

The Tropical Points of the Zodiacal Year and the *Paranatellonta* in Manilius' *Astronomica*

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Abstract

The three different values given by Manilius for the equinoxes and solstices (8°, 10° and 1°, i.e. 0°) are critical for the placement of the extrazodiacal constellations on the ecliptic in Book 5. The Arrow at Libra 8° (the autumnal equinox) signifies the 'stochastic art' of both archers and astrologers. The Southern Fish and the Dolphin compete for the position at the winter solstice at Capricorn 8°, both creating divers, whilst at Capricorn 15°, using more sophisticated techniques, Cepheus engenders comedy writers. At the spring equinox, on the border between Pisces and Aries, Engonasin-Perseus struggles with Cetus, and from above defeats the Whale that threatens Andromeda from the depths of the sea, as a symbol of the victory of the new year over the old.

The famous astronomer Hipparchus recognized the so-called precession¹ of the equinoxes, that is, the advancement of the tropical points (the equinoxes and the solstices) by one degree every 71.6 years from west to east, following the direction of the planets through the twelve zodiacal signs. It therefore runs through one sign (30°) in 2,160 years, completing the entire circle in 25,800 years.

Hipparchus found the vernal point (the intersection of the celestial equator and the ecliptic) at Aries 8°, compared to the 'Babylonian' system with the vernal point fixed at Aries 10°.²

¹ The expression *praecessio* goes back to Copernicus.

² O. Neugebauer and H. B. van Hoesen, *Greek Horoscopes* (Memoirs of the American Philosophical Society 48, Philadelphia, 1959, repr. 1987), p. 4ff; O. Neugebauer, *A History of Ancient Mathematical Astronomy* (2 vols, Berlin/Heidelberg/New York, 1975) [hereafter *HAMA*], vol. II, pp. 594-98. For the Babylonians see O. Neugebauer, 'The Alleged Babylonian Discovery of the Precession of the Equinoxes', *Journal of the American Oriental Society* (1950), vol. 70, pp. 1-8.

The poet Manilius mentions three values in his *Astronomica*:³

has quidam vires octava in parte reponunt,
sunt quibus esse placet decimae, nec defuit auctor
qui primae momenta daret frenosque dierum.

Some ascribe these powers to the eighth degree; some hold that they belong to the tenth; nor was an authority lacking to give the first degree the decisive influence and the control of the days.

First of all he introduces the Hipparchean value of 8°, then the Babylonian one of 10°, and finally the first degree, by which he means the border between two zodiacal signs. The poet and his sources did not delimit the border exactly at Aries 0°, but either at Pisces 30° or Aries 1°. We shall see that the poet also considers a fourth possibility that places the tropical points in the middle, rather than at the beginning of the signs, at 15°.

In other contexts⁴ Manilius employs the value of 8°, which is what we find used most commonly in his time. This is the case above all in his fifth book, about the so-called *paranatellonta*, that is, the extrazodiacal

³ Manil. 3.680-682. (All abbreviations of Latin authors follow the Index (1990) of the *Thesaurus Linguae Latinae*. All abbreviations of Greek authors follow the style of H. G. Liddell, R. Scott and H. S. Jones, *A Greek-English Lexicon* (9th ed., Oxford, 1996). English translation: G. P. Goold, *Manilius Astronomica* (Cambridge, MA/London, 1977) [hereafter Goold], p. 219. A. E. Housman, *M. Manilius astronomicon liber V* (London, 1930, repr. Hildesheim, 1972), p. lvi, qualifies this passage at the end of Book 3 as an ornamental addition like section 5.710-745 that concludes Book 5, but both passages are deeply rooted in zodiacal lore and in the whole conception of the poem. A. MacGregor, 'Noctes Manilianae: The terminal ornament of book III', *Mouseion* (2005), vol. 49, pp. 115-34, esp. p. 127, writes in v. 681, instead of *decimae* (Housman, *decimas* trad., *decimam* Bentley), *mediae*; by this he obtains the Eudoxan value of 15°, but this is impossible, because *mediae partis* cannot mean 'of the middle of the sign', since *pars* signifies 'degree' here.

⁴ E.g. Manil. 3.257, *in octava Capricorni parte biformis*. For this commonly accepted value see O. Neugebauer, *HAMA*, vol. I, p. 286f. and vol. II, pp. 594-598, rich in source material, but missing the *paranatellonta* of Manilius. For further values (12°), *ibid.*, vol. II, p. 598, and (15°), chapter 4.

constellations rising (or culminating) together with certain ecliptic degrees.

1. The autumn equinox

Let us begin with the autumn equinox, where Hipparchus had detected the precession by observing the motion of Spica, the most brilliant star of Virgo, after comparing its values with those noted by Timocharis (who made his observations under king Ptolemy I Soter, 305-283/2 BCE).⁵ At the autumn equinox, fixed by Hipparchus at Libra 8°,⁶ Manilius locates the small constellation of the Arrow (Sagitta). This is wrong, for Hipparchus mentions the ecliptical section of Sagittarius 5° - 9° 30' for the rising of Sagitta, while the value for its culmination, Virgo 19° - 25°, comes near to the autumn equinox.⁷ The position at Libra 8° – and all positions that will follow – are highly speculative and originate from the method, beloved by astrologers, of establishing correlations without any cause.⁸

So Sagitta is combined with Libra. With the verb *librare*, Latin writers express the balancing act of shooting missiles that had to be levelled exactly.⁹ Even the verb that introduces the new constellation is significant.¹⁰

⁵ Ptol. Synt. 7,2.

⁶ Hipparchus apud Mart. Cap. 8.823f. See also Eudoxos frg. 144 apud Colum. 9,14,12.

⁷ Hipp. 2,5,12, relating former observations for the rising with Sagittarius and Capricornus.

⁸ As for the 'Analogiezauber', see E. Cassirer, 'Der Begriff in symbolischen Form im Aufbau der Geisteswissenschaften', *Vorträge der Bibliothek Warburg* (1921/2), vol. 1, pp. 11-39 (repr. in *Wesen und Wirkung des Symbolbegriffs* [⁵Darmstadt, 1976], pp. 169-200, esp. p. 32 = p. 193); Id., *Die Begriffsform im mythischen Denken* (Studien der Bibliothek Warburg, 1, Leipzig/Berlin, 1922); repr. in *Wesen und Wirkung des Symbolsbegriffs* [as above], pp. 1-70, esp. pp. 42-46 = pp. 48-52; Id., *Philosophie der symbolischen Formen II: Das mythische Denken* (Berlin, 1925, ⁶Darmstadt, 1973), pp. 87-89.

⁹ *Thesaurus Linguae Latinae*, VII 2,2 c. 1352,11-43, s.v. *libro*.

¹⁰ Manil. 5.293-94. English translation: Goold, p. 325.

sed parte octava surgentem cerne Sagittam
Chelarum ...

Mark now the Arrow rising in the eighth degree of the
Balance...

The verb *cernere* has the same root as the Greek κρίνειν, which serves to etymologize the name of the opposite sign situated at the vernal equinox, the Ram: Κριός - κρίνειν, as marking the tropical point of a crisis.¹¹ Archers used a 'stochastic' art and the same terminology; this was applied – in a figurative sense – to the art of doctors and astrologers as well.¹²

Manilius gives three mythical examples of archers: Teucer, Philoctetes and Alcon.¹³ The first of them, Teucer (or Teucus), is the *heros eponymus* of Manilius' main author in this part of the lore, Teucer from Babylon (probably not the better known Babylon, but the homonymous

¹¹ Firm. math. 2, 10.3: *Crios autem ideo a Graecis dictum est hoc signum, quod cum <in> eo Sol fuerit, inter diem et noctem quodammodo iudicat, quod crinein dicitur*; Sphaera Schol. Arat., ed. E. Maass, Commentariorum in Aratum reliquiae, Berlin, 1898 (repr. 1958), pp. 84 and 91f.

διότι κρίσει γε πάντα συγκρίνας ἔχει,
[...]
διὸ δὴ κρίσει καὶ τοῦνομι' ὄρισαν θεοὶ
Κριόν· κριτηρίῳ κ.τ.λ.,

see F. Boll, *Aus der Offenbarung Johannis. Hellenistische Studien zum Weltbild der Apokalypse* (Stoicheia 1, Leipzig/Berlin, 1914; repr. Amsterdam, 1967), p. 46; W. Gundel, *Paulys Real-Encyclopädie der classischen Altertumswissenschaft*, XI 2 (Stuttgart, 1922) [hereafter *RE*], cols 1869-1886 s.v. Krios, in particular 1869,41; W. Hübner, 'Das Horoskop der Christen (Zeno 1,38 L.)', *Vigiliae Christianae* (1975), vol. 29, pp. 120-137, esp. p. 124 n. 8.

¹² Ptolemy, *Apotel.* 3, 2.6 (= Heph. 2, 1.38): Antigonos T1 and F5, ed. S. Heilen, *Hadriani genitura. Die astrologischen Fragmente des Antigonos von Nikaia*. Edition, Übersetzung und Kommentar (Sammlung wissenschaftlicher Commentare, Munich/Leipzig, forthcoming); see W. Hübner, 'Manilio e Teucro di Babilonia', in: *Manilio fra poesia e scienza*. Atti del convegno, Lecce, 14 - 16 maggio 1992, ed. Dora Liuzzi (Galatina, 1993) [hereafter 'Manilio e Teucro'], pp. 21-40, esp. pp. 22-24 with further literature. Manilius uses the verb also for the tropical points in general, e.g.: Manil. 3.676, *pars est cernenda*.

¹³ Manil. 5.299-310.

city near Cairo¹⁴), and this may be a hidden hint at his stochastic skill.¹⁵ The three archers correspond to the three faint stars on the shaft of the arrow mentioned by Ptolemy.¹⁶

This correspondence is confirmed by a previous prognostication given for Sagitta:¹⁷

cuspidē vel triplici securum figere piscem.

or piercing with a three-pronged spear the fish that
deemed itself so safe.

modified, by Firmicus Maternus,¹⁸ to *tridente vel cuspidē*. Firmicus has been reproached for having altered the one *cuspidē triplex* into the alternative *cuspidē* or *tridens*,¹⁹ but Teucer, the common source of both writers, mentions an uncanonical constellation named Τρίαινα that probably should be identified with Sagitta (see **Table 1**).²⁰ The three prongs of the trident are the three stars of the shaft of Sagitta and are, again, represented by the three mythical archers.

¹⁴ W. Gundel, *RE*, V A (1934), cols 1132-1134 s.v. Teukros 5, esp. 1132.60 following R. Eisler; W. and H. G. Gundel, *Astrologumena. Die astrologische Literatur in der Antike und ihre Geschichte* (Sudhoffs Archiv, Beiheft 6, Wiesbaden, 1966), p. 112f.; D. Pingree, ed. and trans., *The Yavanajātaka of Spujidhvaja*, (Harvard Oriental Series 48, 2 vols, Cambridge, MA, 1978), vol. II, p. 442.

¹⁵ See Hübner, 'Manilio e Teucro', p. 21. Id., 'Teukros im Spätmittelalter', *International Journal of the Classical Tradition* (1994), vol. 1, pp. 45-57, esp. p. 45f.

¹⁶ Ptolemy, *Synt.* 7, 5, p. 72.14-16 τῶν ἐν τῷ καλάμῳ τριῶν.

¹⁷ Manil. 5.297. English translation: Goold, p. 325.

¹⁸ Firm. math. 8, 12.3.

¹⁹ F. Skutsch, 'Firmiciana', *Rheinisches Museum für Philologie* (1910), vol. 65, pp. 627-34, esp. p. 632 (repr. in: F. Skutsch, *Kleine Schriften*, ed. W. Kroll [Leipzig/Berlin, 1914, repr. Hildesheim, 1967], pp. 417-24 [hereafter Skutsch, 'Firmiciana']).

²⁰ F. Boll, *Sphaera. Neue griechische Texte und Untersuchungen zur Geschichte der Sternbilder* (Leipzig, 1903, repr. Hildesheim, 1967 [hereafter Boll, *Sphaera*]), p. 269.

Table 1. The *Paranatellonta* of Libra

Manilius	Firmicus	Teucrus II	Teucrus Exc. Barocc. II
8° Sagitta	8° Sagitta + Styx	16°-18° οἱ Τρεῖς Ἡρώες οἱ καὶ βαλλισταί	
? Haedus	15° Haedus	2<9>°-30° Τράγος	
		19°-22° τὰ Τρία Μειράκια ἃ καὶ καλεῖται Πορθμεύς	Μειράκια τρία οἱ καλούμενοι Πορθμεῖς
26° Lyra			Τρίαινα

Another *paranatellon* of the Balance is named οἱ Τρεῖς Ἡρώες οἱ καὶ Βαλλισταί / *Tres heroes qui vocantur Ballistae*, rising together with Libra 16° - 18°. ²¹ In a quartile aspect (a distance of 90°), and thus also in a tropical sign, with Cancer 18° - 20°, we find αἱ Τρεῖς Χάριτες, which seem to be the three third-magnitude stars situated in the belt of Orion. ²² Manilius calls them *lugulae*, once more giving three mythical examples, in this case of famous hunters: Meleager, Atalanta and Actaeon. ²³

²¹ Teucr. I, 7.6, W. Hübner, ed. and comm., *Grade und Gradbezirke der Tierkreiszeichen. Der anonyme Traktat De stellis fixis, in quibus gradibus oriuntur signorum* (Sammlung wissenschaftlicher Commentare, 2 vols, Stuttgart/Leipzig, 1995) [hereafter Hübner, *Grade*], vol. I, p. 118f. Cf. Boll, *Sphaera*, p. 259f.; in the next section, Libra 19°-22°, we find τὰ τρία Μειράκια ἃ καὶ καλεῖται πορθμεύς. The Excerptum Baroccianum II, p. 466.1 Boll (ibid., pp. 249-51), mentions several ferryman instead of one ferryman: τρία μειράκια οἱ καὶ πορθμεῖς that form an astral region of the underworld, where the sun is descending into the southern hemisphere. Firm. math. 8, 12.2, preserves the constellation *Styx*.

²² Teucr. I, 4.6 in Hübner, *Grade*, vol. I, p. 114f. Cf. Boll, *Sphaera*, p. 272.

²³ Manil. 5.176-185. The poet does not indicate any special degree, but Firm. math. 8, 9.3 mentions Cancer 1°. In explaining the difficult verse 5.179, interpreters have imagined a fourth mythical figure Melanion, but it does not fit in here, because Melanion was not a hunter. Cf. Manilio, *Il poema degli astri (Astronomica)*, ed. S. Feraboli, E. Flores, R. Scarcia (2 vols, Milan, 2001)

In the middle of the Balance, Manilius mentions the uncanonical *Haedus*, a sign of the so-called dodecaoros series²⁴ corresponding to Libra.²⁵ On the other side of the central *Haedus*, together with Libra 26°, Manilius places the Lyre,²⁶ which he mentions once more under Capricorn, calling it *Fides* (see **Table 2**). Firmicus positions it just next to Capricorn 10°, calling it by its usual name, *Lyra*. When Manilius and Firmicus give the prognostication of torturers, they mean by *Fides* a special instrument of torture. So the same instrument can be either delightful or cruel, according to the old Heraclitean *παλίντροπος* (or *παλίντρονος*) *ἄρμονίη*²⁷ of the bow and the lyre, in addition to the famous simile in Homer.²⁸ The ambiguous instrument *Lyra / Fides* evokes the complementarity of Sagitta and Lyra on either side of the central *Haedus*.

If one assumes that the ascending Lyre can be found at the beginning of Capricorn, it culminates with Libra. So the Lyre under the Balance may be the culminating Lyre, and under Capricorn the ascending Lyre, (see **Figure 1**).

[hereafter Feraboli et al., *Astronomica*], vol. II, p. 467 ad Manil. 5.174-196, 'Meleagro, Atalanta, Atteone'.

²⁴ Boll, *Sphaera*, pp. 295-326. See W. Hübner, 'Zur neuplatonischen Deutung und astrologischen Verwendung der Dodekaoros', in Dieter Harlfinger, ed., *Philophronema. Festschrift für Martin Sicherl zum 75. Geburtstag. Von Textkritik bis Humanismusforschung* (Studien zur Geschichte und Kultur des Altertums. N.F. 1,4, Paderborn, 1990), pp. 73-103.

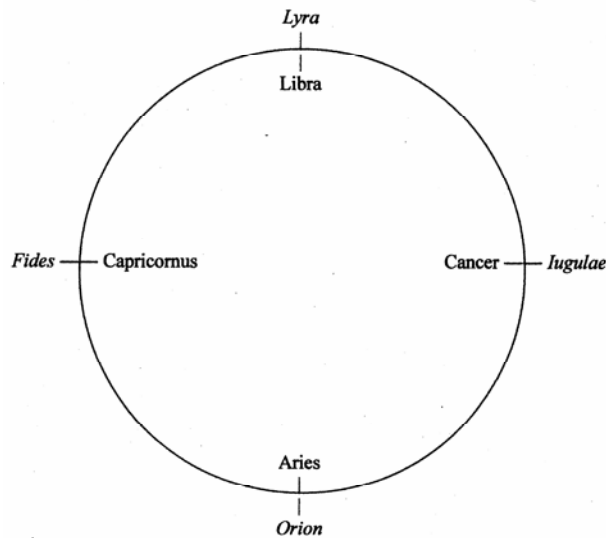
²⁵ Manil. 5.311-323 gives no special degree, but Firm. math. 8, 12.3 mentions exactly the middle of the sign: *in Librae parte XV*.

²⁶ Manil. 5.324-338. According to Hipp. 2, 5.6 the Lyre rises together with the middle of Scorpio.

²⁷ Heracl. B 51 (I, p. 162.3 D.-K.) *παλίντροπος ἄρμονίη ὄκωσπερ τόξου καὶ λύρης*. See W. F. Otto, *Die Götter Griechenlands. Das Bild des Göttlichen im Spiegel des griechischen Geistes* (Frankfurt 1970; ¹1929), p. 77f. W. Hübner, 'Manilius als Astrologe und Dichter', *Aufstieg und Niedergang der römischen Welt* II 32.1 (1984), pp. 126-320, esp. pp. 180-85 [hereafter Hübner, 'Manilius' *ANRW*].

²⁸ Hom. *Od.* 21.406-411. We have to remember that the Greek word *τόξον* signifies both, either the arrow or the bow.

Figure 1. *Lyra* and *Fides*, *Orion* and *Iugulae* in Manilius



The combinations made by Teucer must have been quite varied. There is another passage, likewise at the beginning of a tropical sign, that combines a *parva Lyra*²⁹ at Capricorn 6° and subsequently a *Telum* with Capricorn 7°-14°.³⁰ So we find the same complementarity of the Arrow and the Lyre just after the autumn equinox as well as at the winter solstice.³¹

²⁹ The manuscript gives *pars Lyrae*, which must be corrected according to Arat. 268 *χελὺς ὀλίγη* and the *μικρὰ Λύρα* of Teucer: Boll, *Sphaera*, pp. 105 and 273-75, confirmed by the Latin translation Teucr. I, 6.3 *deferens parvam lyram*: see Hübner, *Grade*, vol. I, p. 145 and Commentary, vol. II, pp. 46f. and 131f.

³⁰ Anon., *De stellis fixis* (probably Teucr.), ed. Hübner, *Grade*, II, 10.6 and II, 10.9 = I 145. In quartile aspect we find the *Nodus Piscium* under Aries 6° II, 1.3 (= I 139).

³¹ There is a similar opposition in the sign of Scorpio: Macr. *Sat.* 1, 12.11 *nec aestimatur ratione caelesti carere ipsa divisio, siquidem aculeo velut potentissimo telo pars armata posterior domicilium Martis est, priorem vero partem, cui Ζυγὸς apud Graecos nomen est, nos Libram vocamus, Venus accepit quae velut iugo concordiae iungit matrimonia amicitiasque componit*. The back of the formerly huge Scorpio that covered two dodecatemoria belongs to Mars, and the claws (*χηλαί*) at the front to Venus.

Other tropical points attract the Lyre and Arrow, too. Teucer mentions the Lyre not only for Libra, but also (together with a playing Muse) for the first decan of Cancer;³² according to the Latin version, the position can be fixed at Cancer 8° - 10°.³³ Finally, we find once again, at the very end of the circle, Τρίαινα that causes συμφωνίαν πραγμάτων.³⁴ We will see next that the end of Pisces has a tropical character as well.

2. The winter solstice

In addition to the quartile aspect of *Lyra - Fides* and *Sagitta - Telum* other constellations also compete for the winter solstice. In this area we find the greatest discrepancy between Manilius and Firmicus (see **Table 2**). Manilius does not indicate any degree, but Firmicus puts the Dolphin exactly at the winter solstice (8°), while Manilius mentions the Southern Fish at that position (between Ophiuchus and the Lyre).³⁵ Both constellations, the Southern Fish as well as the Dolphin, are connected with water, like the fishtail of Capricorn.³⁶

³² See Boll, *Sphaera*, pp. 273-275.

³³ Teucr. I, 4.4 (in Hübner, *Grade*, and Commentary, vol. II, p. 32f.).

³⁴ Teucr. I, 12.10 (in Hübner, *Grade*).

³⁵ Both positions are wrong: the Southern Fish, according to Arat. 701, rises together with Pisces; according to Hipp. 3, 1.7 together with Aquarius 16½°-20½° from whose water it is drinking: Eratosth. *Catast.* 38, p. 180,3-5 Robert; Arat. 702, however, puts it under Capricorn:

αὐτῷ κυανέῳ ὑποκείμενος Αἰγοκερῆϊ.

Aratus does not mention the Dolphin's rising, yet he says that it follows Capricorn (Arat. 316 ἐπιτρέχει Αἰγοκερῆϊ), followed by Nonnus, *Dionysiaca* 38.371 σύνδρομος Αἰγοκερῆος ... Δαλφίς; according to Hipp. 2, 5.14 the constellation rises together with Sagittarius 19½°-23½°. The incorrect information given by Manilius has been pointed out by V. Stegemann, *Astrologie und Universalgeschichte. Studien und Interpretationen zu den Dionysiaka des Nonnos von Panopolis, mit einer Sternkarte* (Leipzig, 1930, Stoicheia 9), p. 76.

³⁶ See W. Hübner, *Die Eigenschaften der Tierkreiszeichen in der Antike. Ihre Darstellung und Verwendung unter besonderer Berücksichtigung des Manilius* (Sudhoffs Archiv, Beiheft 22, Wiesbaden, 1982) [hereafter Hübner, *Eigenschaften*], p. 109f. under no. 2,213.242.

Table 2. The *Paranatellonta* of Capricorn

Manilius	Firmicus	Teucrus II	Teucrus, Exc. Barocc. II
? Ophiuchus	<i>primis partibus:</i> Ofiuchus	6° parva Lyra	Λύρα
? Piscis (austrinus)	8° Delphinus	7°-14° Telum	
? Fides	10° Lyra		
? Delphinus	15° Cepheus		Πίθηκος
<i>regione Aquari:</i> Cepheus			

The placement of the Dolphin at Capricorn 8° is not (as Franz Skutsch thought) 'entirely arbitrary';³⁷ rather, Firmicus chooses the exact point of the winter solstice, a position that is confirmed by Teucer who mentions the section Capricorn 8° - 10°.³⁸ The filling of the winter solstice either with the Southern Fish (Manilius) or the Dolphin (Firmicus) may be the result of discussions about the most probable (observed) position of the *paranatellonta*. At any rate, the discrepancy corresponds to the two aspects of the solstice: while the Southern Fish marks the extreme depth (fulfilled by Manilius' prognostication that the natives will be divers who catch shells and pearls from the bottom of the sea³⁹), the Dolphin, jumping up from the water, marks the sun's rising again after the solstice (with a similar prognostication of divers⁴⁰).

³⁷ F. Skutsch, 'Firmiciana', p. 634 n. 'ganz willkürlich', influenced by Boll, *Sphaera*, pp. 394-404, cf. p. 267, n. 1.

³⁸ Teucr. I, 10.3 (in Hübner, *Grade*) with different denomination: ὁ μέγας Ὀφίς / *Serpens magnus*.

³⁹ Manil. 5.397-404. The description of the rising Fish fits the Dolphin better (5.394f.):

*at cum se patrio producens aequore Piscis
in caelumque ferens alienis finibus ibit, ...*

In general the aquatic constellations are figures in the southern hemisphere: G. Thiele, *Antike Himmelsbilder. Mit Forschungen zu Hipparchos, Aratos und seinen Fortsetzern und Beiträgen zur Kunstgeschichte des Sternhimmels* (Berlin, 1898), p. 5, and the flying constellations in the northern: W. Hübner, 'Zur Ikonographie des Sternhimmels', in W. Hübner and K. Stähler, eds, *Ikonographie und Ikonologie: interdisziplinäres Kolloquium, Münster 2001* (Münster, 2004), pp. 159-164.

⁴⁰ Manil. 5.431-445, where jumping, seesawing acrobats follow.

Since Aristotle⁴¹ the soaring upwards of the Dolphin has been compared to a missile, and Pliny the Elder⁴² uses the same word, *telum*, employed by Teucer at the winter solstice (Capricorn 7°-14°). Already at the beginning of Book 5, Manilius had associated the two 'flying' figures, the Arrow and the Dolphin:⁴³ *celerique Sagittae / Delphinus certans*.

As we have seen, Manilius inserts *Fides*, the Lyre, between the Southern Fish and the Dolphin. The Fish and the Lyre have similar prognostications: while the diver born under the Southern Fish brings up from the depths the riches of the sea:⁴⁴

cumque suis domibus concha valloque latentis
protrahet immersus.

immersed himself, will bring them forth together with the
homes of protective shell wherein they lurk.

The torturer born under the *Fides* investigates the hidden thoughts of the criminal:⁴⁵

qui commissa suis rimabitur argumentis
in lucemque trahet tacita latitantia fraude.

he will get to the bottom of crimes by sifting the
evidence for them

⁴¹ Aristot. *HA* 9,48 p. 631a29: ὅσπερ τόξευμα. The ninth book of the *Historia animalium* has been enriched by later sources: W. Kroll, *Zur Geschichte der aristotelischen Zoologie* (Sitzungsberichte der Akademie der Wissenschaften Wien, phil.-hist. Kl. 218,2, Vienna, 1940). More in detail Ael. NA 12,12 ἐντείναντες ἔνδον τὸ πνεῦμα, ὅσπερ οὖν νευράν, εἶτα τὸ σῶμα ὡς βέλος ἀφιᾶσι.

⁴² Plin. nat. 9,20 *delphinus ocior volucre, acrior telo. ... ut arcu missi ad respirandum emicant*.

⁴³ Manil. 5.24-25.

⁴⁴ Manil. 5.399-400. English translation: Goold, p. 333.

⁴⁵ Manil. 5.411-412. English translation: Goold, p. 335.

and bring to light all that lies hidden under the silence of deceit.

In this way the real signification of scrutiny is transferred to an interior act – just as the poet transfers, in the case of Andromeda (hanging on the rock and being in suspense about Perseus), the real hanging to an interior anxiety:⁴⁶ *animoque magis quam corpore pendet*.

We will see now that this double state of 'hanging' corresponds both to the chains which bound Andromeda to the rock, and to the cord connecting the two Fishes (the zodiacal sign of Andromeda), who are about to diverge into different regions near the vernal equinox.⁴⁷ There has been found in England a curious picture that combines the chains of Andromeda with the cord of the Fishes (see **Figure 2**).

Figure 2. The chains of Andromeda combined with the cord of the Fishes⁴⁸



⁴⁶ Manil. 5.607. On Manilius' predilection for the verb *pendere* see W. Hübner, 'Manilius' *ANRW*, pp. 225-27.

⁴⁷ See G. de Callatay, 'The Knot of the Heavens', *Journal of the Warburg and Courtauld Institutes* (1996), vol. 59, pp. 1-13.

⁴⁸ In F. Saxl - F. Meier, *Verzeichnis III 2* (1953), Taf. LXXI fig. 180 Kew. Sir Sidney Carlile Cockerell, *De ymagine celi* (ca. 1400), fol 3^r.

3. The vernal equinox

The spring equinox is interpreted by Manilius in relation to at least three *paranattellonta*: Orion (Aries 10°), Argo (Aries 4°), and the northern-southern pair, Engonasin – Cetus, which rises together with the end of Pisces on the border of Aries (see **Table 3**):

Table 3. The *Paranattellonta* of the Spring Equinox

Manilius	Firmicus	Teucrus, second and first text	Excerpta Barocciana I+II
Pisces 30° N Engonasin [~ Perseus]	Pisces extr. <N>: Ingeniculus		II: ὁ Κροκόδειλος
Pisces 30° S Cetus	Pisces extr. S : Cetus		II: ὁ ἐν γούνασι
Aries 4° Argo	<4°> Argo		
Aries 10° Orion [~ Perseus]	10° Orion	II: 8°-10° Περσεύς / <i>Perseus volans caput habens inferius et pedes superius, ostendens Ceto caput Gorgonis</i>	I: Περσεύς II: Γοργώ
		I: 21°-30° Περσεύς κατακέφαλα καὶ ἡ κεφαλὴ τοῦ Κήτους	

Let us begin with the latter. As Franz Boll masterfully pointed out,⁴⁹ Orion replaces Perseus, who is never considered by Manilius as a *paranattellon*. The prognostication given for Orion fits for Perseus or Engonasin.⁵⁰ Perseus is mentioned by Teucer just for the equinox (Aries 8° - 10°); the Latin translation, which is more detailed, describes him in the position of the inverted Engonasin: *Perseus volans caput habens inferius et pedes superius*.⁵¹ Just as the Lyre culminating near the autumn

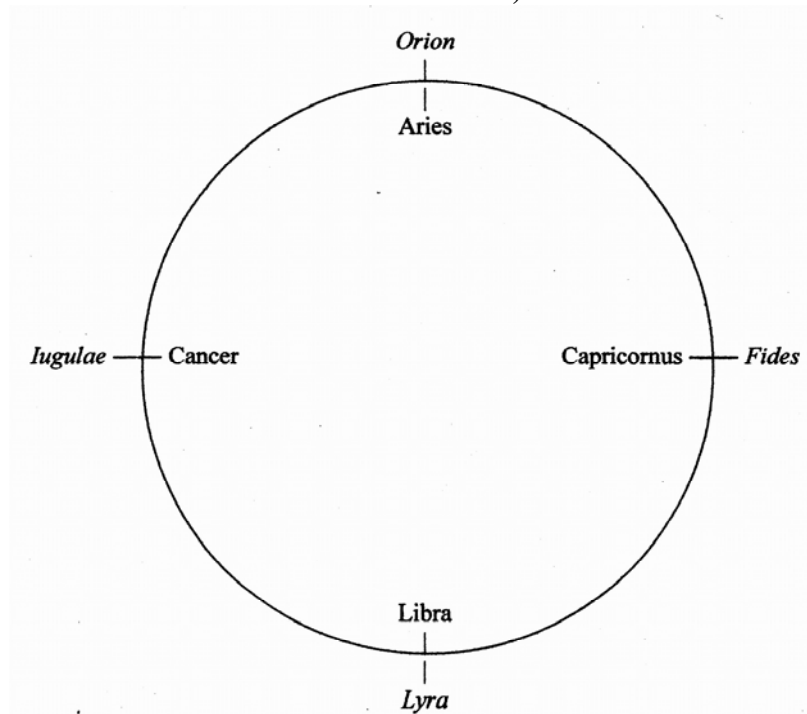
⁴⁹ Boll, *Sphaera*, p. 385.

⁵⁰ Manil. 5.61-66.

⁵¹ Teucr. I, 1.4 (Hübner, *Grade*, vol. 1, pp. 108-9) ἕως τ' Περσεύς / *ab octavo gradu usque <ad> decimum est Perseus volans caput habens inferius et pedes superius, ostendens Ceto caput Gorgonis*. The star Gorgo (β Persei) belongs not only to Perseus, but also to the *paranattellon* Ἀθήνη / *Pallas*: W. Hübner, 'Triste *Minervae sidus* (Verg. Aen. 11,259f.)', *MHNH* (2005), vol. 5, pp. 177-88.

equinox is introduced by its proper name, but is repeatedly called by a different name when ascending near the winter solstice, Orion is also mentioned by his proper name when culminating near the vernal equinox, whereas the ascending constellation is, as we have seen, reduced to the three stars of its belt, the *Iugulae*, near the summer solstice: see **Figure 3** (that is, **Figure 1** turned by 180°) in the position of the speculative horoscope of the world (*thema mundi*) with Cancer in the ascendant and Aries in the midheaven:

Figure 3. Orion and *Iugulae*, *Lyra* and *Fides* in Manilius (position of the *thema mundi*)



The omitted Perseus has been restored once more to the end of the two Fishes at the border between Pisces and Aries and, at the same time, on the border of the zodiacal year. Here, Manilius puts Engonasin on the north side (today called Hercules):⁵²

⁵² Manil. 5.647. English translation: Goold, p. 353.

dextra per extremos attollit lumina Pisces,

brings forth its stars on the right simultaneously with the last portion of the fishes,

and the sea-monster Cetus on the southern side.⁵³

laeva sub extremis consurgunt sidera Ceti
Piscibus...

On the left, as the last portion of the Fishes rises, appears the constellation of the Whale...

It was quite easy to replace Perseus by Engonasin, because the hero comes down from the air to fight against the aquatic monster (see note 51) just as Engonasin is depicted headfirst: *caput habens inferius et pedes superius*, pushing away the Northern Dragon with one of his feet. Teucer mentions the two opponents (Perseus and Cetus) under the third decan of Aries:⁵⁴ Περσεὺς κατακέφαλα καὶ ἡ κεφαλὴ τοῦ Κήτους. The second Excerptum Baroccianum inverts the adversaries under Pisces:⁵⁵ ὁ Κροκόδειλος, ὁ ἐν γούνασι. (The crocodile corresponds to the zodiacal Fishes in the dodecaoros series.) The different texts reveal that Pisces and Aries have been competing eagerly for the vernal equinox.⁵⁶ Elsewhere, I have tried to point out in more detail⁵⁷ that the struggle between Perseus

⁵³ Manil. 5.656-657. English translation: Goold, p. 353.

⁵⁴ Teucr. apud Rhetorium, F. Boll, ed., *CCAG* 7, p. 195.9-10, cf. eundem, *Sphaera*, p. 17.8.

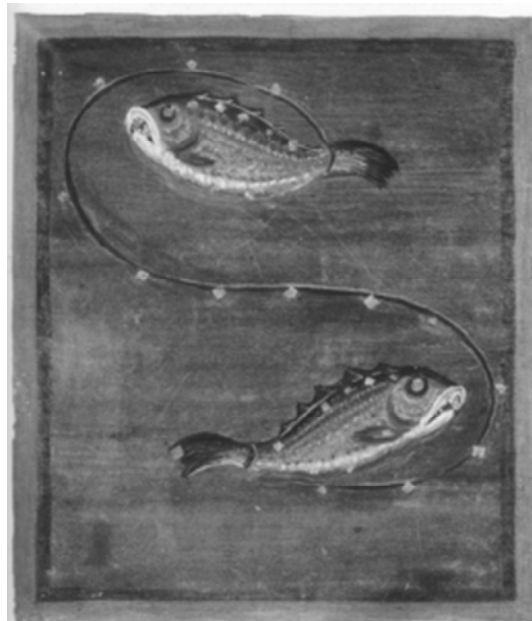
⁵⁵ Exc. Barocc. II, ed. Boll, *Sphaera*, p. 466.9-10.

⁵⁶ For the equinoctial function of the Fishes we have several indications: Hipparch, *CCAG* 9/1 (1951), p.190.10 ἐν ἀμφοτέροις τοῖς ἡμισφαιρίοις; Ov. fast. 3.401f. *austris hic est, aquilonibus ille / proximus*; Firm. math. 8, 4.12 *unus Piscis ad austrum vergit, alius ad aquilonem*; Nonn. Dion. 38.368f. ὁ μὲν Νότον, ὃς δὲ Βορῆα / Ἰχθύες ἀστερόεντες ἐπεσκήρτησαν Ὀλύμπῳ; Rhetorius, *CCAG* 8/4 (1922), p. 124.13 Παρθένον καὶ Κριὸν διάμετρα [σύζυγα Cumont vix recte] λογίζεσθαι καὶ Ζυγὸν καὶ Ἰχθύας.

⁵⁷ Hübner, 'Manilius' *ANRW*, pp. 197-201.

from heaven and Cetus from the sea, described by the poet in a long epyllion, signifies the victory of the north over the south, of springtime (whose element is air) over winter (whose element is water), of the new year over the old year, and furthermore that this fight corresponds to the configuration of the two opposite zodiacal Fishes with their 'enantiodromia' (see **Figure 4**), a configuration that was taken up in China in order to symbolize the Yin-Yang opposition and, in modern times, the recycling symbol.

Figure 4. The 'enantiodromia' of the zodiacal Fishes⁵⁸



Just as Manilius inserts the *Fides* at the winter solstice between the Southern Fish and the Dolphin (see **Table 2**), so he inserts the ship Argo together with Aries 4° at the vernal equinox between Engonasin-Perseus as the adversary of Cetus and Orion-Perseus. If we assume for Perseus (according to Teucer) the section Aries 8° - 10°, the ship at Aries 4° rises in the exact middle between Aries 0° and Aries 8°, the prevailing value of the equinox.

⁵⁸ In Codex Leidensis Vossianus lat. 79 (saec. IX), fol. 38^v.

Apart from the fact that the Ram belongs to the myth of Argo, we find several allusions to the tropical point that changes the season among the prognostications. First of all the native will be a sailor and exchange land for sea:⁵⁹ *mutabit pelago terras*. The multivalent verb *mutare* translates the Greek *τρέπειν* (*τροπικός*) (lit. ‘turn’). It also signifies the exchanging of commerce, since not only divers are born under the Southern Fish located at the winter solstice, but also merchants of pearls:⁶⁰

aut emit externos pretio mutatque labores.

or he purchases at a fixed wage another’s labour.

In another way, Xerxes, bridging the Hellespont (crossed also by the Ram) and digging a channel through Mount Athos, exchanged land for sea:⁶¹ *pelagus Xerxes facietque tegetque*. More audacious is the far-fetched expression about sea-battles:⁶² *versa Syracusis Salamis* does not only mean one single victory as a turning point (*τροπή*), but the Athenian victory of Salamis is balanced with the defeat of Syracuse.

The series of historical sea-battles culminates in the victory of Actium enhanced by a cosmic interpretation:⁶³

Actiacosque sinus inter suspensus utrimque
orbis et in ponto caeli fortuna natabit.

⁵⁹ Manil. 5.49.

⁶⁰ Manil. 5.407. English translation: Goold, p. 333. All the tropical signs favour merchandise: Hübner, *Eigenschaften*, pp. 595 and 549 on Manil. 4.166 (referring to Cancer): *quaestus artemque lucrorum*.

⁶¹ Manil. 5.49.

⁶² Manil. 5.50, *versa* being a splendid emendation proposed by Jacob and adopted by Housman.

⁶³ Manil. 5.52-53. English translation: Goold, p. 305. For heaven and sea cf. – apart from the battle between Perseus and Cetus – the statement under the Fishes about the steersman, 4.280 *pontum caelo vincit*. For similar examples see Hübner, ‘Manilius’ *ANRW*, pp. 219-227. For Manilius’ use of the verb *natare* see A. Cramer, *De Manilii qui dicitur elocutione* (Strasbourg, 1882), p. 54.

the world within Actium's bays [will] hang in the balance between opposing forces, and heaven's destiny float at the mercy of the waves.

Here the above-mentioned etymology of Κριός - κρίνειν is in operation: In the battle the orient confronts the occident, just as the northern and the southern hemisphere are balanced at the vernal equinox. Thus Manilius defines the opposite zodiacal signs as⁶⁴

per medium adverso mundum pendentia vultu.

poised with faces confronting each other across mid-sky.

The verb *natare* repeats the double sense of the verb *pendēre* in the case of Andromeda: the ships balanced on the surface of the water, and the victory that granted rulership over the whole world fluctuated in suspense. In the first book, Manilius uses the verb *pendēre* only in the second sense of *natare* (swim and fluctuate):⁶⁵

in ponto quaesitus rector Olympi,
femineum sortita iugum cum Roma pependit.

the ruler of heaven was determined on the sea;
the fate of Rome, threatened with a female yoke, hung in
the balance

Both verbs express the delicate balance of energy at the critical moment of the battle and at the spring equinox as well. So the mythical meaning of Aries that crossed the Hellespont has been brought up to the present time, with the victory of Actium.

4. The parallels of regarding and hearing

In addition to the three values explicitly mentioned by Manilius, Eudoxus placed the tropical points in the middle of the signs at 15°. ⁶⁶ But we find this system too in Manilius, hidden in the fifth book (see **Figure 5**), if we

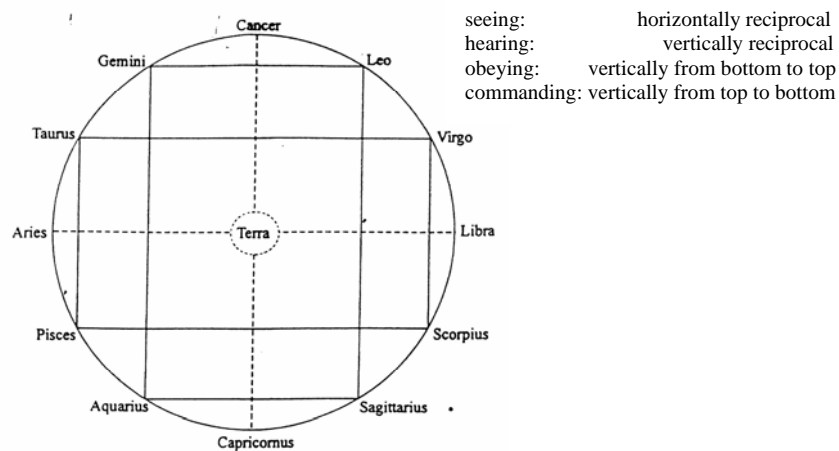
⁶⁴ Manil. 2.396. English translation: Goold, p. 115.

⁶⁵ Manil. 1.916-917. English translation: Goold, p. 77.

⁶⁶ Hipp. 2,1,20 (= Eudoxos frg. 65 + 69 + 72 Lasserre) Εὐδοξος τὰ τροπικὰ σημεῖα κατὰ μέσα τὰ ζῳδία τίθησι κ.τ.λ.

regard the parallels of the ζῳδία ἰσανάφορα, that is the signs of equal ascension (corresponding to the months of equal length of days and nights), equidistant from the two equinoxes, and the perpendicular parallels of the ζῳδία ἰσοδυναμοῦντα, that is the signs of complementary ascension (the length of days of one sign being as long as the nights of the other and vice versa).⁶⁷ The signs of the first system are imagined as hearing (or obeying) one another, and those of the second as regarding one another. Both systems operate with entire signs (ζῳδιακῶς) starting from two tropical signs: the hearing signs from the axis of the solstices (Cancer - Capricorn), and ending with the axis of the equinoxes (Aries - Libra), and the regarding signs *vice versa*, starting from the axis of the equinoxes Aries - Libra and ending with the solstices Cancer - Capricorn. The cardinal points of such systems are different: while Vettius Valens⁶⁸ and others place them at 0° of the tropical signs, Manilius⁶⁹ sees them in the middle of the tropical signs, where the parallels diminish to a focal point.

Figure 5. The parallels of zodiacal signs hearing (obeying) or regarding one another



⁶⁷ See Hübner, *Eigenschaften*, pp. 59-72 under no. 221 and pp. 509-514; Id., ‘Manilius’ *ANRW*, pp. 187-193.

⁶⁸ Val. V, 8.108 (p. 228.16-20 Pingree).

⁶⁹ Manil. 2.466-519.

The link between these parallel relations with the doctrine of *paranatellonta* is proved by the fact that Firmicus⁷⁰ quotes a similar system in his last book about the *paranatellonta*, while Manilius already anticipates this in his second book about the zodiacal signs.⁷¹ In a strange manner, it specifies the interpretation of the *paranatellonta* producing an introverting effect when the parallels diminish to one point. So the Manilian Lyre, rising together with Libra 26°, represents, among other things, solitarian musicians who sing only for their own ears:⁷²

solus et ipse suas semper cantabit ad aures.

left to himself he will charm no ears but his own.

Actually, in the middle of Libra, the parallels of hearing diminish to one point.

In a quartile aspect, we find a complementary effect. Cepheus, who rises *regione Aquari* according to Manilius, but according to Firmicus together with Capricorn 15° (see **Table 2**), creates, among other things, writers of comedies like Menander, whose pieces reflect actual human life like a mirror:⁷³

qui vitae ostendit vitam chartisque sacravit.

who held up a mirror to life and enshrined the image in his works.

⁷⁰ Firm. math. 8, 3.

⁷¹ Manil. 2.466-519.

⁷² Manil. 5.336. English translation: Goold, p. 327.

⁷³ Manil. 5.476. English translation: Goold, p. 339. A panegyric variant occurs already in Manil. 2.507-609:

*Capricornus in ipsum
convertit visus (quid enim mirabitur ille
maius in Augusti felix cum fulserit ortum?)*

See W. Hübner, 'Menander und Augustus unter dem Steinbock', in *Skenika. Beiträge zum antiken Theater und seiner Rezeption. Festschrift zum 65. Geburtstag von Horst-Dieter Blume*, eds Susanne Götde and Theodor Heinze (Darmstadt, 2000), pp. 253-65; S. Terio, *Der Steinbock als Herrschaftszeichen des Augustus* (Münster, 2006, *Orbis antiquus* 42), pp. 79-81.

Actually, the parallels of looking diminish to one focal point in the middle of Capricorn.⁷⁴ In this case the μίμησις of the comedy is also reinforced by the uncanonical constellation of the Ape (Πίθηκος)⁷⁵ that corresponds to Capricorn in the dodecaoros series, as well as, on the other hand, the Manilian Lyre preceded by the he-goat of the dodecaoros (Τράγος, *Haedus*), placed at Libra 15° by Firmicus. This is exactly in quartile aspect to Cepheus, who should therefore be identified with the Ape.

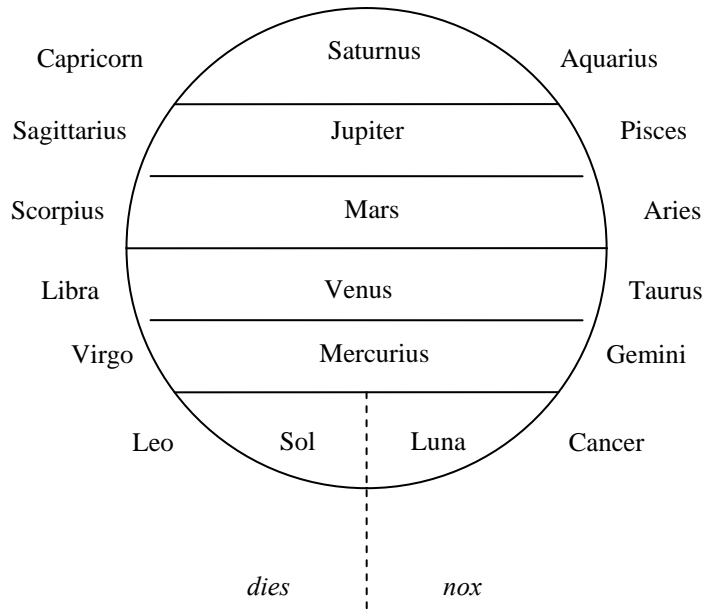
There are other traces of such combinations.⁷⁶ If we assume the middle of the tropical signs as actual cardinal points, this system of parallels must have been invented about 500 years before Hipparchus' observations in 127 BCE, which would then be about 625 BCE.⁷⁷ If we accept the value given by Manilius of Libra 26°, this would be even earlier, about 1415 BCE. And if we acknowledge the border between the tropical and the previous signs, it would be still earlier, about 1700 BCE. But I don't believe that the system is actually that old. In fact, the system which has the cardinal points in the middle of the signs seems to have been invented principally for practical reasons, because every value between either the beginning and the middle or the middle and the end of the signs would have yielded too complicated calculations, and moreover only the middle of the signs make the impressive reciprocal interpretation possible.

⁷⁴ Cf. the polyptoton under the opposite Cancer, 4.169, *orbisque orbi bona vendere*.

⁷⁵ Boll, *Sphaera*, pp. 295-307; in particular Rhetorius, ed. F. Cumont, *CCAG* 8/4, p. 217.7: Ἐρμῆς καὶ Ἀφροδίτη ... μίμους ἢ πολιτικούς ποιοῦσιν, μάλιστα ἐν Αἰγοκέρωτι διὰ τὸ παρανατέλλειν τὸν Πίθηκα. See W. Hübner, 'Manilius' *ANRW*, p. 189.

⁷⁶ Manil. 5.65 Orion-Perseus with Aries 10°: the saluator: *unumque per omnia verbum*. 5,91-96 Auriga with Aries 15°: By imitating the thunder Salmoneus kills himself.

⁷⁷ Cf. S. Feraboli et al., *Astronomica*, vol. II, p. 467 ad Manil. 5.174-196.

Figure 6. The planetary day and night houses

Therefore, the different tropical points are not only related to the three cardinal points mentioned by Manilius at the end of the third book, they are also spread over the entire tropical signs from 0° to 30° .⁷⁸ The case at the end of the tropical signs corresponds to another more frequent system, the system of the planetary day and night houses centred on the axis Leo - Aquarius 0° , where the ascending day half of the circle rises from the sun in Leo up to Saturn in Capricorn and the descending night half comes down from Saturn in Aquarius to the moon in Cancer (see **Figure 6**).⁷⁹

⁷⁸ An even earlier placement of the tropical points assumes the change of the seasons in the square of the 'double' signs ($\delta\acute{\iota}\sigma\omega\mu\alpha$) which precede the tropical ones (Gemini - Virgo - Sagittarius - Pisces): Manil. 2.265-269, see Hübner, 'Manilius' *ANRW*, p. 148 and note 83.

⁷⁹ A. Bouché-Leclercq, *L'astrologie grecque* (Paris, 1899, repr. Brussels, 1963 and Aalen, 1979), pp. 182-92; Boll, *Sphaera*, p. 233f. The descent continued even further, going from the southern *paranatellon* Crater to the earth. For more detail, see W. Hübner, Crater Liberi. *Himmelspforten und Tierkreis* (Munich, 2006, Sitzungsberichte der Bayerischen Akademie der Wissenschaften, philosophisch-historische Klasse 2006/3), esp. pp. 37-49.

One may be tempted to attribute it to the so-called 'age of Taurus' (ca. 4000 - 1700 BCE), when the tropical points fell into the square of the 'solid' signs (στερεά: Taurus - Leo - Scorpius - Aquarius),⁸⁰ as was recently proposed once again for the cult of Mithras.⁸¹ But as long as we do not have any more reliable evidence, we cannot go that far. Until then, we must content ourselves with the assumption that all these speculative systems do not precede the Hellenistic period, when most of the astrological lore that has survived until now was invented.

⁸⁰ See Hübner, *Eigenschaften*, pp. 74-80 under no. 1.311. See also D. Liuzzi, 'Il Toro e l'equinozio di primavera', in *Manilio fra poesia e scienza* (as in n. 12), pp. 147-51.

⁸¹ L. A. Campbell, *Mithraic Iconography and Ideology* (Leiden, 1968, Études Préliminaires aux Religions Orientales dans l'Empire romain 11); D. Ulansey, *The Origins of the Mithraic Mysteries. Cosmology and Salvation in the Ancient World* (New York/Oxford, 1989, ²1990); Id., 'Solving the Mithraic Mysteries', *Biblical Archaeological Review* (1994), vol. 20, pp. 41-53, but the view of Ulansey has been refuted by his reviewers N. M. Swerdlow, *Classical Philology* (1991), vol. 86, pp. 48-63 and J. G. Griffith, *The Classical Review* (1991), New Series vol. 41, pp. 122-24, and also by B. Jacob, *Die Herkunft und Entstehung der römischen Mithrasmysterien. Überlegungen zur Rolle des Stifters und zu den astronomischen Hintergründen der Kultlegende* (Xenia. 43, Konstanz, 1999). In general, J. Schwabe, *Archetyp und Tierkreis. Grundlinien einer kosmischen Symbolik und Mythologie* (Basel, 1951), pp. 23-37.