



## The so-called Genoese World Map of 1457: A Stepping Stone Towards *Modern* Cartography?

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Around the time of Christopher Columbus's birth, we find on the shores of the Mediterranean Sea, especially in the north of Italy, a variety of people particularly interested in problems of geography and cartography. Humanistic circles met for debates, exchanged ideas, and more often than not brooded over maps. Mapmakers moved from port to port, found purchasers and merchants interested in investing in books and maps. At the councils of Constance (1414-18) and Florence (1431-45), geographical treaties changed hands, while maps and the geography of foreign regions were discussed.<sup>1</sup> To some extent these people were able to find the information they were looking for on the medieval *mappae mundi*, which, with their pictures and stories, constitute a historiography of the world (including its end times).<sup>2</sup> The Humanists looked back to antiquity for geographic information, and Ptolemy's *Geography*, 1409 translated into Latin by the Florentine Jacopo Angeli, was the center of much attention. In addition, travelers' and merchants' news of foreign lands and people gleaned from their voyages also found its way into these discussions. Portolan charts,

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<sup>1</sup> Patrick Gautier Dalché, "The Reception of Ptolemy's Geography (End of the Fourteenth to Beginning of the Sixteenth Century)" in (ed.) David Woodward, *The History of Cartography* Vol. 3: Cartography in the European Renaissance, Part 1 (Chicago; London, 2007), pp. 285–364, here p. 303, 309; Evelyn Edson, *The World Map 1300-1492. The Persistence of Tradition and Transformation* (Baltimore, 2007), pp. 120, 132-33.

<sup>2</sup> Anna-Dorothee von den Brincken, "Mappa mundi und Chronographia. Studien zur imago mundi des abendländischen Mittelalters," *Deutsches Archiv für Erforschung des Mittelalters* 24 (1968), pp. 118–186. Newly published in Anna-Dorothee von den Brincken, *Studien zur Universalkartographie des Mittelalters* (ed.) Thomas Szabó. (Göttingen, 2008), pp. 17-81, here: p. 123 / new ed. p. 22.

maps of the Mediterranean and Black Seas with – to the modern eye – their near-natural depictions of shorelines, had been in use by seaman for at least 150 years and came to be of increasing interest in these scholarly circles.<sup>3</sup> These charts provided to many a new, unfamiliar depiction of the world, contrasting sharply with the view presented by *mappae mundi*.

These different strands of information would be merged in so-called transitional or hybrid maps of the period.<sup>4</sup> The so-called Genoese World Map of 1457, a *transitional* map and the focus of this article, presents preliminary questions regarding the conceptions of space. Merging medieval *mappae mundi* with portolan charts and Ptolemy's data with the information gathered by contemporary travelers, the Genoese World Map is frequently seen as a step towards *modern* cartography, which, in part, is defined by a homogeneous conception of space.<sup>5</sup> Its classification as *transitional* emphasizes progressive and conscious development towards a new stage. But does this *transitional* period in the history of cartography really represent a natural and inevitable development towards *modernity*? Or could it be that this concept merely interferes with a view of continuities, such as the persistence of various dimensions of meaning in these maps, continuities that hint at the continuance of heterogeneous conceptions of space?<sup>6</sup>

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<sup>3</sup> The notion of a near-natural depiction of the world is understood throughout this article in the sense of an approximation of the representation towards nature in contrast to an approximation towards reality, as nature represents but one dimension of a multidimensional reality. A further distinction has to be made between how nature was perceived at the time of the Genoese map and how it is perceived today.

<sup>4</sup> See David Woodward, "Medieval Mappaemundi" in (eds.) John Brian Harley and David Woodward, *The History of Cartography* Vol. 1: Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean (Chicago, 1987), pp. 286–370, here: p. 314, classifying the Genoese World Map as *transitional*.

<sup>5</sup> See below p. 60.

<sup>6</sup> See Jörg-Geerd Arentzen, *Imago Mundi Cartographica. Studien zur Bildlichkeit mittelalterlicher Welt- und Ökumenekarten unter besonderer Berücksichtigung des Zusammenwirkens von Text und Bild* (München, 1984), pp. 325-26 for the point of view, that the rediscovery of Ptolemy caused fundamental changes in

## The Homogenization of Space?

Building on the concept that space and its perception are cultural constructs rather than anthropological constants, Alain Guerreau has found a distinct connection between feudal structures and spatial perception. He states that from the Middle Ages until the eighteenth century, the perception of space was determined by a mixture of feudal rights, privileges and liabilities, in such a way that space was felt to be heterogeneously structured.<sup>7</sup> This heterogeneous conception of space is expressed in medieval *mappae mundi*, which show a geographically-structured view of history and theology, thereby melding space and time. In structuring proportions and distances according to meaning and importance, these maps demonstrate a hierarchic view of the world.<sup>8</sup> In a cartography based on a homogeneous conception of space, every location is a point in a grid of parallels and meridians, every location is theoretically of equal value, and, normally, space and time are separated from one another.<sup>9</sup> As early as the thirteenth century, the English scholar Roger Bacon proposed the use of a grid to depict the world, which has been seen as a first step toward homogenizing space. However, as Patrick Gautier Dalché has explained, Bacon had in mind a projection of the grid of the celestial vault onto the surface of the earth.<sup>10</sup> This celestial grid served to

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cartography, but that there were also continuities until the seventeenth century, preserving the melding of time and space within and the multidimensional contents of *mappae mundi*.

<sup>7</sup> Alain Guerreau, “Quelques caractères spécifiques de l'espace féodal européen” in (eds.) Robert Descimon, Alain Guerreau, and Neithard Bulst, *L'État ou le Roi : les fondements de la modernité monarchique en France (XIVe-XVIIe siècles)* (Paris, 1996), pp. 85–101, here p. 85.

<sup>8</sup> Edson, *World Map*, pp. 14-15, 18, 22-24 (n. 1); von den Brincken, “Mappa mundi,” p. 123 / new ed. p. 22 (n. 2); see Martina Stercken, “Kartographien von Herrschaft im Mittelalter,” *Rheinische Vierteljahrsblätter* 70 (2006), pp. 134–154, esp. 146.

<sup>9</sup> See (eds.) Harley and Woodward, *History of Cartography* Vol. 1, p. 505 (n. 4); David Woodward, “Cartography and the Renaissance: Continuity and Change” in (ed.) David Woodward, *History of Cartography* Vol. 3/1, pp. 3–24, here 16-17 (n. 1).

<sup>10</sup> Patrick Gautier Dalché, “Vers une perfecta locorum doctrina: Lieu et espace géographique selon Roger Bacon” in (eds.) Tiziana Suarez-Nani and Martin Rohde, *Représentations et conceptions de l'espace dans la culture médiévale / Repräsentationen und Konzeptionen des Raums in der Kultur des Mittelalters* (Berlin; Boston, Mass., 2011), pp. 9–43, here 17-18, 21; Gautier Dalché, “Ptolemy's Geography,” p. 292, 301 (n. 1).

measure the movements and relations of the celestial bodies. Bacon's aim was to determine the individual characteristics of every location on earth by tracing its exact relation to the planets. Bacon's grid is, therefore, not a step towards the homogenization of space. It is rather the expression of a decidedly heterogeneous conception of space, one that prevailed into the fifteenth century, when the French cardinal Pierre d'Ailly's concept of a grid and Jacopo Angeli's understanding of Ptolemy ran along the same lines. Nevertheless, the propagation of Ptolemy's *Geography* by fifteenth-century humanists is often seen as another step towards the homogenization of space, although their main concern was with Ptolemy's toponyms: as the first few decades after its translation, no evidence of interest in Ptolemy's projection methods has yet been established.<sup>11</sup> Yet Ptolemy's coordinates were frequently copied.<sup>12</sup> This raises two questions: Did the people brooding over these coordinates in fifteenth-century Latin Europe understand them in the sense of heterogeneous space, as in Bacon's and d'Ailly's grid, or in the sense of homogeneous space as it was presumably meant by Ptolemy? And, more specifically, does the Genoese World Map constitute one step towards a homogeneous conception of space?

### **The Genoese World Map: More Traditional than One Might Think?**

The fourteenth and fifteenth centuries are generally classified as a *transitional* period in cartography. Comments on the melding of the Christian tradition of *mappae mundi* with relatively precise maps of the Mediterranean and Black Sea coasts, as well as information of travelers and Ptolemy's toponyms can be traced back to Charles de La Roncière in the late

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<sup>11</sup> See for view of Ptolemy as a step towards a homogenization of space e.g. Edson, *World Map*, p. 234 (n. 1); (eds.) Harley and Woodward, *History of Cartography* Vol. 1, pp. 505-506 (n. 4).

<sup>12</sup> Gautier Dalché, "Ptolemy's Geography," p. 298, 305 (n. 1).

nineteenth century.<sup>13</sup> David Woodward also observes this fusion of traditions, but goes even further in interpreting it as an anticipation of the Renaissance, forming “a transitional stage between the medieval and modern worlds of mapping.”<sup>14</sup> The Genoese World Map, as suggested above, is generally understood as a *transitional* map, melding *mappae mundi*, portolan charts, Ptolemaic data and contemporary information gathered by eye witnesses, but it is absent from Peter Barber’s description of the most important *mappae mundi* of the Middle Ages.<sup>15</sup> It seems that Barber did not regard it as such.

Others classify it as stepping stone towards the homogenization of space, mainly because the Earthly Paradise, though discussed, is not illustrated on the map. Alessandro Scafi – for whom the depiction of the Earthly Paradise forms the watershed between *mappae mundi* and *modern* cartography – classifies it as map in which time loses importance to space while measured space gets more important, becoming an abstract container on these maps as well as in the minds of their makers.<sup>16</sup> Evelyn Edson likewise interprets the disappearance from the maps of unreachable locations like Paradise or the uninhabitable regions as sign of the growing homogenization of the conception of space. She notably sees the fifteenth-century reception of the Latin translation of Ptolemy’s *Geography* as the catalyst for this development. Both of them are right, but we must still decide when, for whom, and on which occasions this change came into effect, given that Edson remarks that Christopher Columbus saw Paradise as a definite location, waiting to be found and mapped.<sup>17</sup>

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<sup>13</sup> Charles de la Roncière, “Mappemondes de Giovanni Leardo. Venise, 1442, 1448, 1452-54” in (ed.) Marcel Destombes, *Mappemondes A.D. 1200-1500: Catalogue préparé par la Commission des Cartes Anciennes de l’Union Géographique Internationale* (Amsterdam, 1964), pp. 208-211, pl. XXX, here: p. 208.

<sup>14</sup> Woodward, “Medieval Mappaemundi,” p. 296, 299, 318 (n. 4).

<sup>15</sup> See Peter Barber, “Medieval Maps of the World” in (ed.) Paul Dean Adshead Harvey, *The Hereford World Map. Medieval World Maps and their Context* (London, 2006), p. 1–44.

<sup>16</sup> Alessandro Scafi, “Defining Mappaemundi” in (ed.) Harvey, *Hereford World Map*, pp. 345–354, here: 350-351 (n. 15).

<sup>17</sup> See Edson, *World Map*, pp. 228-29, 234 (n. 1).

This article is not intended to contradict the assertion that important changes in cartography occurred during the fourteenth and fifteenth centuries or the relevance of the depiction of Paradise on maps. The objective is rather to inquire into the nature of these changes. Surely, if *modernization* is understood as an innovation, a change gaining in momentum, it has to be measured by what was perceived at the time of innovation or shortly thereafter.<sup>18</sup> But was the change in the geographical picture presented by world maps really so important at the time; or, does it only appear important today, because it seems like a step towards *modern* cartographical models of mapping space? Did the near-natural depiction of the world really mean that space gained importance over time, that maps did not anymore show hierarchies, in short, that space came to be seen as homogeneous?

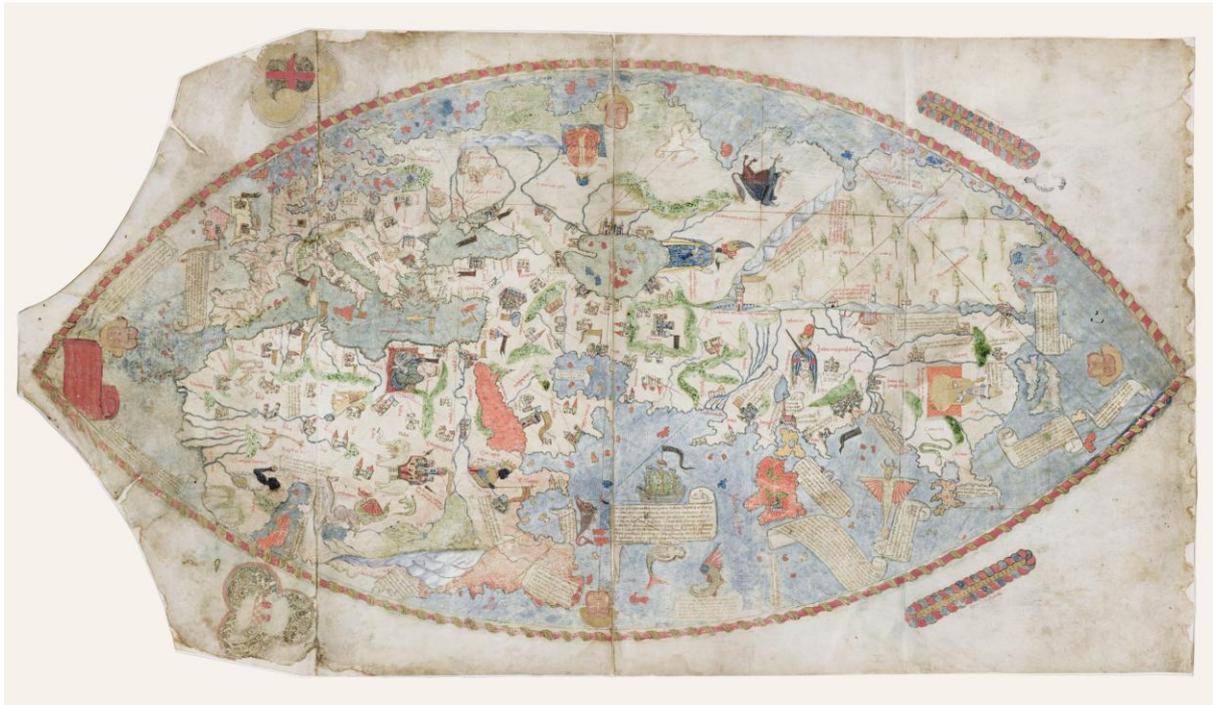
Striving for *truth* and accuracy was especially important in order to determine one's position in salvation history. Eschatology had the desire to predict the future at its core. To arrive at precise predictions, it was necessary to learn to read the signs of nature correctly, which stimulated the enhancement of scientific methods.<sup>19</sup> Maps were not only or always about navigating the world, or finding one's place on its surface; they were important tools to locate oneself in history. Thus, achieving a near-natural depiction of the world - in contrast to conventions which were only vaguely related to geographical factors - does not mean that dimensions of meaning were removed, but that their basis was updated. Thus, the desire to converge representation and nature does not necessarily contradict a heterogeneous

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<sup>18</sup> See Hans Ulrich Gumbrecht, "Modern, Modernität, Moderne" in (eds.) Otto Brunner, Werner Conze, and Reinhart Koselleck, *Geschichtliche Grundbegriffe. Historisches Lexikon zur politisch-sozialen Sprache in Deutschland* Vol. 4 (Stuttgart, 1978), pp. 93–131, here p. 96, 126.

<sup>19</sup> Arentzen, *Imago Mundi*, pp. 327-328 (n.6); Johannes Fried, *Das Mittelalter. Geschichte und Kultur*. (München, 2011), pp. 367-368; Felicitas Schmieder, "Apokalyptik und Politik im 14. und 15. Jahrhundert" in (ed.) Ulrich Knefelkamp, *Der Antichrist. Die Glasmalereien der Marienkirche in Frankfurt (Oder)* (Leipzig, 2008), pp. 45–52, here p. 47.

conception of space. Edson regards the Genoese World Map's many pictures as a temptation



**Figure 1** So-called Genoese World Map, 1457. Biblioteca Nazionale Centrale, Florence, Portolano 1, with permission by Ministero per i Beni e le Attività Culturali/Biblioteca Nazionale Centrale di Firenze.

to see the map as more traditional than it really is.<sup>20</sup> Turning this thought around results in a new question: Because this map's geography is so easily identifiable to the modern eye, does it mislead us into regarding this map as more *modern* than it really is?<sup>21</sup>

### **The Homogeneous Conception of Space in the Genoese World Map? A Map Frame as a Sign of Secularization?**

At first glance (**Figure 1**), the most striking feature of the Genoese World Map is its frame, a unique almond shape, no other known, painted world map of the time has a similar frame. Geometric map frames did not appear regularly before the early Renaissance and are

<sup>20</sup> See Edson, *World Map*, p. 193 (n. 1).

<sup>21</sup> Building on Victoria Morse, "The Role of Maps in Later Medieval Society: Twelfth to Fourteenth Century" in (ed.) Woodward, *History of Cartography* 3/1, p. 27 (n. 1), who claims that discontinuities from the Middle Ages to the Renaissance tend to get overemphasized in the historiography of cartography.

interpreted today as auxiliary constructions that separate the space of the map from the space of the wider world. To the modern eye, these frames imply completeness, but this was not necessarily the case for their contemporaries. Therefore, the reason for the mapmaker's framing choice is best searched for in its own context.<sup>22</sup> Yet, outside the frame of the Genoese World Map one sees scales and coats of arms, but there are no symbols of Christianity, as on some *mappae mundi*. Over time, one can see a shift from the Christian *mappae mundi*'s theological cartography to a focus on a more secular topography, where Christianity is but one thread among many, which was to disappear with time.<sup>23</sup> The Genoese World Map's geometric frame, its scales and coats of arms, suggest a secularization of the map, an exclusion of the Christian background once depicted so prominently in the *mappae mundi*. **(Figure 1)**

Along with the displacement of Christian imagery, one could presume pragmatic reasons for the use of this almond-shaped frame, as the shape allows for a more efficient utilization of the given space of the parchment, providing space for an expansion of Asia that was necessary due to the new findings of travelers.<sup>24</sup> The mapmaker could have been inspired to use this solution by maps in the Ptolemaic style, which depict an expanded Asia by showing the world in the form of a scallop, by maps in the tradition of fourteenth-century English Benedictine Ranulf Higden, which come in circular, oval and - only in their textual form - an almond shape, or by a poem from the fourteenth century by the North Italian poet

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<sup>22</sup> See Woodward, "Cartography and the Renaissance," pp. 12-13 (n. 9). See Arentzen, *Imago Mundi*, p. 30, 320 (n. 6). The singular term, "mapmaker," is used throughout this article for reasons of convenience, although it is probable that more than one person was involved in making the map. In addition, the map might also have been influenced by the wishes of the mapmaker's patron or customer.

<sup>23</sup> "Ute Schneider, *Die Macht der Karten. Eine Geschichte der Kartographie vom Mittelalter bis heute* (Darmstadt, 2012), pp. 150-151. See for examples for depictions of Christian faith outside the oikumene: Edson, *World Map*, pp. 21-22 (n. 1).

<sup>24</sup> Gautier Dalché, "Ptolemy's Geography," p. 317 (n. 1); Raleigh Ashlin Skelton, "Ranulf Higden" in Destombes, *Mappemondes*, pp. 149-160, here: pp. 150-151 (n. 13); see Arentzen, *Imago Mundi*, p. 32 (n. 6).

Fazio degli Uberti, which states that a *true* rendering of the world must be almond shaped.<sup>25</sup>

Following this line of thought, the frame of the map would be solely functional, which in turn points towards a homogeneous conception of space.

The use of an almond shape could also have been an attempt to tie the Genoese map to antique geographic and cartographic conventions: for instance, to the revival of Eratosthenes, a reference to the concept of an ellipsoidal world with cut edges by Posidonius, or the combination of Strabo's scallop shape of the world with Marinus of Tyres' projection method.<sup>26</sup> As a result, one could presume humanistic influences affecting the mapmaker, with his references to the classical world.

Another explanation could be the intention to depict the world as an egg, drawing on the concept of an egg-shaped world, which is explained in great detail on the Catalan World Atlas of 1375. This thought builds on the analogy between the different layers of eggs – embryonic disk, egg yolk, egg white and shells - and the spherical structure of the earth.<sup>27</sup> A desire to depict the world within the celestial spheres of medieval cosmology recalls Roger

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<sup>25</sup> Edson, *World Map*, p. 194 (n. 1) lists these possibilities for inspiration and expands on the scallop form on Ptolemaic style maps as means to show space for the new discoveries in the East and the West. On Higden Ingrid Baumgärtner, "Graphische Gestalt und Signifikanz. Europa in den Weltkarten des Beatus von Liébana und des Ranulf Higden" in (eds.) Ingrid Baumgärtner and Hartmut Kugler, *Europa im Weltbild des Mittelalters. Kartographische Konzepte* (Berlin, 2008), pp. 81–132, here p. 104–105. See for the assumption that the almond shape was a widely accepted conception of the world Angelo Cattaneo, *Mappa Mundi 1457. Carta conservata presso la Biblioteca Nazionale Centrale di Firenze con la segnatura Portolano 1* (Rome, 2008), p. 10.

<sup>26</sup> Manuel Francisco Barros de Santarém, *Essai sur l'histoire de la cosmographie et de la cartographie pendant le moyen-âge, et sur les progrès de la géographie après les grandes découvertes du XVe siècle* Vol. III (Paris, 1849-1852), pp. 82-83; Ingrid Baumgärtner, "Graphische Gestalt," p. 119 (n. 25); Osvaldo Baldacci, "L'Ecumene a 'Mandorla'," *Geografia* 6 (1983), pp. 132–138, here pp. 133-134, 136 and Woodward, "Medieval Mappaemundi," p. 318 (n. 4). There are differing interpretations as to when exactly Strabo was available in Latin Europe: Cattaneo, *Mappa Mundi 1457*, p. 158 n. 1 (n. 25), believes it was not distributed before 1458; Woodward, "Cartography and the Renaissance," p. 8 (n. 9) cites 1439 as the date it was introduced to Florence by George Gemistus Plethon in Greek; and Aubrey Diller focuses on 1450 in *The textual Tradition of Strabo's Geography* (Amsterdam, 1975), p. 116, especially as cited extensively by Flavius Biondo.

<sup>27</sup> (Ed. and comment) Georges Grosjean, *Mapamundi. Der katalanische Weltatlas vom Jahre 1375*. Facs.-ed., (Dietikon-Zürich, 1977), p. 41; Hans-Christian Freiesleben, *Der katalanische Weltatlas vom Jahre 1375*. Nach dem in der Bibliothèque Nationale, Paris, verwahrten Original farbig wiedergegeben. (Stuttgart, 1977), p. 25. Edson, *World Map*, p. 194 (n. 1).

Bacon's aim to determine individual qualities of locations via their relation to the celestial bodies. Moreover, taking into account, that medieval cosmology locates the angels and the Blessed in the outermost sphere, this puts the depiction of the world as an egg within the realm of Christian philosophy. Both possibilities hint at a heterogeneous conception of space.

The Genoese map's shape also might have been inspired by the twelfth-century Parisian scholar Hugo of St. Victor's description of drawing an almond-shaped world map, containing an Ark. Since late Christian antiquity, the Ark was seen as symbol of the church, sailing the world ocean. Hugo interpreted the Ark historically as Ark of Noah, allegorically as Ark of the Church, and tropologically as Ark of sapiency.<sup>28</sup> In this context, the frame and overall shape of the map gains salvific historical relevance. In general, Christian symbolism connects the mandorla to Christ Cronocrator, who rules over time. Its light aura was and is still a symbol for sanctity, and thus the frame might signify that the world is Christ's domain.<sup>29</sup>

The motif of using a single eye to represent God became popular among fifteenth-century humanists. Hence, the almond-shaped frame might represent God's omniscience.<sup>30</sup> In this case, the elaborate depictions of Christian stories traditionally depicted outside a map's

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<sup>28</sup> Patrick Gautier Dalché, *La 'descriptio mappae mundi' de Hugues de Saint-Victor*. Texte inédit avec introduction et commentaire, (Paris, 1988), pp. 21, 109-111; Patrice Sicard, *Diagrammes médiévaux et exégèse visuelle. Le Libellus de formatione arche de Hugues de Saint-Victor* (Paris, 1993), pp. 167-170; Woodward, "Medieval Mappaemundi," p. 313, 335 (n. 4); Scafi, "Defining Mappaemundi," p. 347 (n. 16); Hanna Hohl, "Arche Noe" in (ed.) Engelbert Kirschbaum, *Lexikon der christlichen Ikonographie* Vol. 1 (Rome, 1968) pp. 178-179, here p. 179. See also Conrad Rudolph, *First, I find the center point": Reading the text of Hugh of Saint Victor's The mystic ark* (Philadelphia, 2004), pp. 84-85, Rudolph shows a reconstruction of Hugo's map, which is not preserved in the original: fig. 1.

<sup>29</sup> Woodward, "Medieval Mappaemundi," p. 335 (n. 4). See Wilhelm Messerer, "Mandorla" in (ed.) Engelbert Kirschbaum, *Lexikon der christlichen Ikonographie* Vol. 3 (Rome, 1971), pp. 147-149, here p. 147. For examples of depictions of Christ in the mandorla in Last Judgement Scenes, see Beat Brenk, "Weltgericht" in (ed.) Engelbert Kirschbaum, *Lexikon der christlichen Ikonographie* Vol. 4. (Rome, 1972) S. 514-524, here p. 514, 517.

<sup>30</sup> Peter Stephan, "Auge Gottes" in (eds.) Walter Kasper and Michael Buchberger, *Lexikon für Theologie und Kirche*, vol. 1. Special Edition, Rev. of 3rd ed. 1993 - 2001 (Freiburg im Breisgau, 2009), p. 1223. Lore Kaute, "Auge, Auge Gottes" in (ed.) Kirschbaum, *Lexikon der christlichen Ikonographie* Vol. 1, pp. 222-223 (n. 28).

frame would have been replaced by the frame itself.<sup>31</sup> Accordingly, the Genoese map's depiction of the earth would be read in a Christian context, which could argue for a heterogeneous conception of space.

The question of why the mapmaker might have decided to use this particular frame and setting is not easy to answer. The circle was widely taken as symbol of perfection, of God's love and absoluteness.<sup>32</sup> Could it have been so easy for the mapmaker to discard it without any proper reason, without replacing it with a different spiritual, symbolic concept? Some arguments explaining the use of the almond shape point towards homogeneous and others towards heterogeneous conceptions of space. The possibilities presented here are not new, but comparing them shows that it is not possible to draw unambiguous conclusions about the character of Genoese World Map's conception of space, based solely on the shape of its frame. Other features of the map need to be explored before such conclusions can be drawn.

### **Map Scales and Rhumb Lines: On the Way to *Modern Cartography*?**

The mapmaker painted two scales outside the map's frame, (**Figure 1**) one indicating 100- and the other 50-mile increments. Whether the mapmaker took measured distances as the basis for his scales or whether he painted scales as a pretense is irrelevant to a study of the map's spatial conception. The important thing is his purpose, about which we can only hypothesize.<sup>33</sup> Naturally, scales suggest space defined purely by measurement, not space defined by meaning. But this does not automatically imply a homogeneous conception of

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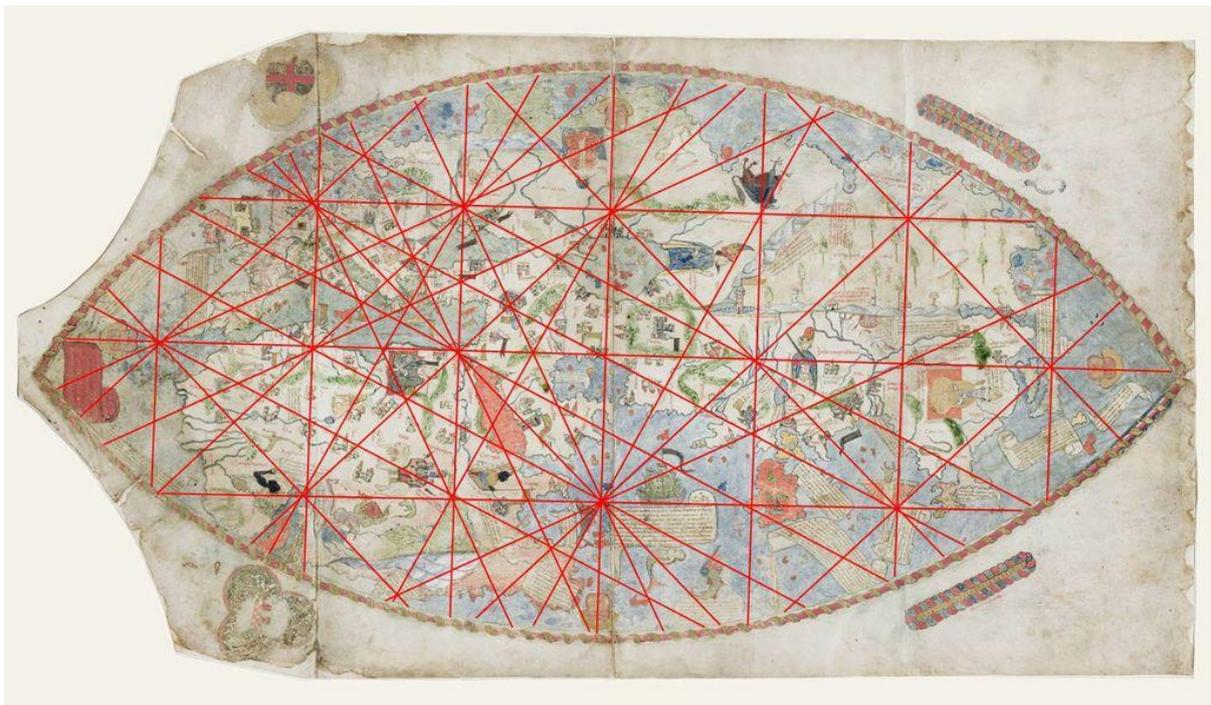
<sup>31</sup> Examples for depictions of Christian faith outside the oikumene: Ebstorf, Hereford, Psalter maps, see n. 23.

<sup>32</sup> Oskar Holl, "Kreis" (ed.) Engelbert Kirschbaum, *Lexikon der christlichen Ikonographie* Vol. 2 (Rome, 1970), pp. 560–561. Differing: Arentzen, *Imago Mundi*, p. 320 (n. 6), who sees the agent for the dominance of the circle shape in world maps in the settings of Isidore of Seville, in the conception of an egg-shaped cosmos and in the desire to locate Jerusalem in the center of the map.

<sup>33</sup> See Cattaneo, *Mappa Mundi 1457*, p. 174 (n. 25), for an extrapolation from the scales of the Genoese World Map to the supposed radius of the earth, arriving at figures similar to Eratosthenes.

space. Did the mapmaker want to give every point on this map equal value? Or do the scales just indicate that he valued a near-natural depiction of the world?

The system of rhumb lines the mapmaker used is clearly reminiscent of portolan charts, whose coastlines are shown on the Genoese map as well. The inclusion of this system could be interpreted as an attempt at spatial accuracy. Connecting the frame of the map and its rhumb system, Osvaldo Baldacci suggests that the mapmaker tried to unite Strabo's scallop form of the world and Marinus of Tyre's grid.<sup>34</sup> In **Figure 2**, the lines, still partly visible on a



**Figure 2** So-called Genoese World Map, with rhumb lines retraced by the author, with permission by Ministero per i Beni e le Attività Culturali / Biblioteca Nazionale Centrale di Firenze.

digitized reproduction in possession of the author, are retraced. Even if these lines are connected to Marinus's projection, there is not much known about Marinus's grid due to the lack of source material.<sup>35</sup> However, on the Genoese World Map, no projection method was used, and the rhumb line system seems unfinished – either this or it is deliberately concentrated on Europe, West Asia, and the Indian Ocean. If the map is unfinished, this

<sup>34</sup> Baldacci, "L'Ecumene a 'Mandorla'," pp. 133-134, 136 (n. 26).

<sup>35</sup> See Cattaneo, *Mappa Mundi 1457*, p. 10-11 (n. 25).

indicates that these lines were not important for the construction or the use of the map. If, on the other hand, the map is finished as it stands, one might expect the rhumb lines to concentrate on the areas modeled on portolan charts. But this is not the case, as the node in the Indian Ocean, about which no measurements were known, is the most prominent one. Moreover, the lines cover much ground onshore, which makes its use for navigational purposes seem unlikely. But, then, perhaps the mapmaker simply wanted to emphasize certain regions.

As with the frame of the map, its scales and rhumb system do not point clearly to a homogeneous or a heterogeneous conception of space, yet the mapmaker valued a near-natural depiction of the world. He explicitly declares this, using golden letters on red background, in the most elaborate cartouche of the map (in the extreme west): “This is the true [*vera*] description in agreement with Marinus, having rejected the frivolous tales of certain cosmographers: 1457.”<sup>36</sup>

The mapmaker writes not only that he takes his description of the world to be *true*, but that he eliminated tales he thought *untrue*. It is most interesting to note that, for him, tales, *narrationes*, are an important part of the map, and that those he included he took to be *true*. This suggests that his *truth* includes the stories of Gog and Magog, Alexander the Great, and the dragons and composite beings he depicted. Is it, subsequently, still possible that the mapmaker had a homogeneous conception of space in mind, with every location of equal value, a space devoid of meaning? Striving for a near-natural depiction of the world certainly limited his means of expression: measured distances cannot be expressed any more according to meaning. But striving for accuracy, for *truth*, was also important in order to be able to find

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<sup>36</sup> “Hec est vera cosmographorum cum marino accordata de(scri)pcio quorundam frivolis narrationibus reiectis 1457,” transcription and translation Edson, *World Map*, pp. 192-193 (n. 1).

one's place in salvation history.<sup>37</sup> Could it be possible that on the Genoese World Map space is not devoid of meaning, but that meaning is expressed in a new way?

### **The Depiction of a Homogeneous World?**

If one regards the map as a whole, considering its legends and pictures, that the mapmaker had a clear focus becomes clear. The most elaborate legend is located, as discussed above, in the extreme west. Other focal points lie in the Indian Ocean, Asia, and Africa, all of which contain numerous large, detailed legends, pictures and vignettes. Europe, in contrast, seems quite unimposing. The viewer's gaze is steered away from Europe toward Asia, Africa, and the margins of the world, which is not uncommon in world maps of the time. Out of forty-three legends with more than four words, twenty are concerned with Asia, eleven with the Indian Ocean, seven with Africa, four with the Atlantic, and only one with Latin Europe. Rivers and mountains are shown on the map, but generally without denomination or explanatory legend. However, the Ganges, the Indus, and the Nile are specially designated: in India, the Ganges and the Indus are not only depicted, but the Ganges is furnished with six and the Indus with three legends or denominations.<sup>38</sup> In Africa, the source of the Nile is described as being located in the mountains of the moon.<sup>39</sup> While the majority of mountains are painted green and shown in plan view, the mountains of the moon are depicted in white and in profile, creating an illusion of depth. Other mountains in white and in profile are the mountains forming the border around the region enclosed by Alexander the Great, named "*Ymaus mons*," and the mountains in the enclosure, which are labeled three

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<sup>37</sup> See n. 19.

<sup>38</sup> For the legends and toponyms concerning the Ganges see Cattaneo, *Mappa Mundi 1457*, p. 175 n. C20, p. 180 n. D6, p. 187 n. D16, D19, D20, D22; for the Indus Cattaneo, *Mappa Mundi 1457*, p. 187 n. D7, D8, D11 (n. 25).

<sup>39</sup> See Cattaneo, *Mappa Mundi 1457*, p. 192 n. E8.

times as “*Montes inaccessibiles.*”<sup>40</sup> In Northwest Asia, in the area where the Mongols are depicted the only white mountains shown in profile without any legend are to be found. All the other mountains on the map are of the green flat type, even when legends are attached to them, which only occurs three times. These three legends inform the viewer about a mountain in China where carbuncles originate, about burning mountains in Africa, where a spring with alternately hot and cold water is located, and denominated as “*Mons Synai*” a mountain with a church on the shore of the Red Sea.<sup>41</sup> A similar alternation of perspective can be seen in the vignettes representing towns, which appear in different sizes and colors. Most of them are flat, elevated representations of towers and walls, but some shown from an oblique perspective, giving an illusion of depth through the alignment of buildings - though very few provide a convincing illusion of depth.<sup>42</sup>

Overall, the mapmaker does not present a picture of a homogenous world. He does not depict a space uniformly furnished with explanations and pictures. He emphasizes certain regions, certain locations, allotting more space to explanations in some areas than in others, creating differences through variations in distribution, content, size, color, and perspective. In short, he represents a hierarchical space.

### **Following Ptolemy?**

As discussed above, the mapmaker aimed to create a *true* description of the world. In order to achieve this, he claims to be weighing authorities against each other. In two cases,

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<sup>40</sup> See Cattaneo, *Mappa Mundi 1457*, p. 175 n. C11, C12, C16, C17.

<sup>41</sup> See Cattaneo, *Mappa Mundi 1457*, p. 173 n. C11, p. 194 n. E12, p. 195 n. E71.

<sup>42</sup> See for examples of oblique perspective, giving an illusion of depths: Cattaneo, *Mappa Mundi 1457*, p. 195 n. E76, E68, p. 182-83 n. D12; for examples of a convincing illusion of depths: Cattaneo, *Mappa Mundi 1457*, p. 161 n. A49, p. 195 n. E14.



**Figure 3** Detail of so-called Genoese World Map: West Africa with gulf and passable ocean, with permission by Ministero per i Beni e le Attività Culturali/ Biblioteca Nazionale Centrale di Firenze.

Ptolemy and Pomponius Mela are explicitly named. The mapmaker lists their differing opinions in writing and once decidedly contradicts Ptolemy. To the right of the depiction of a gulf containing three islands, he writes: “Contrary to the tradition of Ptolemy, this is a gulf, but Pomponius speaks of it with its islands.”<sup>43</sup> (Figure 3) In both cases, the mapmaker’s depictions follow Pomponius Mela, opting for a circumnavigable Africa and the existence of

<sup>43</sup> Cattaneo, *Mappa Mundi 1457*, p. 193 n. E9: “Preter Ptolemei tradicionem est hic gu[l]fus sed Pomponius eum tradit cum eius insula.” Translation Edward Luther Stevenson, *Genoese World Map 1457. Facsimile and critical text incorporating in free translation the studies of Professor Theobald Fischer* (New York, 1912), p. 55.

a gulf on the west African coast.<sup>44</sup> It is unlikely that this gulf is meant to be the Gulf of Guinea, as it was not known at the time. The mapmaker might have drawn on the *Libro del conocimiento* from the fourteenth century, which mentions a gulf on the west African coast, interpreted as passageway either to the land of Prester John or to the River of Gold, allusions that are also found on the Fra Mauro, the Borgia-Velletri and the Catalan Estense world maps of the fifteenth century.<sup>45</sup> By showing an open Indian Ocean without any southern continent, our mapmaker rejects Ptolemy once again. This time he does not comment overtly, but explains in a legend situated in the far west of the Atlantic Ocean that this infinite ocean covers the rest of the world and quotes the thirteenth century scholar Albertus Magnus to show that its tides are caused by the moon's influence. Most interestingly, another legend in the Persian Gulf assures the reader that it has tides, just like the ocean. Consequently, the two oceans must be connected, whereby the mapmaker manages to support his depiction of an open, navigable Indian Ocean in an indirect way.<sup>46</sup>

The mapmaker, when weighing antique authorities against each other, possibly looking for further information gained by eye-witnesses, in the end sets himself against Ptolemy. Implicitly, he follows Ptolemy, as in his picturing of a Ptolemaic landlocked Caspian Sea, which was confirmed by the findings of travelers like the Venetian merchant Marco Polo and the Franciscan William of Rubruck.<sup>47</sup> Apart from a denomination in the Caspian Sea (unfortunately no longer legible), the mapmaker did not make any further clarifying comment. But to the north of the Caspian Sea, a bay or a gulf is depicted. This might be a second Sea, as it traditionally was represented. Other mapmakers of the fourteenth

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<sup>44</sup> See Cattaneo, *Mappa Mundi 1457*, p. 193 n. E9, p. 194 n. E13 (n. 25).

<sup>45</sup> Edson, *World Map*, p. 158, 178, 198 (n. 1). For an introduction on Prester John, who appeared since the 12th century in varying constellations as opponent of the enemies of the Christians, see Ulrich Knefelkamp, "Johannes Presbyter" in *Lexikon des Mittelalters*, Vol. 5 (Stuttgart, 1991), pp. 530-32.

<sup>46</sup> Cattaneo, *Mappa Mundi 1457*, p. 158 n. A2, p. 190 n. E1 (n. 25).

<sup>47</sup> See Edson, *World Map*, p. 8, 73 (n. 1).

and fifteenth centuries like Marino Sanudo, Paulinus Minorita and Andreas Walsperger also showed two Caspian Seas.<sup>48</sup> Could it be possible that the mapmaker of the Genoese World Map expressed his doubts about the Caspian Sea by showing it twice, thereby acting in line with a heterogeneous conception of space?

In the Indian Ocean appears a fish with a human head, identified as a swordfish by the mapmaker, who quotes Pliny here. Alongside, we find a humanlike figure with horns, fins, and a fishtail, for which the mapmaker refers to the Venetians, claiming they had captured the creature and distributed its picture.<sup>49</sup> This is not the only case where contemporary information finds its way onto the map, although the other sources are not explicitly named. The west African coast carries the names of Portuguese discoveries down to Cape Bojador, while Cape Verde and Cape Rosso, discovered in 1446, are not mentioned.<sup>50</sup> In the Atlantic Ocean, the Canaries are named, and Madeira and probably the Azores are shown.<sup>51</sup> Much of the information given in Asia stems from Niccolò de' Conti, the traveling merchant who came back to Venice in 1439, but it also might emanate from Marco Polo.<sup>52</sup> The Genoese map's depiction of Scandinavia, too, could have been influenced by the Danish mapmaker Claudius Clavus' map of Northern Europe, which was discussed around 1439 at the council of Florence.<sup>53</sup>

All in all, the mapmaker weighed the information available to him and put ancient authorities and contemporary information on an equal footing. After considering these sources, he depicted regions or elements as he believed them to be, based on the information

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<sup>48</sup> Edson, *World Map*, p. 72, 132, 181.

<sup>49</sup> See Cattaneo, *Mappa Mundi 1457*, p. 180 n. D7, p. 185 n. D20 (n. 25).

<sup>50</sup> Cattaneo, *Mappa Mundi 1457*, p. 195 n. E1, E2, E3.

<sup>51</sup> Cattaneo, *Mappa Mundi 1457*, p. 161 n. A1.

<sup>52</sup> Cattaneo, *Mappa Mundi 1457*, p. 11.

<sup>53</sup> See Gautier Dalché, "Ptolemy's Geography," p. 303 (n. 1).

they provided, and backed up his decisions in accompanying legends. This critical approach seems to be one of the map's more innovative elements. Here the mapmaker does not stand alone, as this quality is even more prominent in the *mappa mundi* of Fra Mauro, dated around the time of the Genoese World Map.<sup>54</sup> Favoring one option out of several could point to the mapmaker's conscious homogenization of space, to a new way of conceptualizing space by assigning every element of the map its definite location. But in the case of the Caspian Sea, it might be that the mapmaker reached no decision or that no decision seemed necessary, and so he listed all available information in a visual way. The depiction of two Caspian Seas, without the need for a decision, contradicts the notion of a homogeneous space, where every object has but one exact location, and therefore could create an entirely different picture.



**Figure 4** Detail of so-called Genoese World Map: Mongols north of the Caspian Sea, with permission by Ministero per i Beni e le Attività Culturali/ Biblioteca Nazionale Centrale di Firenze.

<sup>54</sup> See Patrick Gautier Dalché, "Weltdarstellung und Selbsterfahrung: Der Kartograph Fra Mauro" in (eds.) Heinz-Dieter Heimann and Pierre Monnet, *Kommunikation mit dem Ich. Signaturen der Selbstzeugnisforschung an europäischen Beispielen des 12. bis 16. Jahrhunderts* (Bochum, 2004), pp. 39–51, here pp. 44–46. See Gautier Dalché, "Ptolemy's Geography," p. 315 (n. 1).

## A Synchronic Depiction?

The critical approach of the mapmaker extends to other topics as well. Out of the forty-three legends with more than four words, ten long and seven shorter ones deal with the Mongols, the area enclosed by Alexander, or Prester John. North of the Black Sea, **(Figure 4)** Mongols are shown wandering about with their houses packed on a wagon, settled in a town which bears the denomination “*Lordo*,” an approximation of the Mongolian *ordo*, which means campsites, and in the person of their ruler “*Lordo rex*.” In East Asia, they reappear as Tartars – the contemporary Western term for Mongols – enclosed by Alexander. The ruler depicted east of the Caspian Sea is identified as son of the Great Khan and the one in China as the Great Khan himself, the latter mentioned again in the more precise designation of the region.<sup>55</sup>

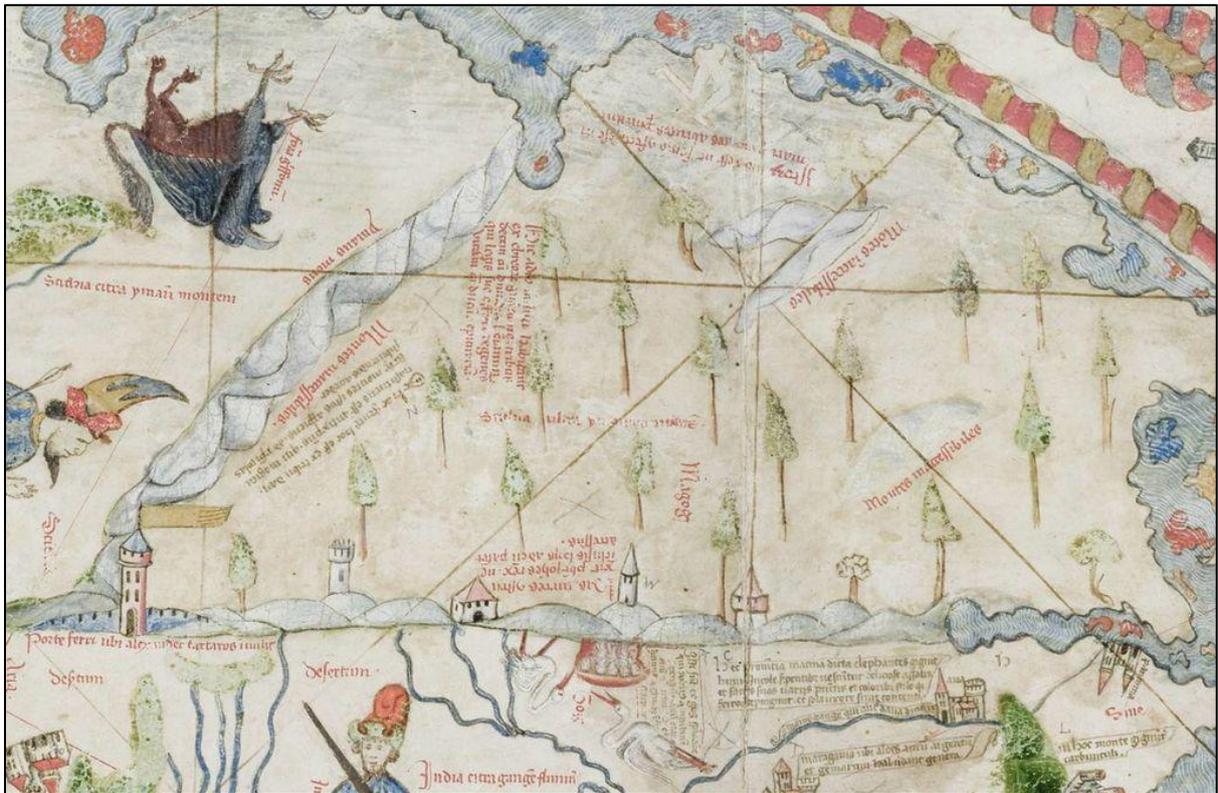
This portrayal does not quite do justice to the power relations in the region during the mid-fifteenth century. Timur’s descendants admittedly enjoyed a new bloom at the time, but the descendants of the Golden Horde, though still in power, were weak, and Moscow’s influence was growing. The Mongolian dynasty in China had long been replaced by the Ming dynasty. Even considering that in the Latin Europe of the fifteenth century, a conception of mighty Mongols in China still persisted, it nevertheless seems that the mapmaker pictures an exaggerated Mongolian presence in Asia, neglecting other powers, which might be connected to the renewal of an interest in the Mongols at the time, due to growing danger from the Turks.<sup>56</sup> On top of that, the mapmaker shows the Mongols at different times: as more or less contemporary rulers and people, as a people enclosed by Alexander a long time ago, and, through this depiction, as a people of the end times. **(Figures 4 and 5)**

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<sup>55</sup> See Cattaneo, *Mappa Mundi 1457*, p. 160 n. A4, A5, p. 161 n. A41, p. 169 n. C3, p.175 n. C14, p. 178 n. D1, p. 179 n. D5 (n. 25).

<sup>56</sup> See Felicitas Schmieder, *Europa und die Fremden. Die Mongolen im Urteil des Abendlandes vom 13. bis in das 15. Jahrhundert* (Sigmaringen, 1994), pp. 195-196, 302-303.

A similar observation can be made in the area enclosed by Alexander. There are two Iron Gates, the one further east (**Figure 5**) explicitly related to Alexander and illustrates the tendency at the time to move landmarks eastwards, when their earlier, supposed location proved to be false. A bit to the east of the far eastern gate, Prester John is said to have built towers to ensure that the enclosed people could not escape.<sup>57</sup> Thus, Prester John appears as Alexander's co-constructor in enclosing the people of the end times. In the walled area itself, trees are painted, which is a singular occurrence on this map and is, in fact, exceptional for the whole genre. Within the enclosed region these trees set the area even further apart,



**Figure 5** Detail of so-called Genoese World Map: Region enclosed by Alexander, with permission by Ministero per i Beni e le Attività Culturali/Biblioteca Nazionale Centrale di Firenze.

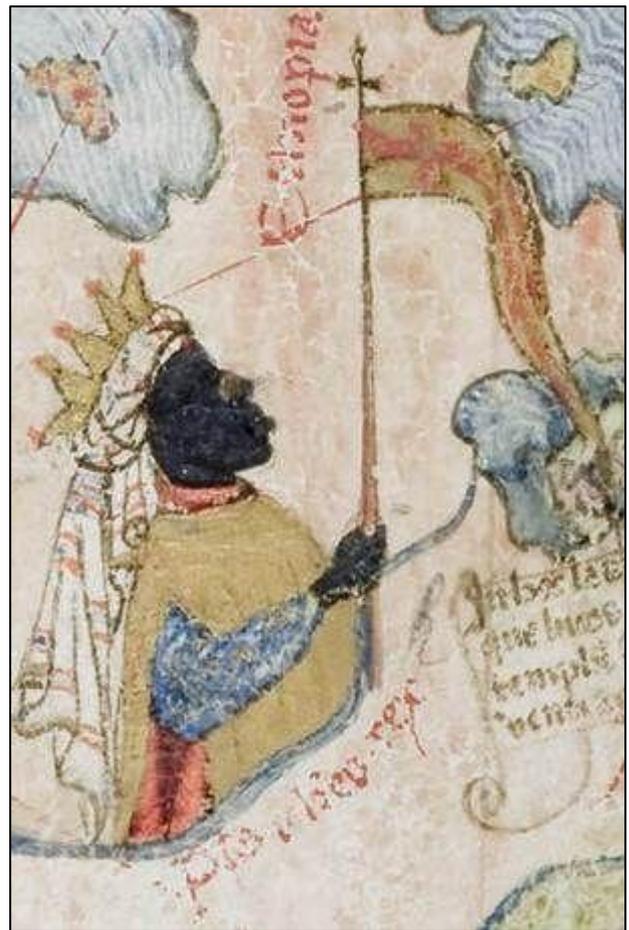
<sup>57</sup> See Cattaneo, *Mappa Mundi 1457*, p. 160 n. A6, p.175 n. C14, p. 170 n. C7.

irrespective of whether the mapmaker's aim was to show the Siberian Woods or to indicate a legally or cultural separate area, which forests then often formed.<sup>58</sup>

Moreover, there seems to be some doubt about the identification of the people enclosed. As mentioned above, the inscription at the gate states that Alexander enclosed the Tartars. In the enclosed area, "Magog" is inscribed in a style used elsewhere to indicate names of regions, but the Tartars are not mentioned. The same is true of "Gog," which is written just outside the enclosure, along with a picture of two cranes attacking dwarves, the latter likewise identified as Gog. Inside the enclosure, inscriptions identify the Hebrews, who lead an excessive lifestyle, and the tribe of Dan, from which the Antichrist will be born.<sup>59</sup>

**Figure 6** Detail of so-called Genoese World Map: "Presbyter Johannes rex" in Africa, with permission by Ministero per i Beni e le Attività Culturali/Biblioteca Nazionale Centrale di Firenze.

On the Genoese World Map we find representations of the Mongols as contemporary rulers and as enclosed people, of the medieval Prester Johan as co-



constructor of Alexander the Great and of the people of the end times side by side with a

<sup>58</sup> See Ulrich Mattejiet, (1991): "Wald. B. Literarische und kulturgeschichtliche Bedeutung" in *Lexikon des Mittelalters* Vol. 8 (Stuttgart, 1997), pp. 1944–1946.

<sup>59</sup> See Cattaneo, *Mappa Mundi 1457*, p. 169 C4, C5, p. 170 n. C6, p. 171 n. C8, p.175 n. C14, C15, C18 (n. 25). Gog and Magog as people of the end times: Ez 38-39; Rev. 20,8. On the amalgamation of Gog and Magog with the ten lost tribes of the Hebrews and the conception of Antichrist coming from the people Dan: Andrew Colin Gow, "Das Gefolge des Antichristen: Zur Legende von den ‚roten Juden‘" in Knefelkamp, *Antichrist*, pp. 102–112, here pp. 103-105.

prediction of the coming Antichrist. This reflects the multiple timelines depicted on the map: the past of Alexander, the present of more or less contemporary rulers, and the apocalyptic future of Antichrist. A closer look at the map's representations of Prester John (in varying guises) raises further questions about the mapmaker's understanding of space. Prester John is explicitly named and pictured again in Ethiopia, (**Figure 6**) where he is shown as ruler. This is in line with a tendency, starting in the fourteenth century, to show him in Africa, as it became increasingly clear that he could not be found in Asia.<sup>60</sup> It is possible that the "Indorum rex" in India (**Figure 7**) is another allusion to Prester John, as he was named ruler of the three Indias, in the twelfth-century letter supposedly written by him to the Byzantine emperor.<sup>61</sup> It seems that the mapmaker gathered all of the information available to him and situated Prester John in three distant locations. The interesting question is whether the appearances of Prester John on different continents represents two options with a decision pending, or if it means Prester John is located in different places – which could jeopardize the thesis of a homogenous conception of space. Apparently, the mapmaker has no quibble with illustrating the same people at different times or one person at different locations on the map.

## Conclusion

Does the Genoese World map represent an intermediate step between a heterogeneous *medieval* conception of space and a more *modern* homogeneous one? To tackle this question, it is necessary to hypothesize on the mapmaker's intentions and study the way he handles the space on his map. What is clear is the mapmaker's declaration of intent, his striving for

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<sup>60</sup> See Cattaneo, *Mappa Mundi 1457*, p.170 n. C7, p. 191 n. E5 (n. 25). Edson, *World Map*, p. 98 (n. 1). For another example showing Prester John in Africa as a black man, see Catalan Estense World Map, c. 1450-1460 (Ernesto Milano and Annalisa Battini, *Il mappamondo Catalano Estense. Die katalanische Estense-Weltkarte* (Dietikon-Zürich, 1995), p. 178).

<sup>61</sup> See Cattaneo, *Mappa Mundi 1457*, p. 184 n. D16 (n. 25). For the letter see Ulrich Knefelkamp, *Die Suche nach dem Reich des Priesterkönigs Johannes. Dargestellt anhand von Reiseberichten u. anderen ethnographischen Quellen d. 12. bis 17. Jahrhunderts* (Gelsenkirchen, 1986), pp. 180-88. Although the depictions of the "Indorum rex" and the "Presbyter Johannes rex" appear quite different, they seem to relate to the same idea.

accuracy and a near-natural depiction of the world, all of which make his map look rather *modern*.

**Figure 7** Detail of so-called Genoese World Map: “Indorum rex” in India, with permission by Ministero per i Beni e le Attività Culturali/Biblioteca Nazionale Centrale di Firenze.



He shows a critical approach in dealing with his sources, backing up his decisions or listing information, which is a very innovative feature. He also saw storytelling and history essential parts of his enterprise. Using these histories, he concentrated his attention on certain regions, emphasizing especially Asia, distinguishing certain locations through different forms of depiction, thereby creating a hierarchical space. The mapmaker saw apparently no inconsistency in depicting different times simultaneously or one element in multiple locations, melding time and space seems to be effected unconsciously. Taking his stated aim for *truth* seriously would imply that all of these features were part of his *truth*.

As shown above, social customs and spatial perceptions are connected, and the mapmaker's intent to provide a near-natural depiction of the world might be related to the Christian faith.<sup>62</sup> It is problematic to presume a homogenous conception of space is operative in the later Middle Ages or the Early Modern period, just because a mapmaker painted a *mappa mundi* using coastlines drawn from portolan charts, since geography is but one dimension of a map's content. Just as important are the various dimensions of meaning on the

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<sup>62</sup> See above p. 58 and 61.

Genoese World Map relating to faith and social life. Perhaps in answering certain questions one should not look too hard for historical transitions or changes in cartography, as this tempts one to privilege current representational conventions. In studying cosmological models of the Middle Ages, it would be more constructive to look for continuities that might even expose our modern understanding of homogeneous space as an illusion. These continuities could perhaps explain why, as Evelyn Edson and Emilie Savage-Smith write, [the medieval cosmological model's] "overthrow in the seventeenth century caused a profound spiritual and psychological disorientation from which we have yet to recover."<sup>63</sup> Studying conceptions of space in *mappae mundi* reveals how these conceptions change over time. Today, in character with the preferences of our own culture, we are persuaded to live our everyday life in a homogeneous, absolute space, neatly separated from time, notwithstanding that Albert Einstein disproved this notion. Therefore, although this study focuses on maps that are centuries old, it just might enhance our understanding of the current conflict between our daily experience and our theoretical knowledge of space and time.

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<sup>63</sup> Evelyn Edson and Emilie Savage-Smith, *Medieval Views of the Cosmos: Picturing the Universe in the Christian and Islamic Middle Ages* (Oxford, 2004), p. 20.