

## ADDITIONAL THOUGHTS ABOUT THE CONSTRUCTION OF FRANCESCO DI GIORGIO'S DRAWING OF ATLAS\*

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In 1933, Fritz Saxl published a short article on the iconography of Francesco di Giorgio's drawing of *Atlas*, now in Braunschweig (Fig. 1). The article was accompanied by a two-page appendix by Elsbeth Jaffé, on references to Ptolemaic astral geography in the image.<sup>1</sup>

Whereas Saxl's identification of the subject of the drawing as a representation of the Titan Atlas is entirely convincing,<sup>2</sup> he made a number of less satisfactory suggestions concerning the posture and attributes of the figure. For example, he proposed that the swirling drapery and awkwardly dynamic posture embodied Francesco's visualisation of Atlas's role: not only as the bearer of the heavens, but as the prime agent for the apparent rotation of the skies above the earth.<sup>3</sup> Rather than seeing the Titan's stance as an elegant *contrapposto*, Saxl believed that the solid placement of Atlas's right foot at the centre of the disc on which he stands, and the lighter touch of his left foot on the inner ring of the disc, indicates that he has been captured in the act of spinning the celestial sphere, somewhat like a ballet dancer executing a *pirouette*.<sup>4</sup> Yet in light of the fact that many, if not most, of Francesco's figures exhibit a similar posture,<sup>5</sup> Saxl's reading does not seem sufficiently compelling to support the interpretation of Atlas appearing here specifically in his role as

\* This article was first presented as part of the seminars accompanying the National Gallery exhibition *Renaissance Siena: Art for a City* (2007–08). I would like to thank Luke Syson and Carol Plazzotta for the invitation and the participants of the seminar for their insightful comments. I also wish to thank Charles Burnett for his wise counsel on the Arabic sources on astral-geography.

1. Braunschweig, Herzog Anton Ulrich Museum, Kunstmuseum, inv. Z 292. F. Saxl, 'Atlas, der Titan, im Dienst der astrologischen Erdkunde', *Imprimatur*, IV, 1933, pp. 44–53; E. Jaffé, 'Die Astralgeographie des Ptolemäus in der Zeichnung des Francesco di Giorgio', *ibid.*, pp. 53–55. Note that Jaffé's appendix does not accompany the Italian translation by Flavio Cuniberto of Saxl's article, available in his collected essays, *La fede negli astri: dall'antichità al Rinascimento*, ed. S. Settis, Turin 1985, pp. 292–302 and 477.

2. Saxl brutally dismisses a previous identification of the figure as *Fortuna* (*ibid.*, p. 44): 'McComb nennt das Blatt „Allegory of Fortune“. Die Gestalt ist männlich, Fortuna jedoch weiblich, die Kreise sind keine Glücksräder—die Bezeichnung „Allegorie der Fortuna“ ist also nur als Produkt eben jener Kunstbetrachtung zu verstehen, die gar nicht den Versuch macht, das Kunstwerk aus den Bildungsinhalten seiner Epoche zu interpretieren.' For the original reference see A.

McComb, 'The Life and Works of Francesco di Giorgio', *Art Studies*, II, 1924, pp. 3–32, esp. 23.

3. Saxl, *ibid.*, p. 45: 'An diesem Atlas ist einiges ausfallend. Erstens das Gewand, das in großem Bausch um die Figur weht, zweitens die Haltung der Arme – der rechte ist weiter vorne als der linke –, endlich drittens der Umstand, daß das linke Bein zurückgestellt erscheint, während das rechte genau im Zentrum des unteren Kreises steht. ... // ... die Figur ist in einer lehaften kreisenden Bewegung begriffen, die die linke Körperhälfte im nächsten Augenblick nach vorne bringen wird. Atlas steht mit dem rechten Bein fest auf dem Zentrum der unteren Scheibe und bewegt mit übrigen Körper die himmlische Scheibe im Kreis über die untere.'

4. Saxl, *ibid.*, p. 45: '... unten ist die ruhende Erde, auf ihrem Pol steht Atlas, der als Weltachse auf seinen Armen den Himmel emporhält und kreisen läßt.'

5. Cf., e.g., Francesco's formula for expressing what appears to be non-specific *déhanchement* in the following: the Angel Gabriel in the *Annunciation* in the Pinacoteca, Siena (c. 1471); the small image of *Faith* attributed to Francesco di Giorgio in the Norton Simon Collection, Pasadena, CA (c. 1475); and the stance of his sculptural works of *John the Baptist* in the Museo dell'Opera del Duomo, Siena (1464), several of the figures from the *Scene of Conflict* in the Victoria



the mover of the heavens—particularly since such a characterisation appears rarely in the literature and, indeed, is actually dismissed by Aristotle as a cosmological impossibility.<sup>6</sup> Nor, one might argue, do Saxl's comparisons between Francesco's *Atlas* and several late medieval renderings of God the Father holding the celestial sphere serve to elucidate the purpose of this composition, albeit both share the association of 'symbols of cosmological knowledge'.<sup>7</sup>

Much more useful are Saxl's citations of a number of medieval representations of the Titan,<sup>8</sup> such as the image of Atlas supporting the heavens in the twelfth-century *Dialogus inter Nemroth et Joathon de Astronomia*,<sup>9</sup> another in a fourteenth-

and Albert Museum, London (c. 1474–80), and the *Male Nude with Snake* in the Skulpturensammlung, Staatliche Kunstsammlungen, Dresden (c. 1490). L. Syson et al., *Renaissance Siena: Art for a City* (exhib. cat.), London 2007: *Annunciation*, cat. 23, p. 135; *Scene of Conflict (Lycurgus and the Maenads?)*, cat. 44, p. 190; *Male Nude with Snake (Aesculapius?)*, cat. 47, p. 199). *Francesco di Giorgio e il Rinascimento a Siena, 1450–1500* (exhib. cat., Siena, Chiesa di Sant'Agostino), ed. L. Bellosi, Siena 1993: *Faith*, p. 287, fig. 4; *John the Baptist*, cat. 24, pp. 192–95. Indeed, this manner of depicting a figure standing with his or her weight unevenly distributed appears to have been very common among artists working in Siena during the last half of the 15th century and can be seen in any number of illustrations in these two catalogues.

6. Saxl (as in n. 1), p. 45, claims that according to Greek tradition ('...im griechischen Glauben'), Atlas turned the heavens; but cf. Aristotle, *De caelo*, II.1.18–24 (284a); see also the brief discussion of that passage in Aristotle, *On the Heavens*, ed. and English tr. W. K. C. Guthrie, London and Cambridge, MA 1939, p. xxxi. Saxl's subsequent references to the description of Atlas in Hesiod, *Theogony*, 517, and Pindar, *Pythica*, IV.289, do not refer to his cosmological role but only to Atlas's dissatisfaction with his lot.

7. Saxl (as in n. 1), p. 46: '...Symbolen der kosmologisch-wissenschaftlichen Forschung'. Cf. C. de Tolnay, 'The "Visionary" Evangelists of the Reichenau School', *Burlington Magazine*, LXIX, 1936, pp. 257–63, where he noted the *coelifer* Evangelists found in a number of medieval manuscripts associated with the Reichenau scriptorium and suggested that these figures were derived from classical images of Coelus holding up the mantle of the heavens; see also R. Eisler, *Weltenmantel und Himmelzeit*, Munich 1910 (referred to by de Tolnay, p. 258 n. 13). See, e.g., the Evangelist illustrations in Biblioteca Apostolica Vaticana [hereafter: BAV] MS Barb. Lat. 711 (già XIV, 84); and in Munich, Staatsbibliothek, Clm 4453, the Evangelary of Otto III, available in facsimile as *Das Evangeliar Ottos III Clm 4453 der Bayerischen Staatsbibliothek München*, ed. F. Dressler, F. Mutherich and H. Beumann, Frankfurt 1977–78. Panofsky, however, subsequently countered this interpretation, suggesting that, since the figures displayed 'obvious effort' in

supporting the 'heaven in the form of spheres', the classical prototype must be the figure of Atlas. He noted, in particular, the tilt of St Matthew's head and the way in which he rests his hand on his left hip in the Vatican manuscript, and cited the posture of St Mark in another Reichenau manuscript, the Evangelary from Bamberg Cathedral (Munich, Staatsbibliothek, Clm 4454, fol. 86<sup>v</sup>), as being reminiscent of the Atlas-type. See E. Panofsky, *Studies in Iconology: Humanistic Themes in the Art of the Renaissance*, New York 1939, pp. 20–21, esp. n. 10. For an illustration of the figure of St Mark see A. Goldschmidt, *German Illumination*, 2 vols, Florence and New York 1928, II, pl. 40; here one can also see the two male atlantes supporting the lintel of the picture frame, which equally recall the posture of an Atlas-figure.

8. To Saxl's list discussed here, Panofsky (as in n. 7) added the images of Atlas and the pair of atlantes supporting the Earth in the Utrecht Psalter (fols 48<sup>v</sup>, 54<sup>v</sup>, 56<sup>r</sup>, 57<sup>r</sup>), the figure of *Terra* supporting Otto II as depicted in his copy of the Gospels now in Aachen, Treasury (fol. 16<sup>r</sup>), and the Atlas-like caryatids which are depicted on the architecture behind St George of Bohemia in the *Menologium* of Basil II (BAV MS Vat. Gr. 1613, fol. 46). For these images see E. T. DeWald, *The Illustrations of the Utrecht Psalter*, Utrecht, London and Princeton 1932, pp. 37, 43–45 and pls LXXVI, LXXXVI, LXXXIX and XCI; for the Otto II portrait see P. E. Schramm, *Die deutschen Kaiser und Könige in Bildern ihrer Zeit, 751–1190*, 2 vols, Leipzig 1928, I, p. 44, and II, pl. 64 (repr. Munich 1983, p. 359 and fig. 107); also reproduced by G. B. Ladner, *Immagine dell'Imperatore Ottone II*, Rome 1988, fig. 9; and for St George's caryatids see *Il Menologio di Basilio II (cod. vaticano greco 1613)*, Turin 1907, p. 22, no. 74. Panofsky also mentions the curious Macrobian diagram in Copenhagen, Royal Library MS 218, fol. 25<sup>f</sup>, in which there are four Atlas-like figures surrounding the heavenly spheres. For a reproduction see M. Mackeprang, V. Madsen and C. S. Petersen, *Greek and Latin Illuminated Manuscripts... in Danish Collections*, Copenhagen 1921, pl. lxii.

9. BAV MS Pal. Lat. 1417, fol. 1<sup>r</sup>. The accompanying caption names Atlas as a great astrologer and king of Spain, who holds the starry sphere on his shoulders ('*Athlas magnus astrologus, rex ispanen, suis vegens*



1. Francesco di Giorgio Martini, *Atlas*, ink on parchment, c. 1472–75. Herzog Anton Ulrich-Museum Braunschweig, Kunstmuseum des Landes Niedersachsen (Z 292)

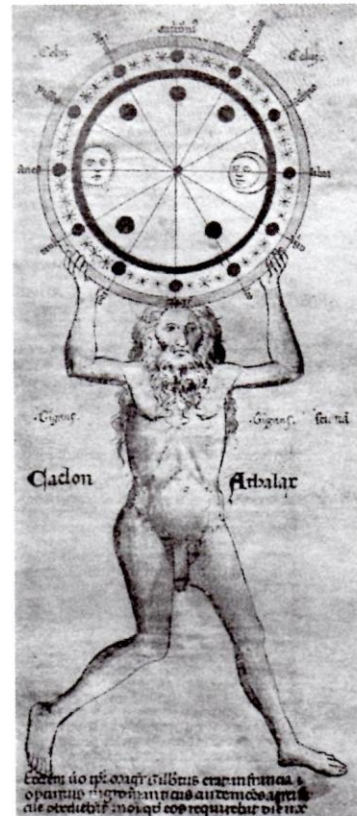


century Bolognese copy of the *Ovide moralisé*;<sup>10</sup> or the drawings of 'Athlas' in a least two manuscripts of Michael Scot's *Liber introductorius* (Fig. 2).<sup>11</sup> Of these, the last are the most pertinent to Francesco's drawing in that they do depict a standing male supporting a diagrammatic rendering of the heavens above his head, showing the twelve zodiacal signs encircling the earth. But, there are several differences between the Michael Scot drawings and Francesco's rendering of the Titan and his attributes. It is worth taking a closer look at these details, since they are important to an understanding of the iconography of the drawing and may even provide some hints as to its specific function.

humeris suis celum in clavum cum stellis'), while the hills on which he stands are labelled as the Pyrenees ('pireni montes').

10. Gotha, Landesbibliothek MS membr. I.98, fol. 137<sup>r</sup>. In the text of the *Ovide moralisé*, Atlas is described as carrying the whole of the firmament and sustaining us all through the virtue of his words; see the edition of C. de Boer, *L'Aia* 1915–38, III.IV, 6403 and 6428–30: 'Athlas puet noter Dieu le pere ... Cil porte tout le firmament, / et donne a tous soustènement / par la vertu de sa Parole'; cited by Saxl (as in n. 1), p. 48.

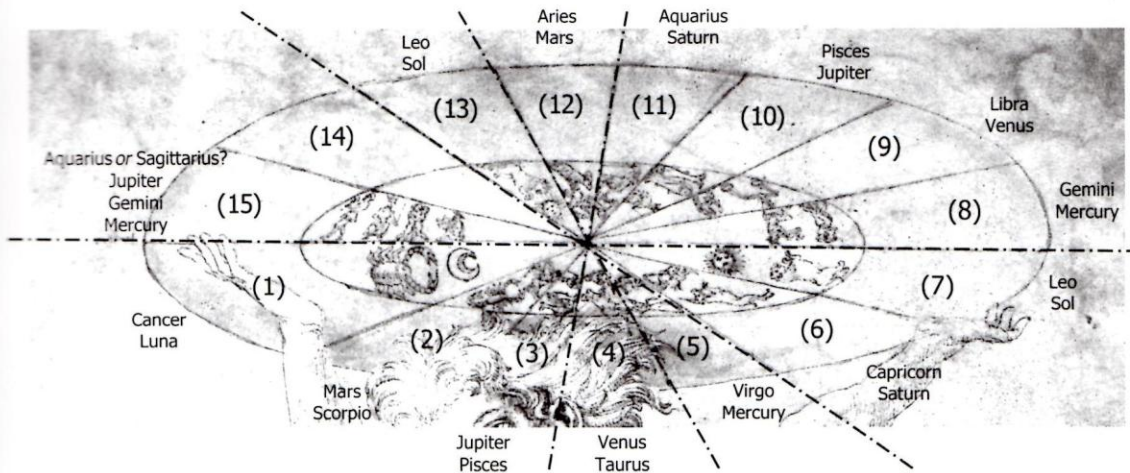
11. Munich, Staatsbibliothek, Clm 10268, fol. 19<sup>v</sup> (here Fig. 2); Oxford, Bodleian Library MS Bodley 266, fol. 25<sup>r</sup>. For a description of the provenance and dating of these manuscripts see U. Bauer, *Der Liber Introductorius des Michael Scotus in der Abschrift Clm 10268 der Bayerischen Staatsbibliothek München. Ein illustrierter astronomisch-astrologischer Codex aus Padua, 14. Jahrhundert*, Munich 1983; and S. Ackermann, *Sternstunden am Kaiserhof. Michael Scotus und sein Buch von Bildern und Zeichen des Himmels*, Frankfurt am Main etc. 2009. In Michael Scot's text, the giant Athlas is credited as being the inventor of the astrolabe. An Egyptian by birth, he travelled to Europe and, whilst in Spain, sold one of his instruments to two young French clerics, who carried it back to their homeland. To celebrate the acquisition of this new invention, the elders of the city erected a large-scale bronze statue of Athlas standing with his head supporting the heavens. In the chapter entitled 'De Magistro Gilberto', the pertinent passages reads: '... Habemus ergo in promptu quod ab egypto hec ars sive scientia translata est yspaniam ... et hanc artem cum



2. 'Athlas' with the celestial sphere, in Munich, Staatsbibliothek, Clm 10268 (Michael Scot, *Liber introductorius*), fol. 19<sup>v</sup>

suo instrumento detulit athalax oriundus egypti ... ipse fuit primus et novissimus inventor eiusdem (artis) ... Ad hunc vero athalantem venerunt duo clerici franci ... Petentes autem velle videre aliquam de suis rebus cullis idem athalax ostendit sibi hoc instrumentum ... et secum detulerunt alacriter in suam patriam ... et ut semper sit ad memoriam mundo perseverante auctoritate pretoris est institutum ut figuratur predictus gigans nomine athalax vel caelon de ramo puro cum celo in capite ac locetur in uno latere platee communis illius patrie seu civitatis velud hic patet in exempla.' The texts of Michael Scot's works have yet to be fully edited. The original typescript of the opening sections of an edition by Hans Meier is preserved in the Warburg Institute (shelfmark FAH 1437); an edited version of the passage is given by Bauer (as above), p. 154 n. 649; there is an abbreviated version in F. Boll, *Sphaera. Neue griechische Texte und Untersuchungen zur Geschichte der Sternbilder*, Leipzig 1903, p. 440 n. 2. Saxl (as in n. 1), p. 47, believed the story contained a grain of truth and that the drawings in manuscripts of the *Liber introductorius*, with their 'inorganic' (*unorganisch*) quality, might well record the form of an extant statue.



*The celestial rota*

1. CANCER — LUNA
2. SCORPIO — MARS, on a horse with a sword
3. PISCES — JUPITER, seated, dressed as a king with a sceptre and crown
4. TAURUS — VENUS, seated, nude
5. VIRGO — MERCURY, seated, flute-playing
6. CAPRICORN — SATURN, seated, with his scythe and, possibly, a dragon in his lap
7. LEO — SOL
8. GEMINI — MERCURY, seated, flute-playing
9. LIBRA — VENUS, seated, nude and this time looking in a mirror
10. PISCES — JUPITER, seated, as a king with his sceptre and crown
11. AQUARIUS — a seated figure with a sickle, who should be SATURN
12. ARIES — MARS, as a knight on a horse
13. LEO — SOL
14. [blank] — [blank]
15. AQUARIUS or SAGITTARIUS? — JUPITER, seated, as a king with his sceptre and crown  
GEMINI — MERCURY, seated, flute-playing

3. The celestial *rota* in Francesco di Giorgio's *Atlas* drawing, with numbered segments, identifications of the planetary and zodiacal rulers, and added lines showing the four diameters

Perhaps the most distinctive aspect of Francesco's composition is the fact that, unlike any of the medieval drawings, it shows Atlas wedged between two clearly delineated *rotae*. The presence of a number of astrological drawings in the upper *rota* confirms that it is intended to represent the celestial realm, while the depicted and named hill towns in the lower *rota* (see below, Fig. 5) make clear that it represents the terrestrial realm. The obvious mirroring between the two realms points to an astrological pretext for the image: namely, that it illustrates some kind of connection between the arrangement of the stars in the sky and the earth below.

As with the Michael Scot *rota*, the ascendant in Francesco's drawing is positioned on the eastern horizon of the celestial realm (note the label: 'oriens'); but,

whereas the Michael Scot 'Athlas' holds a *rota* divided into the twelve segments of the signs of the zodiac, Francesco's heavens have been divided into fifteen segments, as indeed has his terrestrial *rota*. Whatever else Francesco's drawing may represent, then, it is certainly not a canonical image of the cosmos of the type one encounters in the late-medieval examples cited by Saxl.

Saxl provided a summary of the contents of Francesco's celestial *rota*, beginning at the top and proceeding clockwise. Somewhat oddly, however, he presented the diagram as if there were twelve, rather than fifteen segments. His zodiacal sequence is: 1) Aries; 2) Aquarius with his amphora; 3) Pisces; 4) Libra; 5) the Gemini, placed back-to-back; 6) Leo; 7) Capricorn, as a unicorn; 8) Virgo; 9) Taurus; 10) a second depiction of Pisces; 11) Scorpio; 12) Cancer and a second depiction of the Gemini, alongside 'a male figure holding something in his hand, which could be no other than Sagittarius since it is the only one missing from the series'.<sup>12</sup> He also noted the figures of the planet-gods accompanying each zodiacal sign,<sup>13</sup> but, again surprisingly, not their arrangement within the *rota*. It is only by scrutinising their arrangement that the structure and content of Francesco's diagram become evident: beginning at the ascendant and proceeding anti-clockwise (as is the norm for a horoscopic diagram), the contents of the segments are as shown in Figure 3.

It is evident from this corrected list that although the idea of planetary rulers certainly underpins Francesco's rendering of the zodiac, his execution of it raises some serious problems.<sup>14</sup> First (and, perhaps, least problematic), the signs are not presented in the conventional order of most celestial *rotas*; that is, they do not follow the order in which they appear in the sky. Second, if the figure in segment 15 is intended to represent Sagittarius, then its depiction is faulty (it should be either a centaur or a satyr and should have a bow and arrow); and if it represents Aquarius—which seems more likely if one compares the depiction with the figure of Aquarius in segment 11—then the planet-god is wrong (the patron of Aquarius is Saturn, and this god is clearly Jupiter).<sup>15</sup> The third problem arises because at least three and probably four of the pairings are repeated. Regardless of what structure is being illustrated in this celestial *rota*, each sign would ordinarily appear only once. And, fourth, we must ask why segment 14 is completely blank. If the *rota* were intended to be a horoscopic chart of some person or event, one would expect there to be one or more blank segments in the sky; but the fact that there is duplication in the signs and that the signs themselves are not in the correct celestial order refutes conclusively the possibility that this picture represents a horoscope.

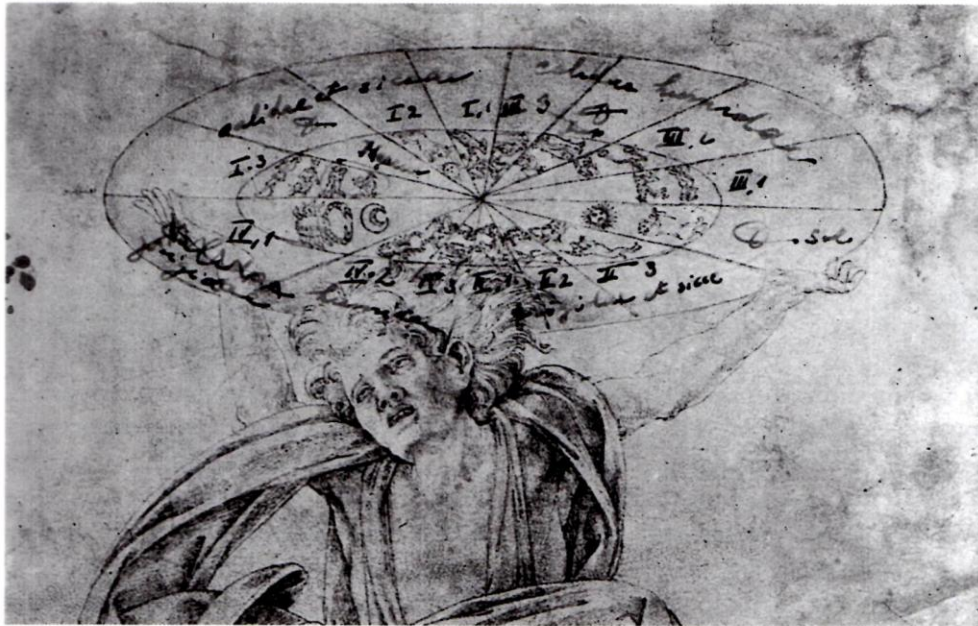
12. Saxl (as in n. 1), p. 48: '...ein Mann, der etwas halt. Dieser kann niemand anders sein als der Schütz, der uns allein noch fehlt.'

13. *Ibid.*

14. Jaffé (as in n. 1), p. 55 n. 2, expresses concern over a number of inconsistencies presented by the drawing. Saxl makes no mention of them.

15. As mentioned above in n. 1, Saxl interpreted this figure as Sagittarius. Jaffé (as in n. 1), p. 55, followed suit.





4. Detail of the upper half of Francesco di Giorgio's *Atlas* drawing, with annotations by a member of the KBW circle, perhaps Edgar Wind

With regard to the first of these points, Jaffé noticed that the constellations in the diagram appear to be arranged not following their correct orientation in the sky but, instead, according to the principle of elemental trigons or triplicities. Her observation is surely correct, although it should be noted that only the constellations depicted in segments 1–6 follow a strict and uninterrupted trigonal pattern. The series starts with the water trigon of Cancer, Scorpio and Pisces; then proceeds anticlockwise to the earth trigon of Taurus, Virgo and Capricorn (segments 1–6). It then jumps to Leo (segment 7), which should have been placed alongside the other fire signs of Aries and Sagittarius (segments 12 and 11 or 14). The series appears to re-start with the air trigon of Gemini, Libra and—interrupted by a second appearance of Pisces—finally Aquarius (segments 8–11); next comes the fire trigon of Aries, Leo and—interrupted by the blank segment—what should be Sagittarius, but this last sign seems instead to depict Aquarius, and the segment also contains a duplicate rendering of Gemini (segments 12–15). Jaffé recorded her discomfort with these irregularities,<sup>16</sup> but made no attempt to explore them further.<sup>17</sup>

16. As mentioned above, n. 14.

17. Jaffé appears not to have been the only scholar in Warburg's circle to have tried to unravel some meaning from the allocation of the signs and planets in Francesco's celestial *rota*, for in the Warburg Institute Photographic Collection, there is a segment of the drawing with annotations (Fig. 4). I am grateful to Claudia Wedepohl, the Institute's Archivist, for identifying the handwriting as belonging to someone

'from the K.B.W. circle'; she adds that the hand is certainly not Jaffé's, but does closely resemble the script of Edgar Wind. As can be seen, the annotator has divided the segments according to the elemental triplicities: (I) hot and dry; (III) hot and humid; (II) cold and dry; and (IV) cold and humid. The fact that they are out of order is noted; and the oddity that three of the segments do not appear to fit with the schema is marked with the  $\Theta$  symbol.



One possible explanation for the lack of clarity in the diagram might be that, part-way through his execution of the drawing, Francesco became aware that he had created a nonsensical cosmos by dividing the sky into fifteen segments. If that was the case, then the inconsistencies would reflect his belated attempts to smooth over his own mistakes.

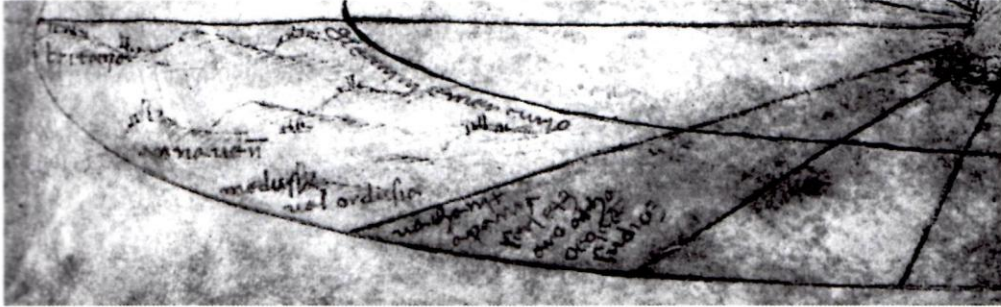
In suggesting this possibility, it is worth considering the significant geometrical and perspectival requirements of the task Francesco had set himself. To divide a circle or an ellipse into either twelve or fifteen equal segments is a fairly simple thing. But an artist wishing to render a flat disc held horizontally above the head of a figure is faced with the more difficult task of creating a foreshortened ellipse, the vertical division of which has to lie along the axis pointing towards a hypothetical vanishing point.<sup>18</sup> This change may well be the explanation behind Francesco's incorrect rendering of what should have been twelve zodiacal segments. His attempt to divide the foreshortened celestial disc, for example, appears to have begun with the introduction of four diameters (see Fig. 3). Had he continued in this vein, however, the *rota* would have ended up with sixteen segments, rather than twelve. In an effort to salvage the situation, he added seven additional radii in order to create the effect of a foreshortened *rota* divided into more-or-less equal segments, with a slight narrowing of the segments at the top and bottom of the *rota* to heighten the illusion of recession. Unfortunately, with this display of artistic bravura, he had—to coin a phrase—neatly jumped from the frying pan into the fire. For once he began to fill the segments with zodiacal signs and planet-gods arranged according to trigons, he managed to get only half-way around the *rota* before realising that he needed to show a little bit of ingenuity, or he would be left with three blank segments. So, he started to repeat some of the signs in a somewhat *ad hoc* manner so that, when not viewed too closely, the whole *rota* would look fairly well-balanced and visually plausible.

Generally speaking, art historians are fairly comfortable when dealing with compositional *pentimenti*. We are used to following the way in which an artist arrives at the final form of a composition or figure by moving the different parts around until the perfect balance is achieved. This process of stylistic improvement can often aid our understanding of how an artist approaches his subject and builds up an image: with a certain degree of latitude, it serves as a record of what he might have been thinking as he worked towards a final artistic solution. We are much less comfortable when it comes to accepting that there is also ample scope for having what one might call 'iconographic *pentimenti*'—even if several examples from the history of art could be cited in that regard.<sup>19</sup>

18. A similar visual experiment appears in the foreshortened rendering of the round shield segmented in yellow and red, on which the soldiers are throwing dice in Andrea Mantegna's *Calvary* in the Louvre. For additional discussion of this artist's delight in playing perspectival games see K. Lippincott, 'Mantegna and the *Scientia* of Painting', in *Art and Life in the Fifteenth-Century Italian Courts*, ed. F. Ames Lewis, London 1993, pp. 45–55 and 117–19.

19. We now know, for example, that Oscar Kokoschka painted only three horsemen in the original composition of his *Four Horsemen of the Apocalypse*, either inadvertently or through ignorance of the biblical book of Apocrypha. In light of this revelation, it is possible to see the small horseman in the uppermost reaches of the canvas as a bit of an afterthought, and to consider the extent to which, if Kokoschka had left only three horsemen, the overall



*The terrestrial rota*

5. Detail of Fig. 1, showing landscape and labels in the terrestrial *rota* of Francesco di Giorgio's *Atlas* drawing

In her appendix to Saxl's article, Jaffé also identified that the specific connection between the celestial and terrestrial *rotae* in the drawing is derived from book II of Ptolemy's *Tetrabiblos*.<sup>20</sup> In the first part of his discussion, Ptolemy says that the surface of the Earth is divided into four sections, each of which is influenced by a particular trigon.<sup>21</sup> Jaffé published a diagram from the 1630 edition of Campanella's *Astrologicorum libri VII* as a visual record of Ptolemy's scheme (Fig. 6).<sup>22</sup> Following this basic description, Ptolemy enters into a lengthy *discursus* on a more complex version of his geographical system, saying that each of the four quadrants of the Earth are further sub-divided into smaller quadrants, so that individual countries and towns not only have the qualities of the larger quadrant of which they are part, but also manifest some localised qualities associated with the astrological rulers of their particular subdivision.<sup>23</sup>

One obstacle towards arguing that Ptolemy's text is the immediate source behind Francesco's drawing is the fact that the writing on the maps in the lower *rota* is not entirely clear (Fig. 5). In the larger of the two inscribed segments, the legend 'Gemini and Mercury' seems to act as a label for the whole segment, while three further inscriptions radiate inwards along the rows of hilltops in the adjoining landscape, decipherable as:

britania / annaven[n] / medusia vel ordusia

In the smaller segment, the astrological label is illegible but the names along the outer circle read:

vacharat (?) / apama / serie[que] / aro otha / oequa / sudio[que]

composition of the painting would have been significantly more compelling. See Kokoschka: *Prints; Illustrated Books; Drawings in the Princes Gate Collection, with Notes on the Paintings*, ed. H. Braham, exhib. cat. (Courtauld Institute) London 1992, p. 72 n. 18. Braham refers to a letter of 8 Feb. 1950 from Kokoschka to 'Lord' [Count Antoine von] Seilern (now in the collection of the Courtauld Institute), and recalls being told by Seilern's housekeeper, Mrs Lina Keningale, that Kokoschka was prompted to paint the fourth horseman after she herself questioned the fact there were only three in the original version of

the painting. I thank Barnaby Wright for this reference. Or one could draw attention to Paul Taylor's article on 'Michelangelo's Mistakes in the Generation of Christ', this *Journal*, LXVII, 2004, pp. 285–94.

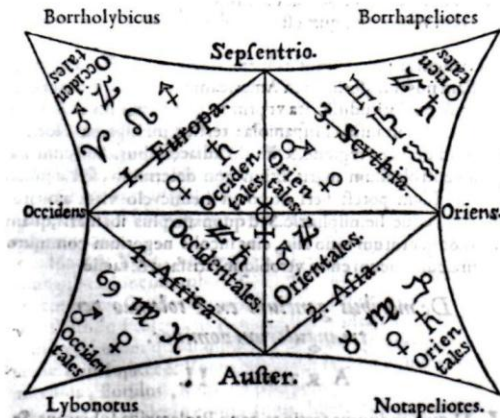
20. Jaffé (as in n. 1).

21. Ptolemy, *Tetrabiblos*, II.3 (ed. and English tr. F. E. Robbins, London and Cambridge MA 1940, pp. 128–61).

22. Campanella's diagram appears as fig. 8 on p. 49 of Saxl's article (as in n. 1).

23. Ptolemy, *Tetrabiblos*, II.3 (ed. Robbins, as in n. 21, pp. 156–59).





6. Diagram representing Ptolemy's division of the world into regions ruled by the four astrological trigons, from Tommaso Campanella, *Astrologicorum libri VI (VII)*, Frankfurt 1630, lib. II, p. 59

As Jaffé suggested, some of Francesco's labels do seem to make sense as 'Ptolemaic' place-names;<sup>24</sup> but it is unlikely that his *Tetrabiblos* is the source, since at least two of the four possible place-names would be shown in the wrong segment. Ptolemy clearly lists Britain as being ruled by the fiery trigon and, in particular, by the sign of Aries and the planet Mars—not Gemini and Mercury. If 'apama' in the smaller segment is meant to indicate the area of Apamea in Syria, then it belongs to the watery trigon, but is also ruled by Aries and Mars so would not be placed in the same segment as 'vachiana', or

Bactria, which is ruled by Libra and Venus. Thus, if a list of the astrological signs and planets dominating different towns and regions derived from Ptolemy's *Tetrabiblos* was the source for Francesco's drawing, the text must have been severely mangled. Variant spelling of place-names was not usual in the fifteenth century, but if one compares a few of the early printed editions of the *Tetrabiblos*, the variation in the spelling of place-names is not a key feature. Simple errors in transcription of the Latin version of Ptolemy's text cannot provide the sole explanation for the oddities in Francesco's notations.

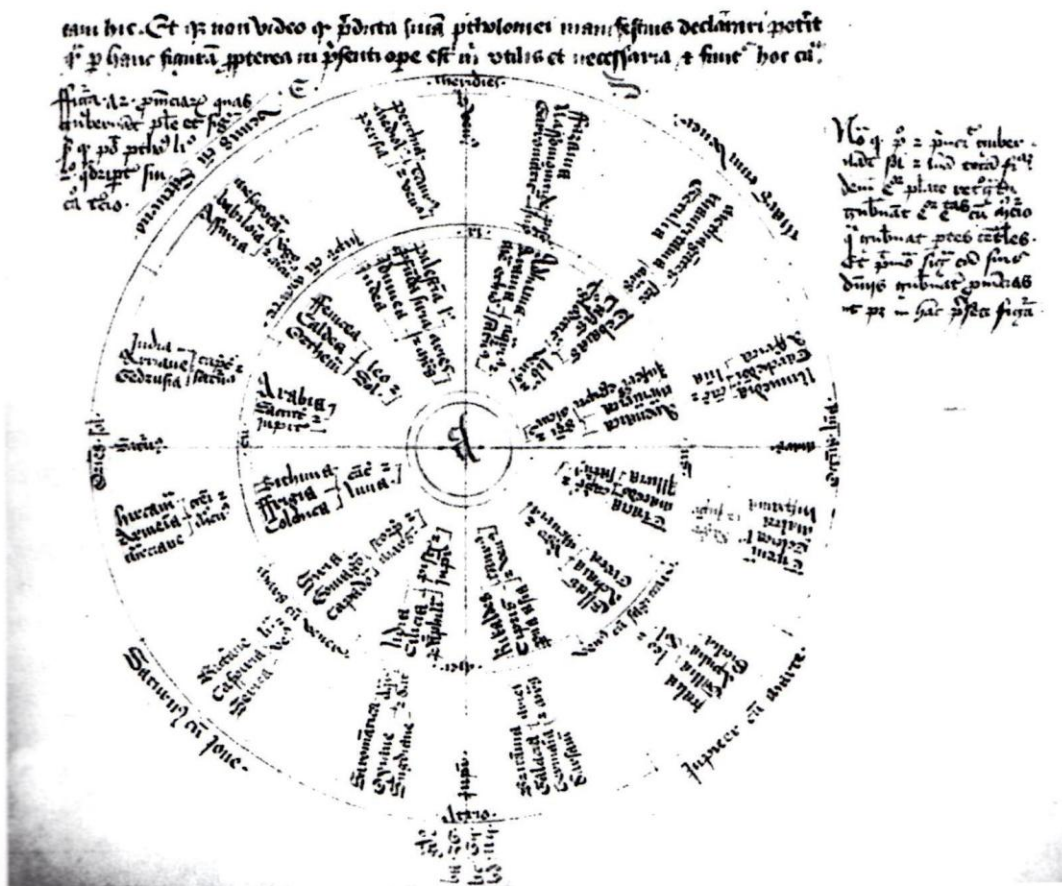
Instead, it is more likely that the list of place-names was not derived directly from Ptolemy's *Tetrabiblos* but via another source. The most important comparative diagrams with respect to Francesco's drawing are found in manuscript and printed copies of the *Summa astrologiae iudicialis de accidentibus mundi* by the fourteenth-century English astrologer John of Eschenden (Figs 7–8).<sup>25</sup> To my knowledge, this is the only work in which a *rota* outlining the relationship between places and zodiacal signs is included as an adjunct to the text. If Francesco was given an illustration upon which to base his *schema*, then the diagram provided in John of Eschenden's treatise seems the most likely candidate. Having said that, however,

24. Jaffé (as in n. 1), p. 54, makes the following suggestions regarding possible links between Francesco's notations and Ptolemy's list of places: 'apama' may be a reference to Apamea in Syria; 'britannia' might be an updating of Ptolemy's 'Hircania', or related to the place-name of Casperia; 'annaven[n]' could derive from Ptolemy's 'Mananena' (which is a known variant of Matiana); and 'vachiana' may come from 'Bactrania', which itself is a form of the name of Bactriana.

25. John of Eschenden (d. c. 1368), also known as John Eastwood of Ashendon and Johannes or Ioannis Eschuid[us]. He completed his *Summa* in 1348; the first printed edition was *Summa astrologiae iudicialis, de accidentibus mundi quae Anglicana vulgo nuncupatur*

*Iannis Eschuidi niri [sic] anglici peritissimi scientiae astrologiae foelici sidere inchoat*, Venice 1489. The three manuscript copies of the work that I have consulted are: Oxford, Bodleian Library MSS Bodley 714 (diagram on fol. 45<sup>v</sup>) and Bodley 369 (diagram on fol. 68<sup>r</sup>, here Fig. 7); and London, British Library MS Harley 5082 (fol. 57<sup>v</sup>). For other manuscripts of John of Eschenden's *Summa* see L. Thorndike and P. Kibre, *Catalogue of Incipits of Mediaeval Scientific Writings in Latin*, revised edn, London 1963, ad. loc.; see also the chapter on him in L. Thorndike, *History of Magic and Experimental Science*, 8 vols, London 1934–58, III, chapter 21, esp. pp. 329–34.





7. Diagram representing Ptolemy's division of the world into regions and sub-regions ruled by the four astrological trigons, illustrating a manuscript of John of Eschenden's *Summa astrologiae iudicalis de accidentibus mundi*. Oxford, Bodleian Library MS Bodley 369, fol. 68<sup>r</sup>

the relationship between the text and the diagram (in whatever version) is not as straightforward as one might hope.

In line with his stated intent to make a useful compilation of texts on astrological matters,<sup>26</sup> John provides a listing of place-names according to the twelve signs of the zodiac, which he describes as 'dicit enim albu. 4. De coniunctionibus magnis differentia ultima in fine'.<sup>27</sup> This, of course, is not a Ptolemaic text but the well-known appendix to Abū Ma'shar (Albumasar), *On the Great Conjunctions*, which is thought to have been added to the western-branch recension in the Maghreb sometime in the eleventh century and was duly incorporated into Latin versions of the work.<sup>28</sup> John's text is a more-or-less verbatim rendering (given the expected problems with variant spellings) of the passages attributed to Albumasar by medieval scholars (see the Appendix below).

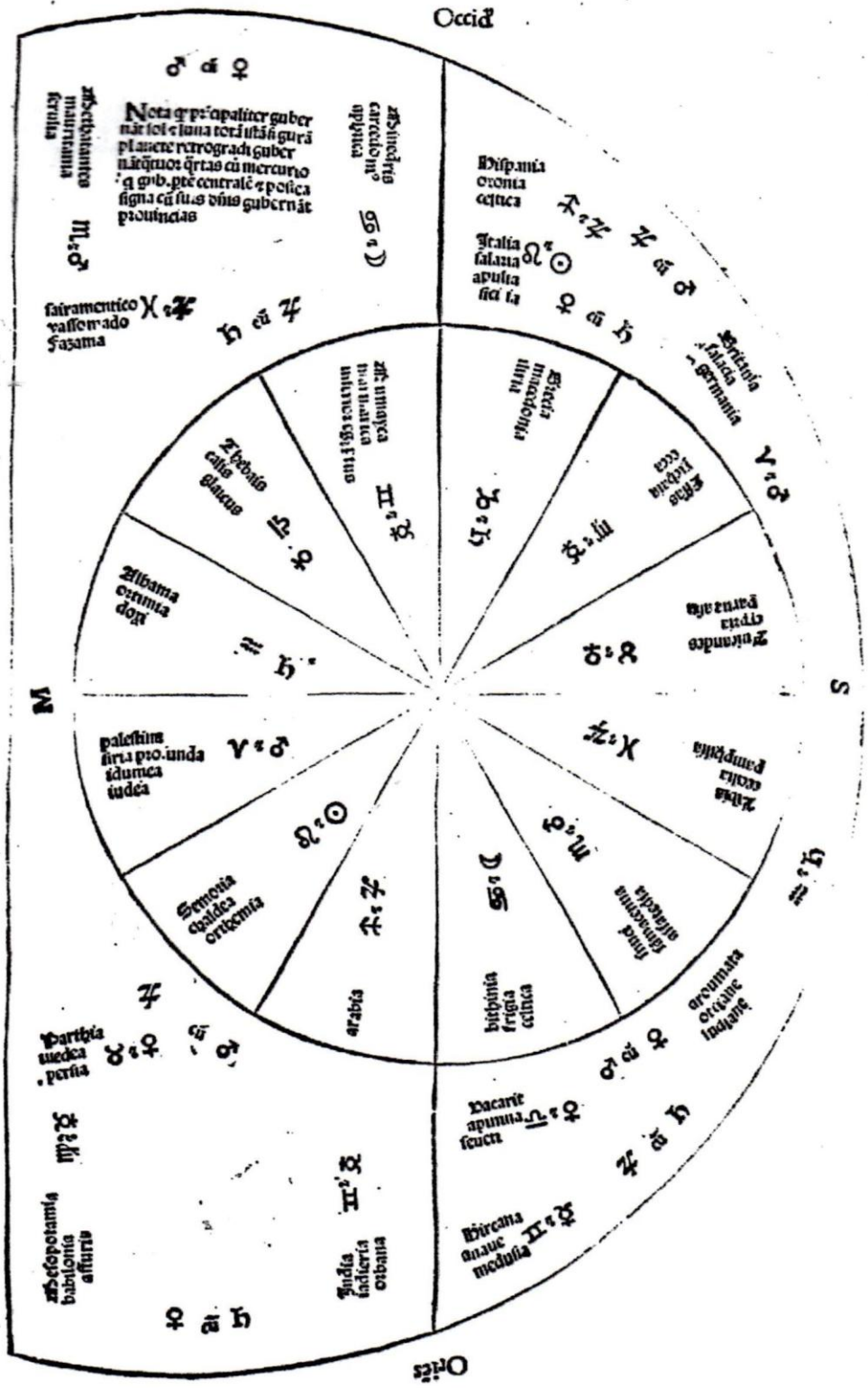
26. John of Eschenden, 1489 (as in n. 25), p. 1<sup>r</sup>.

27. *Ibid.*, p. 45<sup>r</sup>.

28. The Arabic text (with an English translation) and the Latin translation of these passages have been published as an appendix to Abū Ma'shar, *On*

*Historical Astrology: The Book of Religions and Dynasties (On the Great Conjunctions)*, ed. K. Yamamoto and C. S. F. Burnett, Leiden 2000, I (Arabic original), pp. 513–19 and II (Latin versions), appx I, pp. 141–44.

29. See Appendix I and below, n. 32.



8. Diagram representing Ptolemy's division of the world into regions and sub-regions ruled by the astrological trigons, from John of Eschenden, *Summa astrologiae iudiculis de accidentibus mundi*, Venice 1489, p. 45<sup>v</sup>



The labels in the accompanying diagram, though, are not derived from Abū Maʿshar.<sup>29</sup> Manuscript versions of the diagram depict two concentric rings, clearly divided into four segments (Fig. 7). On the outer edge is a label 'oriens sol' (here shown on the left side). In the outer ring, the place-names from the Ptolemaic lists of 'whole nations' are provided alongside glyphs indicating the planetary and zodiacal rulers; in the inner ring are added the names of those localities described as 'situated about the centre of the inhabited world' and their rulers.<sup>30</sup> The version of the diagram that appears in the printed edition of 1489 is slightly less clear in its layout, but the information is essentially the same, with the names of the 'whole nations' floating outside the diagram and the areas of the 'inhabited world' occupying the segments of the *rota* (Fig. 8). The main difference between the two versions is that whereas the manuscript inscriptions can be read as relatively faithful transliterations from Ptolemy's original Greek text, the printed version has a series of approximations. Close to the label 'oriens', alongside the glyphs for Gemini and Mercury (♊ ☿) in the outer ring segment, Armenia is rendered as 'Anaue' and Matiana/Matania as 'Medusia'. Close by on the inner part of the same segment, alongside the glyphs for Libra and Venus (♎ ♀), Bactriana appears as 'vacarit' (?) and Casperia as 'apenina'—which could easily be transformed into 'apama' by a careless scribe. Significantly, the third place-name in that group does not appear either in the Ptolemaic list or in John of Eschenden's text: it is rendered as 'severi' (?) in the printed diagram and 'Seyrica' and 'Serica' in two of the manuscripts I have consulted.<sup>31</sup> This might account for 'serie[que]' in Francesco's drawing. Other curiously preserved place-names in these segments are shown in Table 1. Clearly, the names listed in the drawing are not identical with those found in any one copy of John of Eschenden's *Summa*, but the labels in the *editio princeps* are closer than the known manuscripts of the text—suggesting that the diagram in the printed edition reflects a now-lost manuscript with a variant of the Ptolemaic place-names,<sup>32</sup> and that this manuscript or a close relative provided the basis for Francesco's drawing. It is unlikely that the printed edition itself was the direct source, since the drawing preserves the concentric *rotae* of the manuscript tradition.

Francesco's label for 'Britania', however, remains problematic. Jaffé's suggestion that its presence here might be due to a mistranscription from the name 'Hircania' seems unlikely, since Hyrcania, on the southern shores of the Caspian (Hyrcanian) sea, would have been quite well known as a Persian province to anyone with a basic classical education, as it is mentioned by Herodotus, Tacitus and Livy.<sup>33</sup>

30. Cf. Ptolemy, *Tetrabiblos*, II.3 (ed. Robbins, as in n. 21, p. 136).

31. For the two Bodley MSS see above, n. 25.

32. As demonstrated in Appendix I, the place-names as found in the printed diagram do not correspond with the developed and localised form of the Ptolemaic list found in pseudo-Abū Maʿshar, *Liber introductorii maioris ad scientiam judiciorum astrorum*, section VI.35, in the Latin translation by John of Seville (Johannes Hispalensis) with the revisions of Gerard

of Cremona: see the edition of R. LeMay, 9 vols, Naples 1995–96, v, pp. 247–50. I have also compared the names found in the related text of Ibn Abī al-Rijāl, *El Libro conplido en los Iudizios de las Estrellas*, translated at the court of Alfonso X el Sabio, ed. G. Hilty with the collaboration of L. M. Vicénte García, Zaragoza 2005, esp. chap. 35, pp. 307–09.

33. Herodotus, *Histories*, III.117; VII.62. Tacitus, *Annals*, VI.36 and 43; XI.8 sq.; XIII.37; XIV.25; XV.1 sq. Livy, *Ad urbe condita*, XXXVII.38.



As Ptolemy mentions in his conclusion to the passages on astral geography, another way in which a town or region's astrological fortunes could be determined was by casting a horoscope based on its date of foundation, or an analysis of the stars at the mid-heaven of those who held office or were kings when a city was founded.<sup>34</sup> Medieval and Renaissance astrologers were often called upon to provide such data; for example, Lucas Gauricus published the horoscopes for several Italian cities in his *Tractatus astrologicus* of 1552, including Rome, Florence, Venice and Ferrara. Especially interesting in this regard is a list of cities together with their planetary and zodiacal patrons recorded by the Ferrarese astrologer Pietro Bono Avogaro in February 1475.<sup>35</sup> Most of Avogaro's *loci* are Italian but, for whatever reason, Constantinople and also 'Anglia', which is not a city, appear on his list:

ARIES	MARS	Florence, Naples
TAURUS	VENUS	Bologna, Siena, Verona, Ancona
GEMINI	MERCURY	Cesena, Anglia
CANCER	LUNA	Lucca, Constantinople
LEO	SOL	Rome, Mantua, Cremona
VIRGO	MERCURY	Parma, Imola, Arezzo
LIBRA	VENUS	Placentia, Mantua
SCORPIO	MARS	Padua, Rimini, Brescia
SAGITTARIUS	JUPITER	Milan
CAPRICORN	SATURN	Ferrara, Modena
AQUARIUS	SATURN	Pisa
PISCES	JUPITER	Venice

It is difficult to understand why England was included; nonetheless, it does feature as being under the patronage of Gemini and the planet-god Mercury.<sup>36</sup> Given its date, it is quite possible that this list, or a similar one, could have served as the basis for the inclusion of 'Britania' in Francesco's drawing. Regardless of its direct or indirect bearing on the labels of the celestial sphere, though, Avogaro's list demonstrates that the topic of astral geography was of current interest to scholars elsewhere in fifteenth-century Italy.

Nevertheless, before one begins to feel too comfortable with having more closely identified an astrological context for the iconography of the drawing, it is worth pointing out just one other small error in the construction of Francesco's cosmos: he has failed to ensure that the corresponding segments line up properly. In the celestial *rota*, Gemini and Mercury appear—in contrast to all the other depictions of zodiacal signs and their patrons—as a second pairing in the fifteenth segment. In the terrestrial *rota*, Gemini and Mercury are in the first segment. One way to interpret this inconsistency is as yet another trace of the artist trying to 'make good'. If one were to construct a hypothetical sequence of events, it might be that he started to fill out the landscape details, beginning with the air trigon of Gemini, Libra and Aquarius, only to look up to the top of the drawing, where he had begun the series with the water trigon of Cancer, Scorpio and Pisces. Since

34. Ptolemy, *Tetrabiblos*, II.3 (ed. Robbins, as in n. 21, pp. 158–61).

35. BAV MS Vat. Lat. 5373, fol. 4<sup>v</sup>.



Rulers	Eschenden, MS Bodley 714	Eschenden, MS Bodley 369	Eschenden, Venice 1489	Francesco di Giorgio, <i>Atlas</i>
Gemini & Mercury (♊ ☿)	Hyrkania	Hircania	Hircania	Britania
	Armenia	Armenia	Anaue	Annaven[n]
	Matiane	Matiana	Medusia	Medusia vel Ordusia
Libra & Venus (♎ ♀)	Bactriane	Bactriana	Vacarit (?)	Vacharat (?)
	Caspiria	Casperia	Apenina	Apama
	Seyrica	Serica	Severi (?)	Serie[que]
Aquarius & Saturn (♒ ♄)	Sauromatica	Saromatica	Aroumata	Aro otha
	Oxiane	Oxiana	Occiana	Oeque
	Sugdiane	Sugdania	Indianę	Sudio[que]

Table 1. Comparison of place-names in diagrams from John of Eschenden, *Summa astrologiae iudicialis de accidentibus mundi*, and the terrestrial *rota* of Francesco di Giorgio's *Atlas* drawing (see Figs 6, 7 and 8)

he had already filled the first celestial segment with an overly large depiction of Cancer and Luna, there was no room to squeeze in a small drawing of Gemini and Mercury, so he simply added it to the adjacent segment. As with the celestial realm, Francesco's overriding aim seems to have been to make the drawing look balanced and aesthetically 'right' rather than iconographically correct.

#### Concluding observations

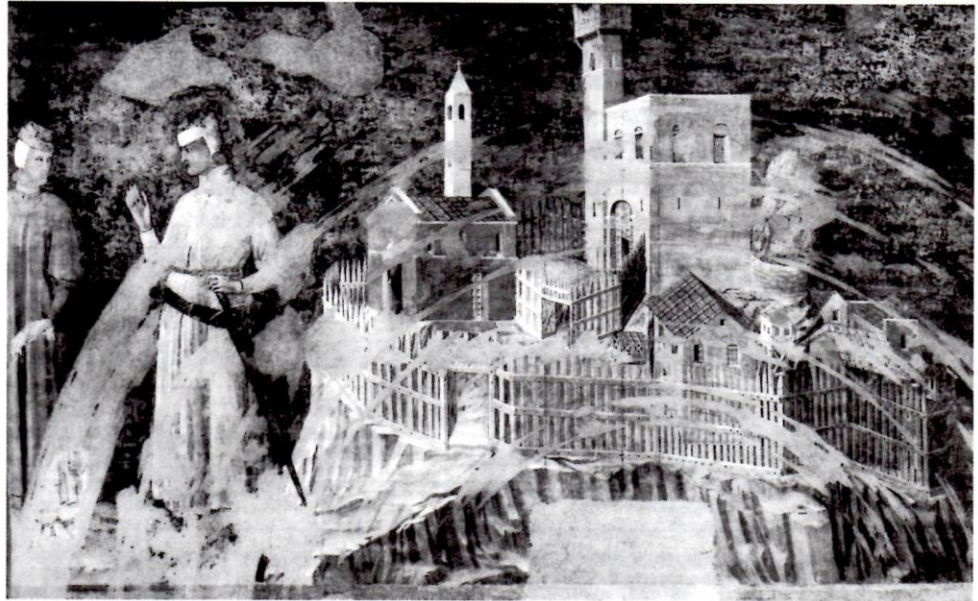
Given the apparent problems Francesco encountered while making this drawing, one might ask what its purpose might have been. In a recent catalogue entry, Luke Syson notes that Francesco's drawings appear to divide into two categories: those to be kept for reference, as models; and a separate type 'created as works of art in their own right, to be given or bought by educated patrons—connoisseurs—as examples of Francesco's *disegno*'.<sup>37</sup> Syson considers that, even though it is unfinished, the exquisitely drawn *Atlas* should be placed second category, and he suggests its appeal to 'a new kind of artistic patron in Siena, interested in the process of drawing as it revealed the inventive talent—the *ingenium*—of an individual artist'.<sup>38</sup>

36. Note also William Camden, *Britannia*, London 1607, 'Britannia divisio', 10: 'Expectat hic aliquis ut ex astrologis attexam in cuius signi et planetae tutela sit nostra Britannia. Et attexam sane (nam et in doctis illiserroribus versatus sum) ut curiosis satisfaciam, quamvis tam diversae sint de hac re astrologorum coniecturae, ut ipsa diversitas rem omnem infirmare et veritatem excludere videatur. M. Manilius poeta antiquus Capricornium praesae in illo versu sub-indicat: "Tu, Capricorne, regis quicquid sub sole

cadente Expositum". Ptolemaeus, Albumazar, Cardanus arietem praeficiunt, Ioannis de Muris Saturnum, Frater Perscrutator, Esquidus [*i.e.*, John of Eschenden], et Henricus Silen lunam, eo quod in septimo, ut aiunt, sit climate, Rogerus Herefordensis, Thomas Ravennas philologus, et Hispalensis Pisces, demumque Schonerus et Piratus, ut nullus sit consensus, nos non meliore ratione Gemini subiecerunt.

37. Syson (as in n. 5), p. 182.

38. *Ibid.*



9. Siena, Palazzo Pubblico, Sala del Mappamondo, west wall: a detail of the *mappamondo* by Ambrogio Lorenzetti, showing the concentric scratch marks left by the now-lost *rota*

But given the really rather substantial errors in the cosmology and the fact that the labelling remains unfinished,<sup>39</sup> would the *ingenium* of this drawing have impressed an educated patron? Or would such a person have hesitated before accepting the drawing of *Atlas* as (what modern art historians would classify as) a 'presentation drawing', given that, no doubt, he would have seen that the *rotae* had been mis-drawn and that their contents were creatively, but somewhat hopelessly, muddled? The alternative, and perhaps more likely scenario, is that the *Atlas* is a relatively highly-finished *modello*, the purpose of which was to convey the main features of some proposed project, such as a small painting destined for the *studiolo* of a learned patron. Or, remembering that Ambrogio Lorenzetti had painted a massive, rotating *mappamondo* in the Sala del Mappamondo of Siena's Palazzo Pubblico, which was certainly still visible in the 1470s (Fig. 9),<sup>40</sup> perhaps it was a preparation drawing for a large-scale fresco—maybe even one to which a celestial *rota* could be attached, to form some sort of scientific instrument similar in structure to an astrolabe.<sup>41</sup> Or, since Francesco was not only a sculptor himself, but

39. Indeed, given the problems inherent in the construction of the *rotae*, the labels on the terrestrial realm never *could* have been successfully filled in.

40. For two recent articles exploring the possible structure and significance of this *mappamondo* see M. Kupfer, 'The Lost Wheel of Ambrogio Lorenzetti', *Art Bulletin*, LXXVIII, 1996, pp. 286–310; and T. de Wesselow, 'The Form and Imagery of the New Fresco in Siena's Palazzo Pubblico', *Artibus et Historiae*, XXX, no. 59, 2009, pp. 195–217.

41. Most often, the information on the latitude plates of an astrolabe is conveyed in terms of position lines, which mark the local co-ordinates for the latitude of the observer. There are, however, a few examples in which a plate is decorated with a map. For example, there is the astrolabe possibly made by Jean Naze from Lyons (dated 1533), in which the *rete* is placed over a geographical map; and the Safavid astrolabe signed by Muhammad Mahdī al-Yazdī (dated AH 1070 = 1659–60 AD), in which the plate is decorated with a



supplied composition drawings for other sculptors, perhaps the figure with its two *rotae* was a preparatory drawing for some kind of elaborate *automaton* or horological device, in which the celestial and terrestrial spheres rotated synchronously.<sup>42</sup> As beautiful as this small drawing may be, it seems most unlikely that the artist ever intended it to be considered as a finished product.

One final aspect of the drawing that merits attention is Atlas's facial expression. For Saxl, Atlas's face conveys his inner turmoil, suffering or torment, which he explained as derived from Francesco's mixed feelings concerning his own fate and in particular his belief that his horoscope, ruled by Mercury, had determined his profession as an artist. As support for this interpretation, Saxl cited the opening passages of Francesco's *Trattati di architettura, ingegneria e arte militari*.<sup>43</sup> Subsequent scholars have repeated the claim that it is Francesco's projection of his own deeply-felt sense of conflict between 'human rationality' and 'astrological fatality' that accounts for the grimace on Atlas's face.<sup>44</sup>

The first issue is whether or not Atlas is intended to be grimacing. If one compares his visage with other examples from Francesco's *oeuvre*, the overriding impression is that the artist had certain difficulties throughout his career in constructing foreshortened, upward-looking faces (Fig. 10).<sup>45</sup>

The second issue is that even if Francesco purposefully drew Atlas grimacing, it seems more probable that rather than expressing his own frame of mind, he was making a conscious reference to the passage in which Philostratus describes the representation of the meeting of Hercules and Atlas:

[Hercules ...] claimed that he could sustain the heavens better than Atlas, for he saw that



10. Francesco di Giorgio Martini, Adam, detail from his drawing of 'Adam and Eve' in Oxford, Christ Church, no. JBS 1976

celestial map. See K. van Cleempoel, et. al., *Astrolabes at Greenwich: A Catalogue of the Astrolabes in the National Maritime Museum, Greenwich*, ed. K. Lippincott, Oxford 2005, pp. 152–156 (AST 0571) and 244–57 (AST 0594).

42. It must be stressed, though, that no clockwork *automata* of this sort have survived from such an early period—if, indeed, any ever existed.

43. Saxl (as in n. 1), pp. 51–53. See also the notes in the Italian translation of Saxl's text regarding the faults in the cited edition (as in n. 1, p. 477 n. 8).

44. See, e.g., the interpretation offered by A. De Marchi in *Francesco di Giorgio*, ed. Bellosi (as in n. 5), pp. 306–07; and Syson (as in n. 5), p. 182.

45. A grimace-like facial expression on a figure with a foreshortened, upward-looking visage can be seen in at least one other drawing by Francesco of around the same period as the *Atlas*: cf. Hippo, in Florence, Uffizi, Disegni e Stampe no. 375E; for a reproduction see *Renaissance Siena* (as in n. 5), p. 185. For Adam see *ibid.*, p. 158.

Atlas was bowed over and crushed by the weight ... and he barely had strength left to stand. [For this reason] ... Atlas is represented as exhausted, to judge by all the sweat that trickles from him and to infer from his trembling arm. ...

... the shadows on Atlas show a high degree of skill; for the shadows on a crouching figure like his run into one another, and do not darken any of the projecting parts but they produce light on the parts that are hollow and retreating.

... one can see that he is panting. The bodies in the heavens, which he carries, are painted in the ether that surrounds the stars [and] one can recognise the Bull in the heavens, and bears, the kind that are seen there.<sup>46</sup>

Assuming that Francesco's tastes and aspirations, and those of his patrons, were typical of the age and class into which they were born, then surely one of the best ways for an artist to impress an educated patron would be to display his own erudite credentials by offering a knowing challenge to the image of one of the sixty-four great painted masterpieces of antiquity, the form of which would have been known exclusively through the artful descriptions that appear in the *Imagines* of Philostratus—which, itself, was only beginning to percolate through the humanist circles at the time when Francesco composed his drawing.<sup>47</sup>

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*London*

46. Philostratus the Elder, *Imagines*, II.10 (ed. and English tr. A. Fairbanks, London and Cambridge MA 1979, pp. 218–23).

47. For a thorough investigation of the dissemination of the *Imagines* in the Renaissance see R. Webb, 'The Transmission of the *Eikones* of Philostratus and

the development of *Ekphrasis* from Late Antiquity to the Renaissance', Ph.D. thesis, Warburg Institute, University of London 1992, esp. pp. 142–187; and eadem and M. Koortbojian, 'Isabella d'Este's Philostratos', this *Journal*, LVI, 1993, pp. 260–67.



## APPENDIX

The following table compares John of Eschenden, ‘... quas regiones gubernant signa et planetae’, from his *Summa astrologiae iudicalis de accidentibus mundi*, Venice 1489, with pseudo-Abū Ma’shar (Albumasar), ‘De climatis et eorum signis’, an appendix to his *On the Great Conjunctions*, as well as pseudo-Abū Ma’shar, *Liber introductorii maioris ad scientiam iudiciorum astrorum*, section VI.35, in the translation of John of Seville with the revisions of Gerard of Cremona.\*

	Eschenden, ‘.. quas regiones gubernant signa et planetae’	pseudo-Abū Ma’shar, ‘De climatis et eorum signis’	pseudo-Abū Ma’shar, <i>Libro introductorium maioris</i>
♈	Aries habet ex terris et provinciis persyam et ad rabigem & bertaniam basilicam carmem germaniam palestinam & partem balca.	Aries habet ex regionibus et civitatibus Persiam et Adrabigen et Britannium, et Balicam, et Carmen et Germanium et Palistinam et partem Balcha.	Aries habet ex regionibus Bebil [i.e. Babilonia], et Feris [i.e. Persida], et Falesthin [quam credo esse Palestinam] et Adrabigen. Et ex regionibus [ac locis] loca harenosa et loca pastus ovium ... ac loca in quibus operatur per ignem; et receptacula latronum, domus quoque lignis tecta.
♉	Taurus habet ex terris quicquid est ispaen et parvas insulas ex insulis maris romanorum cabrosin asiam quoque parvam.	Taurus habet ex regionibus quicquid est post Yspaen et quod diminuitur ex insulis maris Romanorum, et Cabros et Asiam Parvam.	Taurus habet ex regionibus Alceued et <Almehin> et Hemden et Alacrad qui morantur in montibus. Et ex provinciis [ac locis] terras paucarum aquarum in quibus seminantur, et omnes cultus fertiles et omnem locum montibus propinquum, ortos quoque et ... arbores ... et loca elefancium ac vaccarum.
♊	Gemini ex terris habent alialem adeilem tabrastem armeniam grandem margnantalez et ægiptum.	Gemini habet ex regionibus Alielen et Adeilen et Iurien et Tabrasten, et Armeniam	Gemini habet ex regionibus Iurgen et Armeniam et Adrabigen ... et <Barhan> ac

\* Sources: John of Eschenden, *Summa astrologiae iudicalis de accidentibus mundi*, Venice 1489, chap. IV, fols 45<sup>r</sup>–45<sup>v</sup>; ps.-Abū Ma’shar, *On Historical Astrology: The Book of Religions and Dynasties (On the Great Conjunctions)*, ed. K. Yamamoto and C. Burnett, 2 vols, Leiden 2000, II, pp. 140–44 (IV, appx I); ps.-Abū Ma’shar, *Liber introductorii maioris ad scientiam iudiciorum astrorum*, ed. R. LeMay, 9 vols, Naples 1995–96, V, the translation of John of Seville with the revisions of Gerard of Cremona, pp. 247–50 (VI, diff. 9).

	Eschenden, ‘.. quas regiones gubernant signa et planetae’	pseudo-Abū Ma’shar, ‘De climatis et eorum signis’	pseudo-Abū Ma’shar, <i>Libro introductorium maioris</i>
		Magnam et Morabtaliz et Marania et Egiptum.	Maucan, Egiptum quoque ac regiones Barca, et est ei participatio in Spahen et Karmen. Et ex locis montana, et quicquid colitur in <terra> ... atque colles, loca quoque venatorum et ludentium <aleis> et <cetera ludentium> atque cantantium.
♋	Cancris habet ex terris terram babiloniæ et affricam luchiam quae est in terra romanorum franciam aureniam et oriam.	Cancer habet ex regionibus terram Babilonie et Africam et Luchiam que est in terra Grecorum et Franciam et Areniam et Orian.	Cancer habet ex regionibus Armeniam minorem et ... Maucan ac Numidiam que est pars Affrice, et orientalem plagam Churacen et Alcin ... Et est ei participatio [fol. 35 <sup>vb</sup> ] in Balagh et Adrabigen. Et ex locis <collectiones aquarum ac littora maris ac fluminum> ... loca quoque arborum.
♌	Leo habet ex terris terram turcorum et dextram eius, phalascam et aboma et terra heniz damascum nigredinem et alcufa.	Leo habet ex regionibus terram Turquorum et portum eorum et Talia et Phalasca I et Abonia et terram Homz et Damascum et nigredinem Mesophotamie.	Leo habet ex regionibus Altorc usque in finem habitationis que eam succedit ... Et ex locis <deserta> et flumina gravia ad transeundum, ac terras <mobiles> et omnem terram satiabilem et mansiones divitum, palatia scilicet, et montes ac colles, loca quoque altiora ac castra fortia
♍	Virgo habet ex terris loachiam terram babiloniæ: terram almon ed terram insulæ et terram egiptiorum et aphricam.	Virgo habet ex regionibus Lochaia et terram Babilonie et terram Almocil et terram Insule et terram Grecorum et Africam.	Virgo habet ex regionibus Algeramicah et <Assem> atque Alforat [quod est Eufrates], et Algizirah [i.e. insula que est Hispania]. Et ex regionibus Persorum quod succedit Karmen. Et ex locis omnem terram in qua



	Eschenden, ‘.. quas regiones gubernant signa et planetae’	pseudo-Abū Ma’shar, ‘De climatis et eorum signis’	pseudo-Abū Ma’shar, <i>Libro introductorium maioris</i>
			seminatur, et mansiones mulierum, ioculatorum quoque atque cantantium et spaciantium.
♎	Libra habet ex terris terram haræ & zaziactem & terram turcorum & ameir & partem terræ nigrorum quæ nominatur atichus & terram carmen.	Libra habet ex regionibus terram Hara et Zaiazten et terram Turcorum at Amchir et partem terre Nigrorum que nominatur Atichus et terram Sagesten et terram Carmen.	Libra habet ex regionibus regionem Romanorum et quicquid est in terminos suos usque ad Affricam et ea que sunt in circuitu eius, et superiora Egipti usque in terminos Ethiopie, et Barcah, Karmen quoque ac Sagesten et Kebil et Thabrasten et Balagh .... Et ex locis omnem locum in quo seminatur in cacuminibus montium, et omnem terram in qua fuerint palme, et loca venationis (atque) accipitrum et <insidiantium>, ac <viarum>, omnem quoque locum sublimem et elevatum, <vel> campestem arenosum.
♏	Scorpio habet ex terris terram alhigez gnacil tangia & termonis hulune hubedia alcemenia suriam condochia cachia diocesim arabum .vel. locum in quo morantur arabes & partes eorum usque ad aliemem & tangia coqui & akahi & communicat in alzahid & habet ex locis seminamdis summitates montium & omnem terram in qua sunt palmæ & omnem terram insidiarum & venationum et astrorum & locum altum	Scorpio habet ex regionibus terram Alhigez et Ecil et Tangia et terminos Hululie et Hubedia et Alcemevia et Siriam et Condochia et Cathiam et diocesim Arabum et partes eorum usque ad Aliemen et Tangia et Coqui et Alray, et communicat in Alzachid, et habet ex locis ea in quibus seminatur in verticibus montium et omnem terram in qua sunt palme et omnem terram maucid et viam et locum venationis et	Scorpio habet ex regionibus terras <Alhigeh> Et rura Arabum ac partes eius usque ad Aliaman, et Tangitanam .... Et habet ex locis loca vinearum ac morarum et cetera similia de his que fiunt in orto, et omnem locum fetidum atque horridum, carceres quoque et mansiones meroris ac tristicie, et domus destructe ac cavernas scorpionum.

	Eschenden, ‘. . . quas regiones gubernant signa et planetae’	pseudo-Abū Ma’shar, ‘De climatis et eorum signis’	pseudo-Abū Ma’shar, <i>Libro introductorium maioris</i>
	discooperientem & ista loca postrema sunt libræ.	austurum et locum altum, discooperientem; et ista loca sunt Libre et non Scorpionis.	
♄	Sagittarius habet ex terris montes & alraim & ispaen & ispaniam & aliemem & siciliam: habet ex locis viridaria & hortos & loca bestiarum & ignium.	Sagittarius habet ex regionibus montes et Alrai et Yspaen et Hyspaniam et Aliemen et Siciliam, et habet ex locis viridaria et loca bestiarum et locum vitulorum.	Sagittarius habet ex regionibus montes et Arraz atque Spahen. Et ex locis habet ortos et omnem locum qui ad tempus irrigatur, et significat loca <alharabidah et arramrahmah> ac loca ceterarum sectarum, et Alsaharah lenem [i.e. loca arenosa et campestria], loca quoque animalium et taurorum ac vitulorum.
♄	Capricornus habet ex regionibus ethyopiam macrem & ascend& litus maris quod sequitur diocesim .vel. tentoria arabum & albahrem & duo maris usque ad indiam & limites eius & ascin& alagnem & limites terræ romanorum: & ex partibus terrarum habet loca aularum & loca portarum & viridaria & omnia loca qua occupant rivi & flumina & lacus vel paludes.	Capricornus habet ex regionibus Ethiopiam et Macren et Ascindet et litus maris quod sequitur albauuedi et Homan et Albahrein usque ad Indiam et limites eius ad Ascin, et habet Alueuez et limites terre Grecorum, et habet ex locis aulas, et portas, et viridaria I et omnem locum qui rigatur in rivos et flumina et paludes.	Capricornus habet ex regionibus Alhabasah (i.e.: Ethiopiam) et Macren et Ascind et flumen Macren et littus maris quod succedit ipsas regiones et <utraque maria, et Indiam> et eius fines usque ad Acin... et fines terre Romanorum .... Et ex locis habet palatia et portas atque ortos, et omnem locum irriguum, flumina quoque et decursus aquarum et fluminum ... et piscinas antiquas et omnem ripam super quam fuerint arbores, et littus in quo <sunt naves>, et loca canum ac vulpium, ferarum quoque ac luporum, et hospicia seu mansiones peregrinorum et <pauperum> ac servorum, et loca in quibus accensi sunt ignes.



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♊	Aquarius habet ex terris nigredinem ex parte montis alcusa & partem eius & dor [sum] // algarez terra alchibt & occidentem terre alchuid habet communicationem in terra feriz . i. persarum. et habet ex partibus terrarum loca aquarum & fluminum & maris & loca vinearum & omnem terram humidam & desertam.	Aquarius habet ex regionibus Nigredinem ad partem Montis et Mesopothamie et partem eius et dorsum Alhigez et terram Alchibt de Egipto et occidentem terre Alchind et communicat terra Feriz et habet ex locis loca aquarum et fluminum decurrentium et maria et omnem locum quem aque irrigat et loca vinearum et omnem terram desertam humidam.	Aquarius habet ex regionibus Alceued versus montem et Alcufah, et eius partes, ac dorsum Alhigez, et terram ... Egipti atque occidentalem plagam terre Ascind, et est ei participatio in terra Feriz. Et ex locis habet loca aquarum et fluminum currentium et marium atque canalium et quicquid in eis est, et omne quod effoditur per fossoria, necnon et omnem locum qui irrigatur per aquam, loca quoque in quibus sunt aves aquatice et cetere avium, et omnem locum in quo est vinea aut in quo venditur vinum ... et omnem terram montanam atque agrestem.
♋	Pisces autem habent ex regionibus Tabrasten et partem septentrionis et terram Iurgen: & habent communicationem in romanis: & ex romanis habent usque ad terram hierosolimæ et insulam & ægyptum: alexandriam & quod est circa ægyptum mare aliemen. Et habet altitudinem terræ indiæ et ex partibus aquarum lacunas & piscinas: littora marina: tractas sive victum et omnia loca aquosa & inhabitationes & loca planctus & mororis.	Piscis habet ex regionibus Tabrasten et partem regionis septentrionalis ex terra Virgen et habet communicationem in Grecis, et habet ex Grecis usque ad terram Ierosolime et Insulam et Egiptum et Alexandriam et quod est circa Egiptum et aliud mare, scilicet mare Aliemen, et altitudinem terre Indie, et habet ex locis piscinas et lacus et litora marium et tructas et loca aquosa et habitationes et loca planctus et meroris.	Piscis habet ex regionibus Thabrasten et partes septemtrionis terre Iurgen, et est ei participatio in Romanis. Et <habet> terram Assem et Insulam atque Egiptum et Alexandriam, et quicquid est in circuitu Egipti et Mare Rubrum, Mare scilicet Aliaman, et orientalem plagam terre Indorum. Et habet ex locis quicquid appropinquat <mari> et eius littoribus, piscinas quoque .... Et littora <maris> ... loca quoque angelorum et heremitorum, et loca planctus ac tristicie.