem.<sup>118</sup> In general, the regional maps are based on the coastal outlines provided by the portolan charts, with extra details added of the inland areas.<sup>119</sup>

Paolino's other major area of cartographic interest—for which he provided maps drawn from sources other than the Vesconte workshop—was Italy. We have already noted the plan of Venice, which may have been based on a twelfth-century model.<sup>120</sup> There is also a full-page plan of Rome that contains considerable detail of the city's monuments and topography and that may have been drawn from an illustration of the popular tour book "Mirabilia

114. Pietro Vesconte, the Venetian chartmaker whose works appear in Paolino Minorita's works, among others, has been described as the first professional cartographer. See Woodward, "Medieval *Mappae-mundi*," 314.

115. On Paolino's place (and that of Marino Sanudo) in the geographical culture of fourteenth-century Italy, see Bouloux, *Culture*, 45–68. On Paolino as historian, see Isabelle Heullant-Donat, "Entrer dans l'histoire: Paolino da Venezia et les prologues de ses chroniques universelles," *Mélanges de l'École Française de Rome: Moyen Âge* 105 (1993): 381–442; the author provides a convenient introduction to Paolino's life and works and a brief description of the manuscripts containing Paolino's historical works (pp. 426–42). See also Alberto Ghinato, *Fr. Paolino da Venezia O. F. M., vescovo di Pozzuoli († 1344)* (Rome, 1951). The complex relationship between the illustrations in Paolino's works and those of Marino Sanudo is studied by Bernhard Degenhart and Annegrit Schmitt in "Marino Sanudo und Paolino Veneto: Zwei Literaten des 14. Jahrhunderts in ihrer Wirkung auf Buchillustration und Kartographie in Venedig, Avignon und Neapel," *Römisches Jahrbuch für Kunstgeschichte* 14 (1973): 1–137, 60–87 specifically on the maps; this is the fundamental study of the various manuscripts. I speak rather loosely here of the maps in Paolino's works; Degenhart and Schmitt provide a table giving the specifics of which maps appear in which manuscripts (p. 105). For Marino Sanudo's crusade project, a recent study is Leopold, *How to Recover the Holy Land*.

116. On the prologue to Paolino Minorita's "De mapa mundi," see Bouloux, *Culture*, 58–59.

117. The plans of the Middle Eastern cities carry forward the increasing concern for depicting the topography that we saw in Matthew Paris's productions. They indicate streets, the outline of the city walls, and the major monuments in careful relation to one another. See Degenhart and Schmitt, "Marino Sanudo und Paolino Veneto," 76–81.

118. See note 95.

119. Degenhart and Schmitt, "Marino Sanudo und Paolino Veneto," 76–81. On other regional maps of the Holy Land, see Harvey, "Local and Regional Cartography," 473–76, and Gautier Dalché, "Savoires géographiques," 89–91 and n. 4, for a sketch map of the Holy Land not included in Harvey's survey.

120. For the maps of Italy in general, see Degenhardt and Schmitt, "Marino Sanudo und Paolino Veneto," 81–87, and Harvey, "Local and Regional Cartography," 480–81. For Venice, see Harvey, *History of Topographical Maps*, 76–78.

urbis Romae.”<sup>121</sup> Finally, he included remarkable maps of Italy that indicate relief as well as the peninsula’s hydrography. The outlines derive from portolan charts, but the detail of the interior must have been drawn from regional maps now lost; in addition, like Vesconte’s map of the Holy Land, these maps are based on a grid, here not drawn in but marked along the margins of the page.<sup>122</sup>

Paolino’s works therefore suggest several conclusions about early fourteenth-century cartography in Italy. First, the maps clearly speak to two major interests: the Holy Land, with its now defunct crusader state (Acre, the last major center held by the Christians, fell to Muslim forces in 1291), and the Italian peninsula, seen as a geographic whole in Paolino’s map, with regional interests represented by detailed studies of the lower Po and Venice and the plan of Rome to underscore the prestige and cultural weight of the ancient capital. Second, Paolino had a number of diverse types of maps upon which to draw for his project. Third and finally, he shared with Matthew Paris and other medieval cartographers an easy appreciation of the ways in which an assortment of maps, even of different origins and taking different points of view, could be coordinated into a larger picture of a region.<sup>123</sup>

If we turn to our second author and artist, Opicino de Canistris, we find a similar range of maps in the service of a very different project. Opicino was not writing history, with its well-known attention to the *loci* (places) in which historical events took place. Instead, he worked from the equally familiar idea of the created world as God’s book to develop an elaborate system for understanding and recognizing sin in the individual via an analysis of the places of his life as represented on maps.<sup>124</sup> For our purposes, however, what is most important is the range of maps that he deployed. Roughly speaking, he structured the images in his two major manuscripts around two map types, zone maps and portolan charts.<sup>125</sup> In addition, he drew several versions of regional maps of Lombardy and the Po valley (fig. 2.9) and a number of plans of the city of Pavia.<sup>126</sup> Opicino’s basic outline of Pavia’s walls and the orientation of the city with respect to the Ticino River, which flows along its southern border, are remarkably accurate, even by modern standards.<sup>127</sup> Several of his unfinished drawings, however, insert this accurate depiction of the walls into a schematized circular framework that allows him to connect the actual Pavia with its ideal counterpart.<sup>128</sup> A similar mixture of the real and the ideal informs a contemporary plan of Milan, in which the circular walls contrast with the specific detail of the bridges over the many rivers of the surrounding territory (fig. 2.10).<sup>129</sup>

Opicino was a priest and had trained earlier in his career as a manuscript illuminator: nothing in his writings suggests that he compiled original maps himself. Indeed, the only direct references that he made to his knowledge

of maps emphasized the novelty and excitement of his initial encounter with portolan charts.<sup>130</sup> It seems quite clear, however, that Opicino was familiar with a variety of map forms and their uses, that his thought was sensitive to geography and to the depiction of space, and that he believed that maps of all sorts were effective means of

121. Harvey, *History of Topographical Maps*, 72.

122. Harvey, “Local and Regional Cartography,” 481. Bouloux, in *Culture*, 67, describes this as “the first ‘modern’ map of Italy” and sees it as the one map in Paolino’s work that is fully independent of the text.

123. Bouloux, *Culture*, 68.

124. Morse, “Complex Terrain,” 186 n. 42, for Opicino’s use of the idea of the world as a book. On his thought more generally, see pp. 169–232; Victoria Morse, “Seeing and Believing: The Problem of Idolatry in the Thought of Opicino de Canistris,” in *Orthodoxie, Christianisme, Histoire = Orthodoxy, Christianity, History*, ed. Susanna Elm, Éric Rebillard, and Antonella Romano (Rome: École Française de Rome, 2000), 163–76; and Catherine Harding, “Opening to God: The Cosmographical Diagrams of Opicinus de Canistris,” *Zeitschrift für Kunstgeschichte* 61 (1998): 18–39. A useful brief introduction to Opicino’s life and works is H.-J. Becker, “Canistris, Opicino de,” in *Dizionario biografico degli Italiani* (Rome: Istituto della Enciclopedia Italiana, 1960–), 18:116–19. See also Denis Hüe, “Tracé, écart: Le sens de la carte chez Opicinus de Canistris,” in *Terres médiévales*, ed. Bernard Ribémont (Paris: Editions Klincksieck, 1993), 129–58. Of Opicino’s two autograph manuscripts, which are the main sources for his use of and thought about maps, one (BAV, Pal. Lat. 1993) has been partially published in Richard Georg Salomon, *Opicinus de Canistris: Weltbild und Bekenntnisse eines Avignonesischen Klerikers des 14. Jahrhunderts*, vols. 1A and 1B (text and plates) (London: The Warburg Institute, 1936), pls. 1–37. The best reproduction of a selection of plates from the second manuscript (BAV, Vat. Lat. 6435) is in Paolo Marconi, “Opicinus de Canistris: Un contributo medioevale all’arte della memoria,” *Ricerche di Storia dell’Arte* 4 (1977): 3–36.

125. Morse, “Complex Terrain,” 235–54 on Opicino’s use of zone maps in the Pal. Lat. 1993. His use of portolan charts in Vat. Lat. 6435 is discussed on 169–232. Bouloux comments on the diffusion of the zone map as an image of world in learned works in *Culture*, 39–42.

126. Opicino’s local maps and plans are surveyed by Pierluigi Tozzi in a series of insightful and sympathetic works: *Opicino e Pavia* (Pavia: Libreria d’Arte Cardano, 1990); “Il *mundus Papie* in Opicino,” *Geographia Antiqua* 1 (1992): 167–74; with Massimiliano David, “Opicino de Canistris e Galvano Fiamma: L’immagine della città e del territorio nel Trecento lombardo,” in *La pittura in Lombardia: Il Trecento* (Milan: Electa, 1993), 339–61; and *La città e il mondo in Opicino de Canistris (1296–1350 ca.)* (Varzi: Guardamagna Editori, 1996).

127. Tozzi, *Città e il mondo*, 46–47 and 89.

128. BAV, Pal. Lat. 1993, fols. 12r, 27r, and 27v, reproduced in Tozzi, *Città e il mondo*, figs. 33–35.

129. Tozzi and David, “Opicino de Canistris e Galvano Fiamma,” 352–57. David illustrates in this article a previously unpublished map of Italy and what he describes as the “first map of Roman Milan” from Galvano Fiamma’s “Cronica extravagans de antiquitatibus” and his “Chronicum maius,” respectively. The maps appear in Milan, Biblioteca Ambrosiana, cod. A275 inf., fol. 51v and fol. 93v. See also Alessandro Rovetta, “Un codice poco noto di Galvano Fiamma e l’immaginario urbano trecentesco milanese,” *Arte Lombarda* 2–4 (1993): 72–78.

130. Bouloux, *Culture*, 94–95, although her remark that “Opicinus de Canestrus’s [*sic*] entire system for reading the world is based on his astonishment at the shape of the Mediterranean and Atlantic coastlines” overemphasizes Opicino’s naïveté (p. 95).

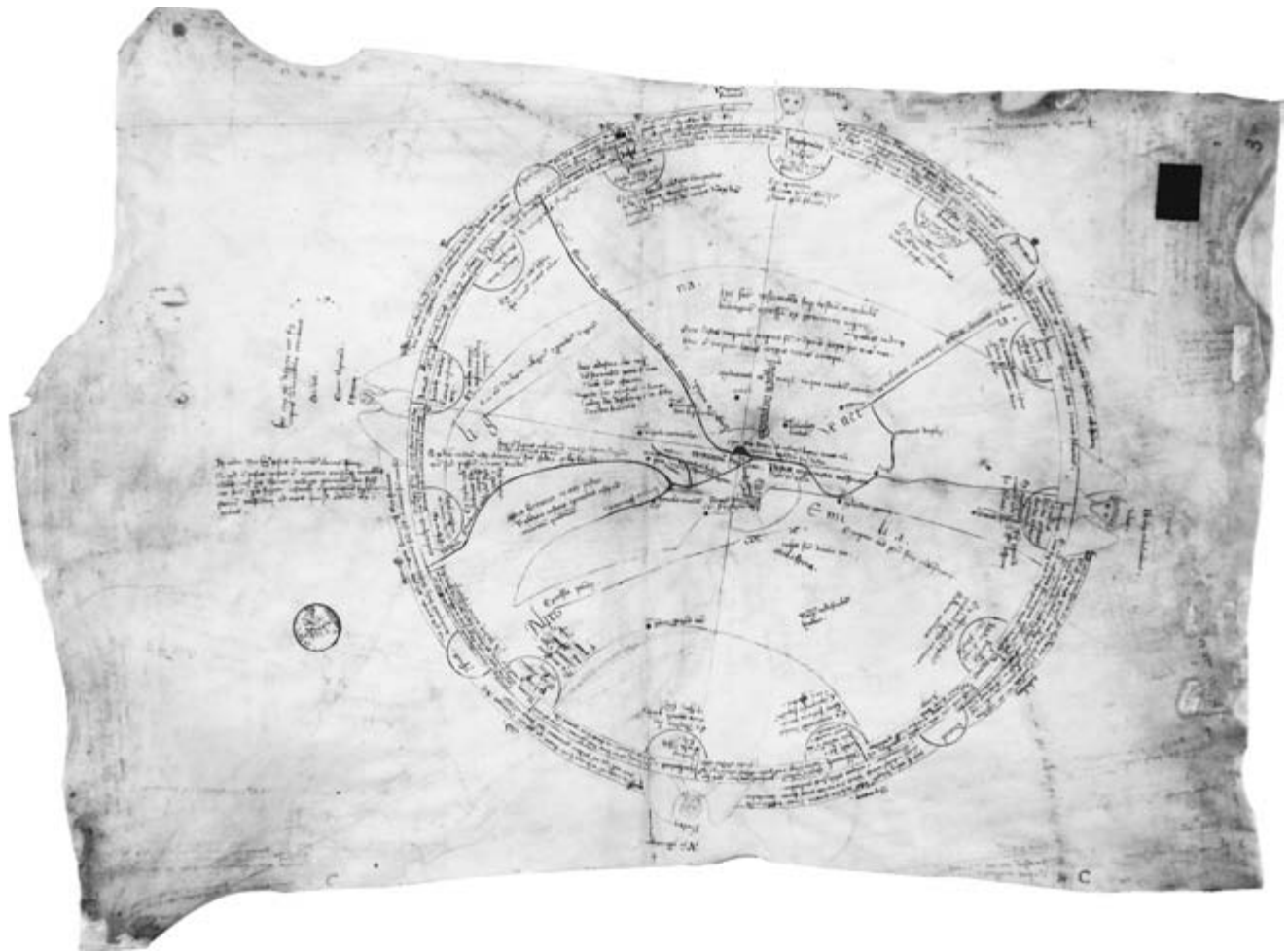


FIG. 2.9. MAP OF LOMBARDY BY OPICINO DE CANISTRIS, 1330s OR 1340s. This map illustrates Opicino's technique of overlaying a matrix of spiritual interpretations over a geographical map. Here he indicated the city of Pavia at the center with a tiny symbol that nonetheless captures the real outlines of the city's walls and marked the city's territory around it. He drew the course of the rivers Ticino and Po very

accurately in red and wrote the names of major geographical features in their proper positions. Finally, the map is surrounded with an idealizing circular frame that includes the symbols of the Evangelists.

Photograph © Biblioteca Apostolica Vaticana, Vatican City (MS. Pal. Lat. 1993, fol. 3r).

communicating with his contemporaries. I have argued at length elsewhere that he believed that maps were important because the very schematization of the image of the world that they proposed bridged the gap between the materialistic human imagination and man's higher powers of reason.<sup>131</sup> As such, maps, for Opicino, were a potential answer to the spiritual problems of his time and fitting tools for a priest concerned with analyzing and combating unbelief.

Together, the cartographic works of Paolino Minorita and Opicino de Canistris help orient us to the complex and varied world of early fourteenth-century Italian cartography.<sup>132</sup> It was a world strongly marked graphically by the portolan charts and also seriously concerned with exploring the ways in which maps could help contemporaries to know and to understand their world—past,

present, or to come.<sup>133</sup> Two further aspects of this knowledge deserve our attention: the changes in the geographical thought of the later fourteenth century attributable to the early Italian humanists, and the governmental and

131. Morse, "Seeing and Believing," 170–76. I explore the geographical nature of his thought in another of his works in my introduction to Opicino's *Book in Praise of Pavia*, trans. William North and Victoria Morse (New York: Italica Press, forthcoming).

132. For further examples and discussion of Italian cartography, see Harvey, "Local and Regional Cartography," 478–82, and Annalina Levi and Mario Levi, "The Medieval Map of Rome in the Ambrosian Library's Manuscript of Solinus (C 246 Inf.)," *Proceedings of the American Philosophical Society* 118 (1974): 567–94.

133. Bouloux, in *Culture*, 106, points out the degree to which portolan charts and portolans became part of the "mental equipment" of fourteenth-century writers like Giovanni Boccaccio and Petrarch.



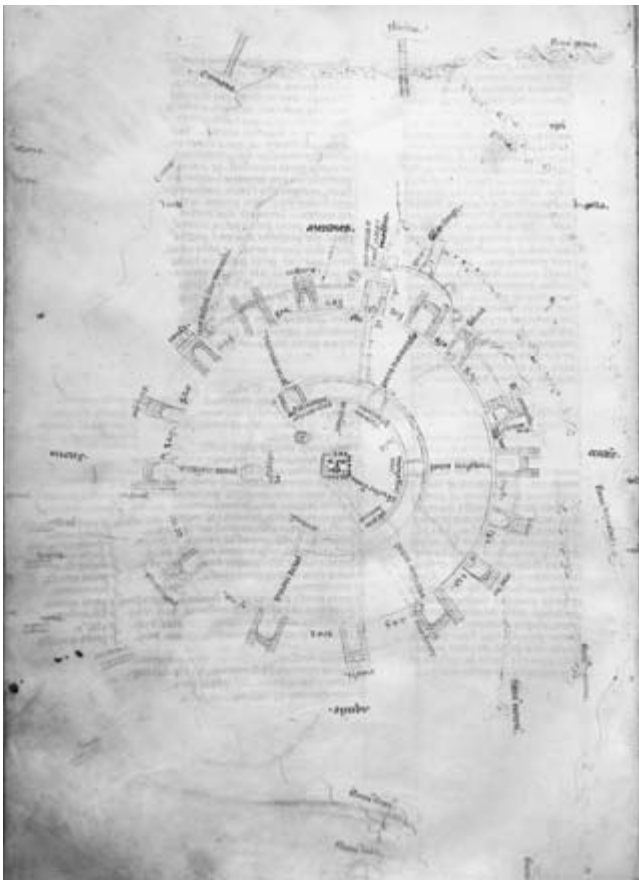


FIG. 2.10. PLAN OF MILAN BY PETRUS DE GUIOLDIS FROM GALVANO FIAMMA'S "CHRONICLE EXTRAVAGANS," FOURTEENTH CENTURY. The plan stylizes the walls of the city, while giving the distances between the gates and towers of the outer wall. The depiction of the surrounding territory focuses on the natural and manmade waterways and the bridges that crossed them.

Photograph courtesy of the Biblioteca Ambrosiana, Milan (Codice ambr. A 275 inf., fol. 46v).

jurisdictional knowledge that maps were increasingly called upon to convey.

In an exemplary study, Bouloux traced the ways in which Italian scholars, and especially Petrarch, developed new methods for the study of geography. To a large extent Petrarch's innovation was to apply the methods of textual criticism to places: their proper location in space became the subject of rigorous study, aided by texts and also by maps, understood as reliable sources of information about the physical world.<sup>134</sup> Bouloux points to the development of geography as a field of study and to the increasing tendency to alphabetize place-names in geographical dictionaries and other studies as two factors that helped deracinate places from their conventional contexts, opening them up to analysis and using the map in a new way as a tool.<sup>135</sup> Thus for Bouloux the innovations of the fourteenth century were above all those of the

move toward textual criticism, a *géographie de cabinet* that led not to sterility but to new ways of conceptualizing and valorizing space.<sup>136</sup>

If we turn now to the mapping of jurisdictions in the same period, we find an equally rich and creative environment. A particularly thought-provoking example of ways in which cartography found a place in a legal and administrative setting is provided by the jurist Bartolo da Sassoferrato.<sup>137</sup> Writing on the settlement of disputes over properties bordering on rivers, where erosion and the changing course of the river added to the problems of determining boundaries, Bartolo took the unusual step of recommending drawing diagrams of the areas in question. That he himself felt this to be a novel suggestion is demonstrated by his introductory account of a dream that inspired him and of his own reservations about undertaking to explain matters concerning the law by means of diagrams or drawings.<sup>138</sup> In his dream, he was fortified by the idea that he, like Christ and the saints, should do what was right in spite of mockery, while his Christ-like interlocutor provided him with the tools for creating his drawings. Bartolo relied on the invocation of Christ to authorize and legitimate his adoption of a novel means of communication, a pattern that we see repeated in the works of Bertrand Boysset (writing ca. 1400) on surveying. The surveyor in Boysset's text similarly received his tools from Jesus, underscoring for the reader the validity of his novel attempt to record in writing what had previously merely been a practical art not enjoying the "dignity of a true science."<sup>139</sup> Although Bartolo's innovation did not, as far as we know, bear cartographic fruit until the fifteenth century, when his works became stan-

134. Bouloux, *Culture*, 106. Opicino's work also shows a clear sense that maps provide a true representation of the physical world; that is what allows him to draw the conclusions he does from his maps. See Morse, "Complex Terrain," 133 and 150.

135. Bouloux, *Culture*, 223–35. Compare Gautier Dalché, "Pour une histoire," 77–79 and 90.

136. Bouloux, *Culture*, 273.

137. On Bartolo and diagrams, see François de Dainville, "Cartes et contestations au XVe siècle," *Imago Mundi* 24 (1970): 99–121, esp. 118–21. On the evidence his works offer for contemporary society, see Anna Toole Sheedy, *Bartolus on Social Conditions in the Fourteenth Century* (New York: Columbia University Press, 1942), esp. 185ff. An interesting comparison in his thought about visual issues is Osvaldo Cavallar, Susanne Degenring, and Julius Kirshner, eds., *A Grammar of Signs: Bartolo da Sassoferrato's Tract on Insignia and Coats of Arms* (Berkeley, Calif.: Robbins Collection Publication, 1994).

138. Dainville, "Cartes et contestations," 118.

139. On Boysset, see Patrick Gautier Dalché, "Bertrand Boysset et la science," in *Église et culture en France méridionale (XII<sup>e</sup>–XIV<sup>e</sup> siècle)* (Toulouse: Éditions Privat, 2000), 261–85, quotation on 276. Compare the comments by Alain Guerreau in "Remarques sur l'arpentage selon Bertrand Boysset (Arles, vers 1400–1410)," in *Campagnes médiévales, l'homme et son espace: Études offertes à Robert Fossier*, ed. Elisabeth Mornet (Paris: Publications de la Sorbonne, 1995), 87–102, esp. 89–90.

dard legal texts throughout Europe and when maps became more commonly used in property disputes, his inspiration to turn to diagrammatic maps to assist his arguments is clearly at home among the other mapmaking experiments of fourteenth-century Italy.<sup>140</sup>

Similarly, if we are to understand the transformations that eventually led (in the fifteenth and especially the sixteenth century) to the use of maps in governmental administration, the origins of many of the changes must be sought in this earlier period. In the last years of the thirteenth century and in the early fourteenth century, at least in some areas of Italy, profound transformations took place in the perception and description of units of jurisdiction. Studies of the Diocese of Rieti and the territory of the commune of Siena underscore the importance of this period in reshaping the ways in which contemporaries imagined and expressed the governmental spaces they inhabited.<sup>141</sup> Although these changes were brought about and communicated primarily through changes in the written documentation, it is nonetheless to this period that we must look if we are to understand the fundamental changes that took place at the end of the Middle Ages in the nature of people's relationships to their environment and how those changes led eventually to the use of maps in government and administration.<sup>142</sup>

In the case of Siena, a conjunction of factors in the early fourteenth century led to the production of one extant map, the plan of the newly founded city of Talamone, a now-lost world map in the *palazzo pubblico*, and a number of detailed views of cities and the countryside.<sup>143</sup> These artifacts should be understood within the context of an increasing interest in knowing and controlling the countryside and subject communities, using the techniques of art, land measurement, and new forms of documentation in the vernacular. In Redon's words, "the painter, the surveyor, and the notary contributed to the creation of the tools of a modern territorial state."<sup>144</sup> The control of newly conquered territory and the layout of new towns were especially important aspects of Siena's marshaling of these cognitive resources. The measured survey of the lands of the new town of Paganico is probably attributable to the involvement of a Master Giannino, who was also responsible for establishing the teaching of mathematics and geometry in Siena.<sup>145</sup> The conjunction of the city's interest in fostering the study of mathematics—essential in a city renowned for its commercial and especially its banking activities—and the development of new techniques for exercising control over the countryside suggests important connections between personnel, economic and political culture, and the tools of governance.<sup>146</sup> The fact that a plan resulted from the contemporary foundation at Talamone suggests the potential relationships between these governmental changes and the development of administrative cartography.

Outside Italy, the cartographic picture is less rich in the fourteenth century, but it shows a number of similar characteristics. Although England may have experienced a cartographic downturn after its brilliance in the thirteenth century, a variety of maps, including an increasing number of local plans, were produced there.<sup>147</sup> Several of these appear to have had an administrative function. The Gough map of Britain, although the circumstances of its creation are poorly documented, depicts a network of routes, marked with distances, that probably served some aspect of either the secular or the ecclesiastical government.<sup>148</sup> Likewise, the map of Sherwood Forest was probably made for a forest warden, showing the forest's boundary and streams.<sup>149</sup>

The map of the property of the monastery of Saint Augustine's, Canterbury, and the related plan of the chancel of the monastery church are of a different and less im-

140. Dainville, "Cartes et contestations," 117–21. On Bartolo in sixteenth-century Germany, see Fritz Hellwig, "Tyberiadie und Augenschein: Zur forensischen Kartographie im 16. Jahrhundert," in *Europarecht, Energierecht, Wirtschaftsrecht: Festschrift für Bodo Börner zum 70. Geburtstag*, ed. Jürgen F. Baur, Peter-Christian Müller-Graff, and Manfred Zuleeg (Cologne: Carl Heymanns, 1992), 805–34.

141. Brentano, *New World*, esp. 81–141, and Redon, *L'espace d'une cité*.

142. For administrative mapping, see chapter 35 in this volume and John Marino, "Administrative Mapping in the Italian States," in *Monarchs, Ministers, and Maps: The Emergence of Cartography as a Tool of Government in Early Modern Europe*, ed. David Buisseret (Chicago: University of Chicago Press, 1992), 5–25. Marino dates the appearance in Italy of maps as "a normal administrative way of looking at the world" from the third quarter of the sixteenth century (p. 5).

143. For the plan of Talamone, see Harvey, "Local and Regional Cartography," 488, 491, and fig. 20.27. Kupfer reconstructs the world map and its setting in "Lost Wheel Map." Ambrogio Lorenzetti's views of the Sieneese countryside are well known: see, for example, Randolph Starn, *Ambrogio Lorenzetti: The Palazzo Pubblico, Siena* (New York: George Braziller, 1994). On civic art in Siena and, in particular, a painting showing one of the subject towns, see Diana Norman, "'The Glorious Deeds of the Commune': Civic Patronage of Art," in *Siena, Florence and Padua: Art, Society and Religion 1280–1400*, vol. 1: *Interpretative Essays*, ed. Diana Norman (New Haven: Yale University Press in association with the Open University, 1995), 133–53, esp. 136–40.

144. Redon, *L'espace d'une cité*, 234 and 226. The period in question is 1280–1320. Compare David Friedman's comment that the layout of the new towns owed a great deal to idealized images of the city in his *Florentine New Towns: Urban Design in the Late Middle Ages* (New York: Architectural History Foundation, 1988), 201–3.

145. Redon, *L'espace d'une cité*, 170.

146. Bartolo da Sassoferrato's debt to a master of geometry suggests that the impact of such teachers on the visual culture of the fourteenth century may be worth a more extended examination. See Dainville, "Cartes et contestations," 118.

147. For the stagnation of English cartography, see Barber, "Evesham World Map," 29.

148. Delano-Smith and Kain, *English Maps*, 19–20 and 47–48.

149. Delano-Smith and Kain, *English Maps*, 20. For other local plans, see *LMP*, 83–146, and Mitchell and Crook, "The Pinchbeck Fen Map," 40–50.

mediately practical nature. Thomas of Elmham, the chronicler and artist who composed the history of Saint Augustine's in which these maps are found, shared with Matthew Paris a high degree of interest in recording aspects of his history in visual form. The map of the lands of the monastery should be seen in part as a historical map, because it records the legendary allocation of land following the path of a running deer. Thomas also recorded the appearance of the monastery's charters in remarkable detail (they have been called handmade "fac-similes") in an effort to authenticate the community's claims to its lands and rights.<sup>150</sup> Finally, to move from local mapping to world maps, the Evesham map has been described as "striking because of the topicality of its perspectives and allusions": the maker of the map was more concerned than were earlier creators of world maps with making statements about the place and standing of England in the later fourteenth century.<sup>151</sup>

On the continent, relatively few maps survive from the fourteenth century. The oldest plan from the Low Countries dates from 1307 and is a textual diagram with the exception of two gables drawn in elevation.<sup>152</sup> A map in the cartulary of the University of Paris has been described as the earliest attempt to map an administrative boundary. Prepared during a dispute between the French and Picard "nations" at the University in 1357, the map shows the boundary between the two regions and explores the role of the river Meuse as the boundary marker.<sup>153</sup>

Delano-Smith and Kain described the maps of fourteenth-century England as increasingly prepared with practical ends in mind.<sup>154</sup> Although this does not account satisfactorily for Thomas of Elmham's historical maps, for the Evesham map's political ideology, or even for the series of illustrations showing the positions of the clergy during processions—with their tonsured heads shown in plan—it does capture the real novelty of later medieval cartography, which is its increasing focus on depicting small areas, whether as records in disputes, as memorials, or as other forms of working documents.<sup>155</sup> Maps were increasingly part, not just of learned culture, but of the work of governing and managing Europe's towns and institutions. The role that the centralized monarchies would play in developing this tendency would become clearer in the fifteenth century, but in the fourteenth century Italy, England, France, and the Low Countries already showed a deep appreciation of the demonstrative and argumentative qualities of maps.<sup>156</sup>

## CONCLUSION

We do not yet fully appreciate the range of small, but incremental, changes in multiple areas of endeavor—astronomy, mathematics, philosophy, art practice and organization, jurisdiction and law, rhetoric, and mercantile

life, to name only a few—that led at least some Europeans of the late fifteenth century to represent their world (whether actively as mapmakers or passively as consumers of maps) in a way that emphasized the uniformity of physical space. It is a grave mistake to think that other views of the world disappeared: T-O maps remained, as convenient for the printer as they had been for the scribe, and the familiar circular form of the "medieval" world map persisted as an appropriate framework for representations of various sections or details of the world. The portolan chart, of course, continued its reign as the most accurate known type of map, lapsing into the steady-state conservatism of a fully successful technology, but remaining at the center of a vigorous trade until the sixteenth century.<sup>157</sup> From hindsight, we know that the future of European cartography lay elsewhere: but the fifteenth century must have appeared to contemporary eyes—at least to selected and well-placed contemporaries—as primarily a period of proliferation, of both map types and individual copies of maps.

From a Europe-wide perspective, maps had already begun to appear in a host of different contexts and circumstances, providing help in governing, litigating, and navigating. Regionally, of course, the view would depend on where you stood: in England, northern Italy, and Holland maps would have been quite common, while they were less so in Spain or southern France. These regional distinctions, their causes, and the reasons behind their eventual decline as limiting factors on the knowledge and use of maps in daily practical and intellectual life will be the subjects of later chapters. Here we should conclude by looking backward to the rich and complex world of late medieval cartography, to its growing ability to seem relevant to a host of projects and societal needs and to capture the imaginations of a range of people.

Saint Bernardino da Siena appealed to the world map hanging in the *palazzo pubblico* of Siena during a sermon, and he did so presumably with confidence that his audience knew what it was and could visualize it, at least in its rough outlines.<sup>158</sup> This casual appeal to the shape of the world shows a sensibility deeply marked by the im-

150. See Alfred Hiatt, "The Cartographic Imagination of Thomas Elmham," *Speculum* 75 (2000): 859–86.

151. Barber, "Evesham World Map," 13, 19–24, and quotation on 29.

152. Harvey, "Local and Regional Cartography," 470, 485, and fig. 20.6.

153. Gautier Dalché, "De la liste a la carte," 27, and Harvey, "Local and Regional Cartography," 485 and fig. 20.22.

154. Delano-Smith and Kain, *English Maps*, 19.

155. For the processions, Delano-Smith and Kain, *English Maps*, 20; these authors do see the map as practical.

156. Gautier Dalché, "De la liste a la carte," 28.

157. See chapter 7 in this volume.

158. Kupfer, "Lost Wheel Map," 288.

pulse to map. The forms that mapping took would remain highly diverse (and by modern standards perhaps idiosyncratic) for some time to come, before the paring down that would take place with the triumph of the geometrical approach to space. But a richness of vision and the ability to accommodate multiple approaches to space in one mental universe pull the twelfth through the

fourteenth century together in ways that are still not fully appreciated. Far from a unified project, the mapmaking and map use of the late medieval and early Renaissance period reveals itself as abundant and chaotic growth as yet unpruned into the chaste mathematical topiary of seventeenth-century cartography.