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VII

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THE WORLD OF THE LATIN *ARATEA*

1. The phenomenon of the *Phaenomena*

As the story goes, one of the most popular and influential poems of Greco-Roman antiquity was written on a dare.[1] One day, the Macedonian king Antigonus Gonatas presented his court poet, Aratus of Soloi, with a copy of an astronomical treatise by the philosopher Eudoxus, challenging him to put it into verse. Even though Aratus knew nothing whatsoever about astronomy,[2] he rose to the occasion and produced *Phaenomena*, a masterful poem of 1,154 hexameters that consists of a detailed description of the constellations and their risings and settings, followed by a discussion of weather signs. The punning king quipped that the poet was rendering *eudoxoteron ... ton Eudoxon*: Aratus made "Mr. Famous" even more famous.

While this anecdote is likely to be apocryphal, it nicely underscores the element of randomness in the story of Aratus' success. By all accounts, the *Phaenomena* was an instant hit. Callimachus, the arbiter of poetic taste in distant Alexandria, hailed its achievements in a famous epigram, highlighting the poem's creative adaptation of Hesiod, its "sweetness", the toil and care

[1] See *Vita Arati* I, 8, 5-11 MARTIN with MARTIN (1998) xlvi-xlvii.

[2] Cf. CIC. *De orat.* 1, 69: *Constat inter doctos hominem ignarum astrologiae ornatissimis atque optimis uersibus Aratum de caelo stellisque dixisse* ("The learned agree that Aratus, a man ignorant of astronomy, spoke of the sky and the stars in most ornate and excellent poetry").

that had gone into its composition, and its quality of "slenderness" or *leptotês*:

> Ἡσιόδου τὸ τ' ἄεισμα καὶ ὁ τρόπος· οὐ τὸν ἀοιδόν
> ἔσχατον ἀλλ' ὀκνέω μὴ τὸ μελιχρότατον
> τῶν ἐπέων ὁ Σολεὺς ἀπεμάξατο. χαίρετε λεπταί
> ῥήσιες, Ἀρήτου σύμβολον ἀγρυπνίης.[3]
>
> (Callim. *Epigr.* 27 Pf. = 56 GP)

> "The song and the manner are Hesiod's. The man from Soloi has not copied the singer to his full extent but has without a doubt wiped off the honey-sweetest of his verse. Hail, slender discourses, the token of Aratus' sleeplessness."

Two other epigrammatists, Leonidas of Tarentum and a "King Ptolemy", followed suit. Interestingly, they, too, use the term *leptos* in describing Aratus, calling him endowed with a "subtle mind" and "of subtle speech", respectively.[4]

Earlier scholarship assumed that Callimachus was congratulating Aratus on his adherence to Callimachus' own poetic program, which advocated painstakingly crafted, highly original miniature masterpieces supposedly characterized by *leptotês*. As a matter of fact, though, Callimachus never uses *leptos* in this sense — the only occurrence of the word in his extant œuvre is in the epigram to Aratus[5] — and it seems far more likely that he, as well as Leonidas and Ptolemy, is in fact responding to something that is peculiar to Aratus.[6] As I have shown elsewhere, *leptos* is a keyword in the *Phaenomena*, and the epigrammatists appear to be picking up in particular on the famous acrostic of lines 783-787, whose line-initial letters spell *leptê*:[7]

[3] The text of the epigram is controversial in a number of places. I have made my own textual choices, but for reasons of space cannot discuss them here.

[4] LEON. 101 GP (λεπτῇ / φροντίδι, 1-2) and PTOL. *SH* 712, 4 (λεπτολόγος).

[5] Callimachus' famous designation of the "slender Muse" in the *Aetia* prologue (fr. 1, 24 PF.) employs the derivative λεπταλέος. The earlier reading κατὰ λεπτόν in *Aetia* fr. 1, 11 PF. has now been shown to be impossible; see HARDER (2012) *ad loc.*

[6] See CAMERON (1995) 321-328 and VOLK (2010) 205-208, and (2012) 227.

[7] On this and possible other Aratean acrostics, see esp. JACQUES (1960), LEVITAN (1979), and HANSES (2014).

λεπτὴ μὲν καθαρή τε περὶ τρίτον ἦμαρ ἐοῦσα
εὔδιός κ' εἴη, λεπτὴ δὲ καὶ εὖ μάλ' ἐρευθής
πνευματίη, παχίων δὲ καὶ ἀμβλείῃσι κεραίαις
τέτρατον ἐκ τριτάτοιο φόως ἀμενηνὸν ἔχουσα
ἢ νότῳ ἄμβλυνται ἢ ὕδατος ἐγγὺς ἐόντος.

"If [the moon] is slender and clear around the third day, it may be a sign of fair weather, but if it is slender and very red, of wind; but if after the third, on the fourth day, it shows weak light, being swollen with blunted horns, it is being blurred by a south wind or because rain is near."

In addition, Callimachus and Leonidas seem to pay homage to a further famous instance of Aratean wordplay, the use of *arrhêton* ("unspoken") in the poem's second line, which has been identified as an allusion to the poet's own name: ἐκ Διὸς ἀρχώμεσθα, τὸν οὐδέποτ' ἄνδρες ἐῶμεν / ἄρρητον ("Let us begin from Zeus, whom we men never leave unspoken", Arat. *Phaen.* 1-2). Both writers refer to the author of the *Phaenomena* as *Ārētos*, metrically and phonetically equivalent to *arrhêton*, rather than his actual name, *Arātos*, to signal that they have perceived the pun.[8] Incidentally, the *Eudoxos eudoxoteros* joke, too, indicates that early readers of Aratus liked to indulge in witticisms that demonstrated that they had 'got' the word games of the poem.

If the *Phaenomena* was thus a success with the playful literati of the period, it was also widely read as an actual source of information about the stars. From the 2nd century BCE onward, Aratus' work became a standard textbook of astronomy, pored over by generations of Greek schoolboys,[9] and popular perception transformed Aratus himself, the man supposedly *ignarus astrologiae*, into the archetypal astronomer, a role in which he appears in visual representations from antiquity to the Middle Ages (for an example, see Fig. 7.1).[10] His slender discourses were read as a kind of 'Complete Guide to the Night Sky', and

[8] CALLIM. *Epigr.* 27, 4 Pf. and LEON. 101, 1 GP. See LEVITAN (1979) 68, n. 18; KIDD (1981) 355; BING (1990) and (1993) 104-108.

[9] See WEINHOLD (1912); MARROU (1956) 184-185; LEWIS (1992) 113-118.

[10] On images of Aratus, see RICHTER (1965) 239-241.

through the end of antiquity, educated Greek speakers knew what they knew about the stars from having studied the *Phaenomena* as part of their basic education.

The transformation of Aratus' poem into a school text involved the creation of a whole battery of aids to its comprehension. We know about and in many cases still possess an unparalleled number of commentaries and scholia on Aratus,[11] including a commentary by Hipparchus, the greatest Greek astronomer before Ptolemy, who in the 2nd century BCE published a detailed star catalogue, made important contributions to planetary theory, and discovered the precession of the equinoxes. It is ironic that the only work of this eminent ancient scientist to survive intact is his commentary on the *Phaenomena*, which rather than a commentary is really an extended critique: Hipparchus demonstrates in detail where Aratus, and his source Eudoxus, got it wrong in their descriptions of the constellations.[12] Again, it is a testimony to the significance of Aratus that his Eudoxan source text itself does not survive either: the greater part of the fragments we still have come from Hipparchus' commentary on the *Phaenomena*.[13]

But not all secondary literature that sprang up around Aratus had to do with astronomical technicalities. One aspect of the poem that fascinated readers was its myths of stellification: occasionally, Aratus tells the story of how a constellation has come into being, typically because a person, animal, or object has been transposed from earth into the sky. In the 3rd century, the scholar and head of the Alexandrian library Eratosthenes wrote a book that collected such 'catasterisms'; this work was subsequently adapted to serve as a specialized kind of commentary to Aratus. Neither the original nor the adaptation survives, though the latter can be reconstructed from an epitome and quotations

[11] For an overview, see DICKEY (2007) 56-60.

[12] On Hipparchus' approach to Aratus, see TUELLER / MACFARLANE (2009).

[13] Against the ancient and modern *communis opinio*, MARTIN (1998) lxxxvi-cxxv maintains that the astronomical part of the *Phaenomena* is not based on Eudoxus and that the "Eudoxan" material quoted by Hipparchus actually postdates Aratus.

elsewhere.[14] As we will see in what follows, this catasterism tradition was to play an important role in the later reception of Aratus.

Why did the *Phaenomena* become such a phenomenon?[15] It seems unlikely that Aratus set out to produce a panhellenic astronomy textbook, and to some extent, the success of the poem remains a mystery — certainly to modern scholars, many of whom have found themselves flabbergasted by the love of ancient readers for a mere versified starmap. Apart from the fact that such a judgment does not do justice to Aratus' achievement, I suggest that there are three factors that combined to make the *Phaenomena* hit a nerve.

First, the poem is the first popular expression of a new cosmology, one that was going to remain in place until the beginning of the modern period.[16] While we tend to speak of the Ptolemaic universe, it was really Aristotle who, synthesizing numerous predecessors, codified what has been called the "two-sphere universe", a model that imagines the cosmos as consisting of two spheres, with the solid, immobile earth in the center, surrounded by the hollow, rotating sphere of fixed stars.[17] The exact shapes and positions of the constellations on this outer firmament were becoming ever better known, and Eudoxus was one of the scientists who codified the starry sky in a way that is still pretty much the same as we perceive it today. It fell to Aratus to encapsulate in verse this new universe: using the didactic "manner of Hesiod" — the revered bard of the mythological cosmology of Archaic Greece — the Hellenistic poet created a canonical poetic version of the new science of his day (for a pictorial representation of the Aratean sky, see Fig. 7.2).

[14] For editions of the fragments, see ROBERT (1878), and PÀMIAS I MASSANA / ZUCKER (2013); for the history of the work, see GEUS (2002) 211-223.

[15] Reasons for the popularity of Aratus in antiquity are discussed by KIDD (1961); LEWIS (1992); GEE (2013a) 5-17.

[16] Compare GEE (2013a) 16-17.

[17] The term "two-sphere universe" comes from KUHN (1957) 27; KUHN (1957) 1-99 provides an especially clear exposition of this successful cosmological model.

Second, the *Phaenomena*, with its description of a rational, orderly cosmos controlled by a benevolent Zeus, was read as the expression not only of a new astronomical *communis opinio*, but of a new philosophical orthodoxy as well. From the Hellenistic period to the rise of Christianity, a certain 'soft' Stoicism was the prevalent mode of conceiving of the universe and man's place in it. The cosmos was typically viewed as an interconnected organism infused with a divine spirit and ruled by fate; depending on one's outlook, this 'cosmic religion' could take on more scientific-rational or esoteric-mystical features.[18] Ancient readers of Aratus, just as many modern ones, often took him to be a bona fide Stoic,[19] even though the *Phaenomena*, while not incompatible with Stoicism, proclaims no specifically Stoic doctrines.[20] However, if the poet most likely did not aim to produce a work of Stoic cosmology, the enthusiastic reception of his poem nevertheless owes much, I suggest, to the way in which it was perceived to be in agreement with the popular *Weltanschauung* of his and subsequent ages.

Third and finally, as we have already seen, the *Phaenomena* was immediately hailed as the masterpiece of a new aesthetics, a prime example of what we now know as Hellenistic poetry. Immensely learned, focused on a topic previously considered unpoetic, formally highly polished, and full of wit and playfulness, the poem appealed to sophisticated readers at the royal courts and in the urban centers of the postclassical Greek world.

[18] On the 'cosmic religion' of the Hellenistic and Imperial periods, see esp. the second volume of FESTUGIÈRE (1944-1954), as well as PÉPIN (1986); SCHMID (2005) 119-202; VOLK (2009a) 251.

[19] See LEWIS (1992) 105-108.

[20] The issue of Aratus' Stoicism or lack thereof is highly controversial and cannot be considered in detail here; see my discussion in VOLK (2010) 201 and the literature quoted there. Much hinges on the interpretation of the proem and its description of Zeus' omnipresence. I agree with ERREN (1967) 18-19 and MARTIN (1998) *ad loc.* that when Aratus asserts that the roads, squares, sea, and harbors are "full" of Zeus (*Phaen.* 2-4), this has nothing to do with Stoic pantheism: Aratus' Zeus does not physically permeate the world, but participates in human interactions in his capacity as a giver of signs (cf. VOLK [2010] 200-204).

The Antigonus anecdote highlights the superior autonomy of an artist who is able to convert any material into a work of poetry, and the *Phaenomena* itself abounds with self-conscious reflections on its author's task and its own status as a verbal artifact.[21] Metapoetics was one of the Hellenistic period's favorite games, and Aratus held the rank of a top player.

Thus, hitting the right notes in terms of his time's science, philosophy, and poetry, Aratus managed to create an instant classic, a work that became an integral part of any educated person's cultural imagination. The pervasiveness of his influence is apparent in a well-known episode in *Acts of the Apostles*, where Paul in his speech on the Areopagus attempts to win over an Athenian audience by quoting a tag from the *Phaenomena*'s proem: "for we are indeed his [that is, Zeus', or otherwise God's] offspring".[22] Both the apostle and his listeners are the intellectual descendants of Aratus, part of the *Phaenomena* phenomenon that had started three hundred years earlier and was still going strong all over the Greek world. In the meantime, however, something even more remarkable had happened: at the beginning of the 1st century BCE, the Aratus craze had come to Rome.

2. The Latin *Aratea*

If the Greeks liked Aratus, the Romans did so even more: no Greek text was translated into Latin more often than the *Phaenomena*. In a passing reference to this startling fact, Jerome cannot be bothered to enumerate all those who tried their hand

[21] Cf. VOLK (2010) 205-208, and (2012).

[22] Acts 17, 28: ἐν αὐτῷ γὰρ ζῶμεν καὶ κινούμεθα καὶ ἐσμέν, ὡς καί τινες τῶν καθ' ὑμᾶς ποιητῶν εἰρήκασιν· "τοῦ γὰρ καὶ γένος ἐσμέν" (ARAT. *Phaen.* 5) ("For in him we live and move and have our being, as even some of your poets have said, 'For we are indeed his offspring'" [Revised Standard Version]). For the appropriation of Aratus' proem in a different monotheistic context, see the 2nd-c. BCE Jewish philosopher Aristobulus *ap.* EUSEB. *Praep. euang.* 13, 12, 6, with BLOCH (2011) 152. Many thanks to René Bloch for bringing this passage to my attention.

at Latinizing the poem: he mentions Cicero, Germanicus, and Avienius but concludes his list with an impatient *et multi, quos enumerare perlongum est* ("and many, whom it would take too long to enumerate", *In Tit.* 1, 12 = *PL* 26, 607 Migne). Of the three works identified by Jerome, the poems of Germanicus and Avienius survive intact, and we have sizable fragments of Cicero's version. In addition, we know of Latinizations by Varro of Atax and Ovid, of which survive, however, only nine and five lines, respectively; there is also the so-called *Aratus Latinus*, a prose translation composed in 7th- or 8th-century Gaul.[23] It is a scholarly convention to refer to all such Latin versions of the *Phaenomena* as *Aratea* (sc. *carmina*), "Aratean (poems)", which is the moniker Cicero on occasion uses for his own translation.[24]

Translation, however, was not the only way in which Roman authors responded to Aratus.[25] We find adaptations of specific parts or aspects of the *Phaenomena* in a number of classical Latin poems. Most prominently, Vergil included his own treatment of the Aratean topic of weather signs at the end of his first *Georgic* (351-514); Ovid mentioned the risings and settings of constellations in his *Fasti*, taking the opportunity to tell numerous catasterism myths; and Manilius took up most of the first

[23] The following translations of Aratus survive (in their entirety or in part) or are attested: CICERO (c. 90 BCE): 479 lines in direct ms. tradition and numerous additional passages (c. 110 lines) indirectly transmitted (many quoted in Cicero's own works). VARRO OF ATAX (mid-1st c. BCE): 9 lines indirectly transmitted (frr. 21 and 22 BLÄNSDORF = 13 and 14 COURTNEY = 120 and 121 HOLLIS) may have translated only the weather signs section. OVID (late 1st c. BCE/early 1st c. CE; exact date unknown): 5 lines indirectly transmitted (frr. 1 and 2 BLÄNSDORF, COURTNEY); apparently translated only the astronomy section. GERMANICUS (first or second decade CE; exact date controversial): 725 lines (translation of the astronomy section) and 6 fragments (c. 222 lines) that have no direct equivalent in Aratus. AVIENIUS (mid-4th c. CE): 1,878 lines (translation of the entire poem). *Aratus Latinus* (7th/8th c. CE): prose translation of the entire poem.

[24] *Diu.* 2, 14; cf. *Leg.* 2, 7; *Nat. D.* 2, 104. Comparative overviews of the various Latin *Aratea* are found in LEWIS (1986); ZEHNACKER (1989); TAUB (2010).

[25] On the influence of Aratus on Latin poetry beyond the translations, see HÜBNER (2005). For reasons of space, this paper will not touch on Aratean themes and passages in Latin prose authors.

book of his *Astronomica* with a catalogue of the constellations modeled on the *Phaenomena* (255-455).[26]

The volume and manner of the Roman engagement with Aratus is unusual. Of course, Roman culture as a whole is profoundly influenced by that of the Hellenic world, and Latin literature from its beginnings modeled itself on the genres and meters of the Greeks. 'Translation', in both a narrow and a wider sense, is at the heart of the project of creating a Latin literature, from Livius Andronicus' *Odusia*, to the adaptations of New Comedy by Plautus and Terence, to Vergil's aspiration to be a Roman Homer, and beyond.[27] While the Roman reception of Aratus is part of this same process, it is also, I would maintain, a separate phenomenon that works according to its own rules.

First, the very frequency of translation is unparalleled. Once Livius had produced his Latin *Odyssey*, no one else set out to translate the same text, whereas the *Phaenomena* was tackled again and again. The *Aratea* are different also from the repeated adaptation, by different playwrights, of the same Greek tragic subjects or even individual tragedies — Euripides' *Andromeda*, for example. While Roman tragedy survives only in fragments, it is clear that the *Andromeda* plays of Livius Andronicus, Ennius, and Accius were not verbatim translations of the Euripidean model but original treatments in the context of what was quickly becoming its own, specifically Roman genre. By contrast, Cicero, Varro, Ovid, and Germanicus hewed to the Aratean text fairly faithfully; on the fluid scale of Latin literary appropriation of Greek material, their versions are actual translations rather than looser adaptations.

This raises the question of why those authors translated the *Phaenomena* in the first place. Their purpose was clearly not to make a Greek text accessible to those unable to read it in the

[26] Note also a fragmentary poetic star catalogue by Quintus Cicero (COURTNEY [1993] 179-181; BLÄNSDORF [2011] 184-186; GEE [2007] suggests that this is in fact a work by his brother Marcus).

[27] On Roman translation, see SEELE (1995); POSSANZA (2004) 79-103; and now MCELDUFF (2013).

original. The upper-class readers of Latin poetry knew Greek and very likely also knew Aratus, having encountered the *Phaenomena* as part of the Greek-inflected syllabus of their education. A shared motive of the translators may have been a typically Roman literary competitiveness, the urge to imitate Greek authors and, if possible, beat them at their own game. However, this taste for *imitatio* and *aemulatio* cannot explain the choice of Aratus specifically.

It is obvious that both the verbatim translators and the less faithful adapters of Aratus must each have had their own reasons for using the *Phaenomena* as a source text for their literary endeavors. In what follows, I attempt to elucidate some of these individual works and agendas while still treating them as part of the larger story of the Roman reception of Aratus. It is my thesis that the Latin *Aratea* (a term by which I here refer to both translations and adaptations), while part of the process of creating a Latin literature on the model of the Greeks, present a distinct phenomenon of cultural appropriation, one that goes beyond the purely literary or intertextual to encompass whole modes of speech and thought. I concentrate on the late Republic and early Empire, that is, in Aratean terms, the period from Cicero's translation of the *Phaenomena* to that of Germanicus. This is Rome's 'classical' age, in which the Latin literary project can be said to have reached a particular high point. It is also, and perhaps not incidentally, the 'hot phase' of the Roman love affair with Aratus.

3. The song by which we know the heavenly fires

As mentioned above, in the Greek world the *Phaenomena* became a school text and the prime source for knowledge about the stars. The same appears to be true for Rome, where Aratus arrived already firmly established in his role as teacher of astronomy. An epigram by the Neoteric poet Cinna nicely illustrates this point:

Haec tibi Arateis multum uigilata lucernis
carmina, quis ignes nouimus aetherios,
leuis in aridulo maluae descripta libello
Prusiaca uexi munera nauicula.
(fr. 11 Courtney, Blänsdorf = 13 Hollis)

"This song by which we know the heavenly fires, much labored over in the light of Aratean lanterns, written on the dry bark of smooth mallow, I have brought you as a gift on a boat from Prusias."

The poet dedicates to his addressee a presentation copy of the *Phaenomena*, written on mallow-bark and imported from Bithynia. The text contained in the book is familiar: it is "the song by which we know the heavenly fires", that is, the standard astronomical reference work of the readerly community to which both author and addresssee belong. In Cinna's epigram, this well-known Aratean content not only comes attired in a novelty bookroll, but is furnished with the accoutrements of Callimachus' praise (the "songs much labored over in the light of Aratean lanterns" recall the "token of Aratus' sleeplessness", Callim. *Epigr.* 27, 4)[28] and Neoteric language (note the programmatic adjectives *leuis* and *aridulo* and the diminutives *aridulo*, *libello*, and *nauicula*).

Cinna's Aratus, then, is both a champion of the new poetics and an unquestioned authority on the night sky. That in the mind of the Romans, the *Phaenomena* was virtually synonymous with its astronomical subject matter is demonstrated further by Ovid, who states that Aratus will exist as long as the sun and the moon: *Cum sole et luna semper Aratus erit* (*Am.* 1, 15, 16). As long as there are heavenly bodies, there will be a *raison d'être* for the *Phaenomena* — which means that, barring the end of the world, Aratus' fame will be eternal.[29]

[28] If the variant *Areteis* for *Arateis* (1), found in some manuscripts, is what Cinna wrote, this may be not only a further imitation of Callimachus (cf. COURTNEY [1993] 222), but also a sign that Cinna, too, caught on to the *arrhêton* pun in *Phaen.* 2 (see Section 1 above).

[29] The conceptual equation "(knowledge about) the sky = Aratus" is apparent also from Statius' poem to his dead father, a poet himself (*Silu.* 5, 3). Statius

I suggest that the Roman enthusiasm for Aratus of the late Republic and early Empire was part and parcel of a spreading interest in astronomy, a field of knowledge that was represented for the Romans first and foremost by the *Phaenomena*. This is the time of Caesar's calendar reform, which took place in 46 BCE and realigned the astronomical and the civic year, with the result that the risings and settings of particular constellations now had a fixed place in the Roman year.[30] It is also the time of the ascent of astrology, a world-view later used to great effect in Augustan propaganda.[31] It is generally a time, I believe, when the Romans began to regard a basic knowledge of the night sky as indispensable for an educated man. Knowing one's constellations, of course, did not necessarily mean putting this knowledge to any practical use. As Quintilian was to observe, a main reason for studying astronomy was to be able to understand poetry, where the risings and settings of the stars often serve to indicate the time of day or year (*Inst.* 1, 4, 4). The fact that Latin poetry abounds in such astronomical references is another indication of the pervasive influence of the *Phaenomena*.

Thus, when the Romans, in the process of their adoption of Greek culture, took over the discourse of (popular) astronomy, they received it in its established Aratean format, that is, in the shape of the *Phaenomena* and its pedagogical paraphernalia. While recognized as a poetic masterpiece, Aratus' text was not, or not only, received as an autonomous work of art but as part of an entire field of knowledge and way of thinking and speaking about the world. 'Aratus' was a cross-cultural and cross-linguistic competence, the accepted 'language of the stars', as it were.

imagines a celestial afterlife for the deceased (19-23): actually dwelling in the heavens affords the elder Statius privileged insights into the workings of the universe and, as a result, the ability to compose Aratean poetry that improves on the original: *notique modos extendis Arati* ("you continue the song of famous Aratus", 24).

[30] See FEENEY (2007) 167-211; WOLKENHAUER (2011) 208-237.

[31] On the rise of astrology in the late Republic, see esp. BARTON (1994) 38-41; VOLK (2009a) 127-137; for Augustus' use of astrology, see SCHMID (2005).

This mode of communication could be realized in Latin as well as in Greek, and it crucially shaped the way in which the Latin language — and especially Latin poetry — was from now on going to talk about the heavens. As scholars have shown, Cicero, by virtue of being Aratus' first Roman translator, played an important role in establishing the Latin poetic vocabulary of the starry sky; subsequent Roman poets continued to describe the constellations in the manner of Aratus and with the words of Cicero.[32]

It is time now to turn to the Latin *Aratea* themselves and examine some of the ways in which they used their model text to create their own poetic worlds. Though they all looked at the universe through the lens of Aratus, different Roman poets focused on different features and, all the while employing this inherited language of the stars, composed highly original works of their own. In doing so, they renewed and perpetuated the *Phaenomena* phenomenon in a new cultural context.

4. *Leptologia*

As Cinna's epigram shows, the Romans embraced the *Phaenomena* as a well-wrought Hellenistic masterpiece at the very time when they themselves began to compose polished poems informed by a similar aesthetics. Both Cinna and Varro of Atax are typically classed as Neoterics, a loose moniker for the literary avantgarde of the mid-50s BCE, and their works are certainly characterized by 'Callimachean' style and concerns. Perhaps surprisingly, already Cicero, who most likely wrote his translation of Aratus in about 90 BCE, is part of the same trend: though he is often believed — on somewhat flimsy evidence — to have

[32] LIUZZI (1988) shows in particular the indebtedness of Manilius' vocabulary to Cicero; VOLK (2009a) 188-190 demonstrates the influence of Cicero's designation of one particular constellation, that of Engonasin (later identified with Hercules). For the importance of Cicero's *Aratea* for the style and content of Lucretius' *De rerum natura*, see now GEE (2013a) 57-109.

been opposed to the new poetry of his time, his poetic practice in the *Aratea* and elsewhere exhibits 'Neoteric' features and has been shown to have influenced much better-known Latin poets, such as Lucretius and Vergil.[33]

One element in the *Phaenomena* on which Latin poets picked up immediately is Aratus' propensity for wordplay and acrostics. The secondary literature on this topic is vast, and new Aratean acrostics in authors ranging from Cicero to Valerius Flaccus and beyond are being discovered nearly by the day.[34] I restrict myself to mentioning two particularly spectacular instances of Aratean playfulness, the second long known, the first only recently pointed out. While most Latin authors render Aratus' opening ἐκ Διός as *ab Ioue*, Cicero alone leaves off the *-b* at the end of the preposition: *A Ioue Musarum primordia* ("From Jupiter my Muses take their beginning", Cic. *Arat.* fr. 1 S.).[35] The difference might appear minimal, except that by choosing the version without the consonant, Cicero has contrived to begin his poem with an uninterrupted string of all five Latin vowels, thus paying learned homage to a poet who throughout his text rejoices in the clever manipulation of letters.

My second example is the famous reverse MA–VE–PV acrostic in the highly Aratean weather signs section toward the end of the first *Georgic*:[36]

> ...
> ***ma**ximus agricolis pelagoque parabitur imber;*
> *at si uirgineum suffuderit ore ruborem,*
> ***ue**ntus erit: uento semper rubet aurea Phoebe.*
> *Sin ortu quarto (namque is certissimus auctor)*
> ***pu**ra neque obtunsis per caelum cornibus ibit ...*
>
> (Verg. *Georg.* 1, 429-433)

[33] See GEE (2013a) 57-109; (2013b).

[34] For a recent general discussion of ancient acrostics, Aratean and beyond, see KATZ (2012) 4-10, with up-to-date bibliography; cf. also KATZ (2008).

[35] See KATZ (2009) 79-84.

[36] The acrostic was discovered by BROWN (1963) 96-114, and has been much discussed since.

> "[If the moon encloses dark air between her horns,] a great amount of rain lies in waiting for farmers and the sea. But if she has spread a virgin blush over her face, there will be wind: golden Phoebe always blushes at wind. If, however, at her fourth rising (this is the truest sign), she moves through the sky pure and with her horns undimmed ..."

It is in the very context of Aratus' original *leptê* acrostic, that is, a discussion of signs provided by the moon, that Vergil has left his own hidden signature: ***Pu**blius **Ve**rgilius **Ma**ro*.

Even beyond MA–VE–PV and the *Phaenomena*-influenced weather signs of the *Georgics*, Vergil (in many ways, the last Neoteric) shows himself fascinated by Aratus. Thus, at a teasing moment in *Eclogue* 3, Menalcas cannot remember the name of the second astronomer depicted next to Conon on the cup he wagers as a prize in the singing contest:

> *In medio duo signa, Conon et — quis fuit alter,*
> *descripsit radio totum qui gentibus orbem,*
> *tempora quae messor, quae curuus arator haberet?*
>
> (Verg. *Ecl.* 3, 40-42)

> "In the middle there are two portraits, Conon and — who was the other one, who measured the whole world for mankind with his rod, and the times which the harvester and the curved ploughman ought to observe?"

Everything about this situation is preciously and pleasantly incongruous, from the fact that a rough shepherd happens to possess a work of art depicting two eminent Hellenistic scientists to Menalcas' riddling loss of memory. Whatever the case may be, it seems likely that the man who "measured the whole sphere with his rod" for the benefit of farmers is none other than Aratus, and that Vergil is further hinting at his identity with the mention of the *arator* in line 42, a bilingual pun on the Greek author's name.[37]

[37] For this identification, see FISHER (1982); SPRINGER (1983-1984); KATZ (2008) 110 with further bibliography in n. 3.

It has been suggested that Vergil alludes to this very same pun in the proem to the *Georgics*:[38]

> *Quid faciat laetas segetes, quo sidere terram*
> *uertere* ...
>
> (Verg. *Georg.* 1, 1-2)
>
> "What makes for fertile crops, at what sign to plough the earth ..."

Terram uertere is a circumlocution for *arare*, which in turn conjures up the name of Aratus at the very place (at the beginning of the poem's second line) at which Aratus himself hides his own name in the *Phaenomena*. The verb *uertere* at the same time points to Vergil's process of translating Aratus, and his word games, from Greek into Latin.

Finally, the measuring rod, *radius*, employed by the astronomer on Menalcas' cup returns in a famous passage of the *Aeneid*, Anchises' exhortation to the Roman people at the end of Book 6: *caelique meatus / describent radio et surgentia sidera dicent* ("[others will be better] at measuring the movements of heaven with their rod and predicting the rising of stars", Verg. *Aen.* 6, 849-850). Surveying the heavens is one of many (Greek) *artes* the Romans are told to eschew while dedicating themselves to empire building. By referring back to his own *Eclogues*, Vergil once more hints at Aratus as the archetypal astronomer. If, as I have proposed elsewhere, Anchises' famous priamel is at the same time a *recusatio* on the part of the poet, then Aratean didactic is one of a series of genres rejected by Vergil, who with the *Aeneid* has elected to compose a national epic instead.[39]

5. Heaven is but a story

But let us return to some of those Latin poets who did choose to write in the manner of Aratus, producing Latin versions of the *Phaenomena* itself. While all Latin *Aratea* differ in approach

[38] See KATZ (2008).
[39] See VOLK (2009b).

and purpose, there are two main tendencies that may be detected in all of them: elaboration and mythologization. Aratus' style is often described as "sober":[40] it is the very unadorned straightforwardness of his description of the sky that conveys the sublimity of the divinely ordered cosmos. Stars are stars, constellations are constellations, and it is as such that they form part of Zeus' great sign system that is ready for humans to decipher. In the Latin *Aratea*, the constellations come alive, are endowed with character and emotions, and act out plots. Aratus, the most intellectual of ancient poets, is a cosmologist; his Latin followers are storytellers.

As so often, Cicero sets the tone for the Latin Arateans, systematically animating the cosmos of the *Phaenomena*.[41] To take one example, Aratus states simply that the constellation Lepus, the Hare, is in a state of constantly being hunted by Canis Major:

> ποσσὶν δ' Ὡρίωνος ὑπ' ἀμφοτέροισι Λαγωός
> ἐμμενὲς ἤματα πάντα διώκεται· αὐτὰρ ὅ γ' αἰεί
> Σείριος ἐξόπιθεν φέρεται μετιόντι ἐοικώς.
>
> (Arat. *Phaen.* 338-340)

> "Under the two feet of Orion the Hare is constantly being hunted all days. Sirius is carried behind it, resembling a pursuer."

Cicero turns this into a scene of high suspense, lavishing adjectives on his *dramatis personae* and endowing them with emotions such as aggression and fear (for a similarly startled Aratean Hare, compare Fig. 7.3):

> *Hunc propter supterque pedes quos diximus ante*
> *Orioni' iacet leuipes Lepus. Hic fugit, ictus*
> *horrificos metuens rostri tremebundus acuti:*
> *nam Canis infesto sequitur uestigia cursu,*
> *praecipitantem agitans.*
>
> (Cic. *Arat.* fr. 33, 120-124 S.)

[40] E.g., SOUBIRAN (1972) 93: une "sobriété raffinée".
[41] See SOUBIRAN (1972) 87-93.

> "Next to it [the Great Dog] and under the above-mentioned feet of Orion, the swift-footed Hare is situated. It flees, fearful of the terrifying bite of a sharp jaw, for the Dog follows its track in hostile course, hunting it headlong."

A set of heavenly bodies has turned into a stellar drama.

Peter Steinmetz once observed, apropos of Germanicus' translation of the *Phaenomena*: "Arat sieht vor allem Sterne, die sich zu diesem oder jenem Bild fügen, aber doch Sterne bleiben, er sieht *Stern*bilder ... Germanicus sieht ... vor allem Stern*bilder*".[42] Steinmetz's felicitous turn of phrase applies, I believe, to all Roman translators of Aratus: instead of seeing stars that just happen to form shapes, they perceive in the night sky shapes and characters that happen to consist of stars. In the Latin *Aratea*, the constellations thus take on a life of their own, which among other things means that they are given a history, a catasterism story that explains their presence in the heavens. Aratus mentions fourteen such myths, many of them in passing, in the course of his description of a total of forty-six constellations; in Germanicus' translation, the earliest complete Latin *Phaenomena* poem to survive, there are thirty catasterism stories, over half of them new, the others in many cases extended beyond the Aratean original.[43]

Two particularly instructive examples of the Roman mythologization of the Aratean sky are found in Cicero's and Germanicus' descriptions of the southern constellation of the River, which was identified specifically with the Eridanus. Aratus mentions the constellation but briefly:

> οἷον γὰρ κἀκεῖνο θεῶν ὑπὸ ποσσὶ φορεῖται
> λείψανον Ἠριδανοῖο πολυκλαύτου ποταμοῖο.
>
> (Arat. *Phaen.* 359-360)

> "For this too moves on its own under the gods' feet: a remnant of Eridanus, the river of much weeping."

[42] STEINMETZ (1966) 467, quoted by POSSANZA (2004) 116.

[43] See POSSANZA (2004) 169-217, with a comparative table of catasterisms in Aratus and Germanicus on 172-173.

The only hint at a background story is the adjective *polyklautos*, an apparent allusion to the Eridanus as the location of the fatal fall of Phaethon and the mourning of his sisters. In his version, Cicero makes this allusion explicit, adding two lines about the Heliades' lament, and creates pathos throughout by means of emotional adjectives:

> *Namque etiam Eridanum cernes in parte locatum*
> *caeli, funestum magnis cum uiribus amnem,*
> *quem lacrimis maestae Phaetontis saepe sororoes*
> *sparserunt, letum maerenti uoce canentes.*
>
> (Cic. *Arat.* fr. 33, 145-148 S.)

> "For you will also see the Eridanus in this part of heaven, a deadly river of great force, which the mournful sisters of Phaethon often sprinkled with tears, singing of [their brother's] death with lamenting voice."

Germanicus, by contrast, gives a telegraph-style version of the myth itself, which in four lines manages to encompass everything from Phaethon's ill-fated attempt to steer his father's chariot to the metamorphosis of his sisters into trees:

> *Belua sed ponti non multum praeterit Amnem,*
> *Amnem qui Phaethonta suas defleuit ad undas,*
> *postquam patris equos non aequo pondere rexit,*
> *uulnere reddentem flammas Iouis; hunc, noua silua,*
> *planxere ignotis maestae Phaetontides ulnis.*
>
> (Germ. *Arat.* 362-366)

> "But the Seamonster does not extend much beyond the River, the River that wept for Phaethon by his waves, him who bled Jupiter's fire from his wounds, after he had guided the horses of his father with insufficient force. Him the mournful Phaetontides lamented with their unfamiliar arms, a new grove."

By the time of Germanicus, tales of metamorphosis and catasterism (the latter, of course, a subcategory of the former) were a popular poetic topic, as demonstrated most prominently by Ovid's *Metamorphoses* and *Fasti*.[44] The calendar poem in particular

[44] Note also Callimachus' *Lock of Berenice* with Catullus' translation, which shows not only the poetic taste for catasterism but also the panegyric potential of

abounds in stories of humans, animals, and objects turned into constellations — and is dedicated to none other than Germanicus. Probably under the influence of Eratosthenes, writing about the heavens in the tradition of Aratus had come to include mythological aetiology as a matter of course.[45] When educated Romans looked at the stars, they now saw a heavenly storybook with such familiar characters as the Bears, Perseus and Andromeda, and Orion.

This development, however, was not without its critics. In the proem to the second book of his *Astronomica*, Manilius, another contemporary of Germanicus and Ovid, comments on certain poets who "have treated the varied patterns of the stars and traced back the constellations that revolve everywhere on the wide sky to their origin and cause" (*Astrorum quidam uarias dixere figuras, / signaque diffuso passim labentia caelo / in proprium cuiusque genus causasque tulere*, *Astr.* 2, 25-27). These *causae* are stories of catasterism, as Manilius illustrates in the following lines, where he enumerates a variety of star myths from Perseus to Aries (28-36). However, the poet concludes gravely, this form of aetiology is cosmologically unsound:[46]

> *Quorum carminibus nihil est nisi fabula caelum*
> *terraque composuit mundum quae pendet ab illo.*
> (Manil. *Astr.* 2, 37-38)
>
> "In their songs, the sky is nothing but a story, and earth has made up heaven, even though it [earth] depends on it [heaven]."

It cannot be the case that terrestrial creatures have populated the sky: in reality earth depends on the heavens, and we are subject to celestial influences, not the other way around. Though Manilius himself is not above telling a gripping star myth (he dedicates

stories of stellification; cf. Section 6 below for the heavenly afterlives of Julius Caesar and Augustus.

[45] On Ovid's use of Eratosthenes in the *Fasti*, see ROBINSON (2013).

[46] See VOLK (2009a) 190-192, with further references. Generally on the relationship of Aratus and Manilius, see ABRY (2007) — one of the last publications of this great Manilian scholar and benefactress of the Fondation Hardt.

nearly eighty lines to an epyllion on Perseus and Andromeda; 5, 540-618), his astrological world-view, according to which the stars are not merely signs but actual causes of events on earth, does not allow for the fabulistic approach to the heavens found in the contemporary Aratean tradition.

However, catasterisms were not always 'just stories'. There is one tale of stellification that is told at unparalleled length in the *Phaenomena* itself and has an important reception history of its own. Aratus apparently invented the myth of Dike, the goddess of justice who consorts with human beings in the Golden Age but after the moral deterioration of subsequent ages flees the earth and becomes the constellation Virgo.[47] The idea of decline held a particular fascination for the pessimistic Romans, who tended to idealize the past, and the Dike story offered a canvas to each new Latin poet on which to paint his own vision of the development of human civilization. I cannot show this in detail here, but it is fascinating how in supposedly 'translating' Aratus' text, each author tweaks the details in such a way as to present an original take on the famous story: there are as many versions of 'Justice Leaves the Earth' as there are Latin *Aratea*.

As so often, Vergil made particularly striking use of the motif, being generally obsessed with the loss of the Golden Age and — idiosyncratically — the possibility of its return. In the finale to the second *Georgic*, the farmers are shown to lead a near-paradisiac existence, which is why the countryside provides the last stop on Iustitia's departure from earth:

> *Extrema per illos*
> *Iustitia excedens terris uestigia fecit.*
>
> (Verg. *Georg.* 2, 473-474)
>
> "Among them [the farmers] Justice planted her last footsteps when she was leaving the earth."

[47] ARAT. *Phaen.* 96-136. On the reception of the Myth of Dike in the Latin *Aratea* and beyond, see LANDOLFI (1996); FRANCHET D'ESPÈREY (1997); BELLANDI / BERTI / CIAPPI (2001); GEE (2013a) 36-56.

When the Golden Age returns in the fourth *Eclogue*, the catasterized goddess of justice naturally comes back as well: *Iam redit et Virgo* (*Ecl.* 4, 6).

6. The order of things

As the myth of Dike shows, Roman writers found Aratus 'good to think with' and use as a point of reference in their own ideological constructions. With its central theme of cosmic order, the *Phaenomena* came to be viewed as a Stoic text and to be employed in philosophical polemics. Apart from a long portion surviving in direct manuscript tradition, we owe the majority of our fragments of Cicero's *Aratea* to the author's self-quotation in two philosophical works, *De natura deorum* and *De diuinatione*. In Book 2 of the former, the Stoic Balbus cites Aratus in Cicero's translation to support his 'argument from design', that is, the argument that the universe could not be as perfectly ordered as it is, were it not divinely arranged for the benefit of human beings.[48] In the first book of *De diuinatione*, Quintus Cicero, arguing in a Stoic vein for the existence of divinatory signs, cleverly supports his case by quoting from his brother's own translation of Aratus' weather signs.[49] Note that in neither case are the views expounded necessarily Cicero's own: both works are dialogues in the tradition of Academic Skepticism, and in *De diuinatione*, it is Cicero himself who in the second book dismantles Quintus' argument, and with it his brother's use of his own *Aratea*.

As Emma Gee has recently shown, Lucretius, too, constructs Aratus as a spokesman for Stoicism, systematically and polemically redeploying the language of Cicero's translation in the service of his own demolition of the idea of a teleological universe.[50]

[48] See GEE (2001).
[49] See VOLK (forthcoming).
[50] See GEE (2013a) 57-109.

The Epicurean cosmos, far from perfect, shows no evidence of design and has come together by mere chance. If Lucretius is thus an anti-Aratus, he himself comes in for aggressive criticism from that fierce anti-Lucretius, Manilius, who in his turn uses Lucretian language while resurrecting the argument from design.[51] It is his Aratean catalogue of constellations and the contemplation of their regular movements that lead the poet to conclude triumphantly that the world must be governed by a divinity and could never have come into being at random:

> *Ac mihi tam praesens ratio non ulla uidetur,*
> *qua pateat mundum diuino numine uerti*
> *atque ipsum esse deum, nec forte coisse magistra,*
> *ut uoluit credi, qui primus moenia mundi*
> *seminibus struxit minimis inque illa resoluit.*
>
> (Manil. *Astr.* 1, 483-487)

> "No other reason [than the regular movement of the constellations] seems equally compelling to me as proof that the universe is ruled by a divine being and is itself a god and has not come together at random, as he wanted it to be believed who first built the ramparts of the world out of smallest parts and again resolved them into these."

However, Manilius' cosmos is not Aratus'.[52] As the poet observes, it is "not enough" to know one's constellations and read the signs of the visible phenomena:

> *Iuuat ire per ipsum*
> *aera et immenso spatiantem uiuere caelo*
> *signaque et aduersos stellarum noscere cursus.*
> *Quod solum nouisse parum est. Impensius ipsa*
> *scire iuuat magni penitus praecordia mundi,*
> *quaque regat generetque suis animalia signis*
> *cernere et in numerum Phoebo modulante referre.*
>
> (Manil. *Astr.* 1, 13-19)

> "It is pleasing to walk through the air itself and live strolling in the immense sky and to learn about the constellations and the contrary movements of the planets. But it is not enough to know

[51] See VOLK (2009a) 192-196, with further references.
[52] Cf. VOLK (2013).

> only this: it is more pleasing to know in depth the very innards of the universe and to see how it governs and brings forth living beings by means of its signs and to speak of it in verse, with Phoebus providing the tune."

The astrologer ventures deep into the "innards" of the world and explores the interconnections of its living parts. Stars are not signs but causes; and while Aratus still provides a valid description of the sky's appearance, his cosmology is insufficient as an explanation of the workings of the world.

Manilius' contemporary Germanicus, too, considers parts of the *Phaenomena* scientifically obsolete. His translation covers only the astronomical portion of the poem, but we have about 222 lines of additional fragments of a wholly un-Aratean, astro-meteorological nature. It seems likely that the poet replaced Aratus' weather signs section, with its folksy observations about "red sky at morn" and low-flying birds, with the exposition of a more up-to-date method of forecasting the weather according to planetary positions in the zodiac.[53] Germanicus' astrological world-view is apparent also from the way in which he rewrites Aratus' famous refusal to treat the planets. The Greek poet excuses himself as not being competent to deal with the irregular orbits of the inconveniently wandering stars, which at any rate are irrelevant to his project of discussing the constellations and their function as divine signs:

> οὐδ' ἔτι θαρσαλέος κείνων ἐγώ· ἄρκιος εἴην
> ἀπλανέων τά τε κύκλα τά τ' αἰθέρι σήματ' ἐνισπεῖν.
>
> (Arat. *Phaen.* 460-461)

> "I do not have the daring for them [the planets]. May I succeed in speaking of the orbits of the fixed stars and the signs in the sky."

Translating Aratus fairly closely, Germanicus of course cannot include a discussion of the planets in his Latin version, but he tweaks the *recusatio* of his source text in a highly original way.

[53] See MONTANARI CALDINI (1973); (1976); and now GREEN (2014) 141-149.

Instead of pretending incompetence, the Roman poet keeps open the possibility that he might treat the planets in a future work:

> *Hoc opus arcanis si credam postmodo Musis,*
> *tempus et ipse labor, patiantur fata, docebit.*
>
> (Germ. *Arat.* 444-445)
>
> "If the fates allow it, time and my effort itself will show whether I entrust this work [a treatment of the planets] to the occult Muses."

The designation *arcanae Musae* is a clear reference to the occult nature of astrology, a doctrine in which the planets play a crucial role and which, one assumes, would inform Germanicus' envisaged treatment of the topic.

By the early 1st century CE, the cosmos had changed: while the constellations still shone as Aratus had depicted them, they were now perceived as engaging in a complex interplay with the planets and as causing everything from the weather to the fate of individual human beings. This was not the only difference, however. While Aratus had begun his *Phaenomena* "from Zeus", hailing the god's supreme cosmic power, Germanicus chose to address his proem to a different kind of divinity, his adoptive grandfather Augustus:[54]

> *Ab Ioue principium magnus deduxit Aratus*
> *carminis; at nobis, genitor, tu maximus auctor.*
> *Te ueneror, tibi sacra fero doctique laboris*
> *primitias. Probat ipse deum rectorque satorque.*
> *Quantum etenim possent anni certissima signa*
> *...*
> *si non tanta quies, te praeside, puppibus aequor*
> *cultorique daret terras, procul arma silerent?*
>
> (Germ. *Arat.* 1-5 and 9-10)

[54] The identity of the proem's addressee is controversial and bound up with the question of the date of Germanicus' translation. I cannot discuss this issue here but am working on the assumption that the *genitor* addressed is Augustus, even though the emperor's death is referred to in GERM. *Arat.* 558-560. Either the proem was written when Augustus was still alive (thus, e.g., POSSANZA [2004] 219-243) or it is in fact addressed to the dead and deified emperor (thus, e.g., STEINMETZ [1966] 454-455). A recent detailed discussion of the proem is found in CALDINI MONTANARI (2010).

> "Great Aratus began his song from Jupiter; but you, father, are my greatest tutelary deity. You I worship, to you I bring sacred offerings and the first fruits of my learned labor. The ruler and father of gods himself approves. For what would the most unfailing signs of the year be able to achieve ... if not, under your protection, such great peace were granting the sea to ships and the lands to the farmer, and arms were silent and far away?"

If Augustus were not granting peace to the world, Germanicus argues, observation of the heavenly bodies would be impossible and pointless; Jupiter himself, we are assured, has conceded his privileged place in the Aratean universe to his Julian counterpart.

As it happens, the Julian family had been encroaching on the heavens since the time of Julius Caesar. The dictator's celebrated calendar reform ensured that the risings and settings of the constellations occurred regularly at the same points during the course of the year, a boon to watchers of the skies but also a remarkable feat of cosmic regulation. In a famous anecdote, Cicero is said to have responded to someone's observation that the constellation Lyra had risen with the quip, "yes, by command".[55] The dead Caesar's supposed ascent to heaven in the shape of a comet led to the expectation that Augustus, too, would take position in the sky upon his death, and Augustan poets from Vergil to Ovid and Manilius produced imaginative accounts of the envisaged stellification of the emperor.[56] After his grandfather's death, Germanicus declared that the *numen* of the deceased had been placed among the stars by Capricorn, the very constellation that was Augustus' native sign, as the astrology-savvy emperor had not failed to advertise.[57]

[55] Κικέρων γοῦν ὁ ῥήτωρ, ὡς ἔοικε, φήσαντός τινος αὔριον ἐπιτέλλειν Λύραν, "Ναί", εἶπεν, "ἐκ διατάγματος", ὡς καὶ τοῦτο πρὸς ἀνάγκην τῶν ἀνθρώπων δεχομένων ("Apparently, Cicero the orator, when someone remarked that Lyra would rise the next day, replied, 'yes, by decree', as though even this were being forced on people", PLUT. *Caes.* 59, 6). Cf. WOLKENHAUER (2011) 228-232.

[56] On the political uses of catasterism in the Principate and Empire, see BECHTOLD (2011).

[57] GERM. *Arat.* 558-560. On Augustus' use of Capricorn, see SCHMID (2005); VOLK (2009a) 146-153.

7. A Roman sky

By the early first century CE, then, the Aratean sky had been invaded by new stars and had turned from a static sign system into a dynamic network of astrological influences; while the *Phaenomena* still provided the accepted 'language of the stars', it now described a different reality. By participating in the Aratus phenomenon, Roman writers had shaped a discourse that was no longer only, or even primarily, that of the Greek poet who in the 3rd century BCE had taken a Macedonian monarch up on his wager. In certain respects, of course, the authors of the Roman *Aratea* had dealt with their source text the way in which all Latin writers approached their Greek models, that is, by using *imitatio* in the service of *aemulatio*. We have seen some of the methods the Latin poets employed to modify, enlarge on, and (in their opinion) improve on the *Phaenomena*: Cicero, Varro, Vergil, Ovid, Manilius, and Germanicus each set out to become a Roman *Aratus*, which meant emerging as a *Roman* Aratus.

At the same time, the Latin *Aratea* were never a purely literary phenomenon (if there is such a thing as a purely literary phenomenon). What was at stake was man's view of the cosmos, and when that changed, 'Aratus' changed as well. The Roman Arateans used commentaries to correct their model's astronomical errors and mythological handbooks to flesh out his stellar aetiologies, while generally endeavoring to bring the *Phaenomena* in line with scientific advances and changing ideological and political concerns. They never abandoned Aratus; they just continued writing his heavenly text. There is reason to believe that when Greek education faded in the West, Germanicus' translation took over as a schoolbook, becoming for generations of Latin speakers the "song by which we know the heavenly fires" and receiving commentary in the form of scholia, just as Aratus' poem had earlier.[58]

[58] See LEWIS (1992) 116.

In her recent book on *Aratus and the Astronomical Tradition*, Emma Gee fittingly describes the *Phaenomena* as a "cardinal point in the scientific tradition of the West".[59] I hope to have shown that Aratus' poem was a phenomenon that transcended the boundaries of authorship, language, and culture to become a way of speaking of the cosmos that lived on beyond the end of antiquity up into the modern period. While today the Greek text and Latin versions of the *Phaenomena* are read only by professional classicists, and that, alas, only rarely, the stars of Aratus continue to shine as brighly today as they did over Pella, Alexandria, and Rome over 2,000 years ago.

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[59] GEE (2013a) 5.

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DISCUSSION

G. Campbell: I am interested in what seems to be a gendering of cosmogonic forces in a passage of Manilius that you quote (1, 483-487). The gendering of the *mundus* is of course grammatical, but *forte ... magistra* is unmistakable as a deliberate feminizing of Lucretius' cosmic force, *Natura*, who takes over from Venus in the proem, and is the force who builds the world from the *rerum primordia* and *quoue eadem rerum Natura perempta resoluit* ("and into which the same Nature reduces them when dissolved", Lucr.1, 55-57). This reminds me very much of Lucretius' response to Cleanthes' *Hymn to Zeus* in his *Hymn to Venus*, where he systematically replaces Cleanthes' masculine controlling power of Zeus with the nurturing creative power of Venus. Could you comment on whether this is a technique frequently employed by Manilius, and if it is part of his Stoicizing response to Lucretius?

K. Volk: Thank you for this observation. I suppose one could maintain that the gendering of *forte ... magistra* is likewise grammatical (*fors* just happening to be feminine), but the very use here of a decidedly feminine noun (rather than, say, a more colorless adjective or participle) is certainly striking. (One could argue that the very phrase *forte ... magistra* is pointedly paradoxical: Epicurean chance is the very opposite of a ruling cosmic instructor or "mistress".) I am not sure, however, that such gendering is pervasive throughout the *Astronomica*, whose cosmos is ruled, among others, by both masculine *deus* and feminine *ratio* (2, 82). Interestingly, unlike other Stoic(izing) authors such as Cleanthes or Aratus, Manilius does not present his cosmic god specifically as Zeus/Jupiter.

K. Schmid: Bei vorangehenden Vorträgen haben wir gesehen, dass antike kosmologische Entwürfe oft eine gewisse synthetische Qualität haben (*Enūma eliš*, Gen 1, Mani, etc.). Die lateinischen Aufnahmen von Arats *Phaenomena* scheinen vor allem ihrem griechischen Original verpflichtet zu sein, doch lassen sich gleichwohl Ausgleichsbestrebungen mit anderen kosmologischen Texten erkennen?

K. Volk: As I mentioned, in the course of time, the Latin Arateans took on board new cosmological insights and models (especially, in the cases of Germanicus and Manilius, astrology). However, it is hard to point to specific texts that might have influenced those modifications — except in cases where we can show that authors pick up what they have read in commentaries on Aratus himself. There is not, as far as I can see, any interaction with traditions outside the Greco-Roman world; as a matter of fact, as I have tried to argue, Aratus and his followers contribute to cementing the two-sphere universe as *the* central Western cosmology that it was to remain until Copernicus.

S. Maul: Betrachtet man die von Aratus, aber auch von Manilius und der gesamten Klassischen Antike verwendeten Bezeichnungen für die Sternbilder, die bis heute Verwendung finden, so geht der weitaus größte Teil auf altorientalische (zumeist sumerische) Bezeichnungen zurück, mit denen die mythischen Erzählungen der Katasterismoi aufs engste verknüpft sind. Auf welchem Wege sind diese Vorstellungen in das Wissensgut des Hellenismus gelangt und gibt es Hinweise darauf, dass die Zeitgenossen des Aratus und später die des Manilius über die sich in Babylonien entwickelnde beobachtende, voraussagende und rechnende Astronomie Bescheid wussten und mit den dort tätigen Gelehrten in Kontakt standen?

K. Volk: While it is absolutely clear that — as you say — much of the astronomical/astrological material found in Aratus

and the *Aratea* has its origin in the ancient Near East, it is not easy to tell when and how this knowledge traveled west. As far as the names of the constellations are concerned, these must have reached Greece in the Archaic period or possibly already in the second millennium (already Homer mentions Ursa Major and Orion, for example). More scientific and specifically astrological ideas will have come to the Greek world in the wake of the conquests of Alexander, starting in the late 4th century; we might imagine Alexandria as one important locus of cultural contact and exchange. It remains frustrating, though, that we do not know about this process in greater detail, partly because many Greek astronomical and astrological texts from the Hellenistic period have been lost. However, there was a clear awareness in Greece and Rome that astral science had its origin in the Near East. Manilius, for example, maintains that knowledge of the stars was a gift of Mercury, that is, the Egyptian Hermes Trismegistos, and that it was first practiced by kings and priests *oriente sub ipso*. And *Chaldaeus* is a standard Latin term for an astrologer.

D.T. Runia: I have two questions on *leptologia*, one specific, the other general. (1) In Cinna's poem, might the prominent placing of *leuis* at the beginning of the third line be a subtle reference to the placement of *leptê* at the beginning of the line by Aratus himself? (2) Second, does the notion of *leptos* equate to elegance in modern aesthetics? I was thinking of a very recent analogy. When Sir Jonathan Ives changed the style of Apple's iOS 7, he introduced a very slender font, presumably to increase its elegance.

K. Volk: As for your first question, I think that is possible, though note that Cinna's word is *lēuis* "smooth", rather than *leuis* "light", which would be closer in meaning to *leptos*. As far as your second point is concerned, I fully agree that Apple's design is an excellent contemporary example of Callimachean aesthetics!

J. Strauss Clay: Was Lucretius inspired by Hellenistic epic and even the importation of Aratus to Rome to compose a didactic poem? It was surely a bizarre thing for an Epicurean to do, but the popularity of didactic poetry may have pushed him to give it a try.

K. Volk: Scholars have traditionally stressed the importance of Archaic Greek didactic poetry, especially Empedocles, for Lucretius, but I agree that Hellenistic didactic, Aratus in particular, must have played a role as well. Emma Gee has now shown that Lucretius is already reacting to Cicero's translation of Aratus, which means that in spite of his rather different subject matter, he too is very much part of the Latin *Aratea* phenomenon.

R. Brague: Peut-on se faire une idée de la raison pour laquelle Aratos se refuse à traiter des planètes? Est-ce simplement parce que c'est trop difficile, soit à comprendre, soit à mettre en vers ? Ou parce que les mouvements irréguliers qu'elles décrivent, des sortes de loopings qui étaient déjà, peut-être, ces "choses difficiles et désordonnées" (χαλεπὰ καὶ ἄδικα) dont parle Platon (*Politique*, 273c1) posaient un problème non encore parfaitement résolu, et pour lequel Eudoxe, qu'Aratos avait justement l'intention de versifier, avait lancé son hypothèse des sphères homocentriques?

K. Volk: Yes, I believe that it was primarily the fact that planetary motion was ill understood and appeared disconcertingly erratic that deterred Aratus from treating the planets (and he hints at this reason in his *recusatio*). Of course, it is interesting that his very source, Eudoxus, had, as you say, suggested a way of 'saving the phenomena', but the work in which Eudoxus presented his model of homocentric spheres was different from the star catalogue used by Aratus, who entirely ignored — or may in fact have been ignorant of — the earlier writer's planetary theory.

R. Brague: Nous utilisons la distinction entre astrologie et astronomie comme quelque chose qui va de soi. Nous savons qu'elle ne s'est mise en place que très tard et que le même homme pouvait parfaitement exercer les deux activités sans (autant que nous pouvons en juger) les trouver exclusives l'une de l'autre. Ainsi Ptolémée puis, bien plus tard, Kepler. Je voudrais poser ici, à Mme Volk comme aux autres, une question de pur vocabulaire, qui provient de mon étonnement devant ce qui me semble une anomalie : comment se fait-il que nous désignons la 'bonne' science par le suffixe -nomie et la 'mauvaise' par le suffixe -logie qui, à l'accoutumée, sert à construire le nom de savoirs authentiques ? Personne n'aurait l'idée de parler de 'bionomie' ou de 'philonomie'...

K. Volk: You are completely right that astronomy and astrology were not clearly distinguished until the modern period and that many famous astronomers also practiced, or even wrote about, astrology. The terminological distinction is not ancient. As a matter of fact, in antiquity, the *-nom-* word was more commonly used for what we call astrology; thus, for example, Manilius' astrological poem has the title *Astronomica*. Wolfgang Hübner has studied the history of these terms in detail in his *Die Begriffe 'Astrologie' und 'Astronomie' in der Antike* (1998).

R. Durrer: Why do you think Aratus became so famous in his time? And why did Aristarchus get so little attention?

K. Volk: I believe that the two facts are related. As I have tried to argue, one of the reasons for Aratus' success was that his poem expressed — and perpetuated — the scientific orthodoxy of his time, that is, the geocentric two-sphere universe. Thomas Kuhn in *The Copernican Revolution* has an interesting discussion of why this paradigm became so difficult to displace (only Kepler finally did away with it) and how ingrained the concomitant notions (geocentricity, regular circular motions of the heavenly bodies, etc.) were from the Hellenistic to the Early Modern period. Aristarchus' heliocentric model thus never stood a chance.

M. Erler: Cicero äussert sich wiederholt dazu, dass Römer sich für Naturlehre nicht interessieren. Das — neben Epikureischem — führte dazu, dass Lukrez nur als Dichter rezipiert wurde. Könnte dies auch dazu beitragen, dass Astronomie/Astrologie eher als ‚bookish science' betrachtet wurde — also als Gelegenheit, literarisches Spiel zu treiben, in das ‚als Spiel' neue Erkenntnis eingingen?

K. Volk: You are raising an interesting question: was natural science/philosophy expressed in poetry received differently from prose writings on the same topic, that is, were the Romans happy to read Aratus and Lucretius 'as literature' while remaining largely uninterested in their subject matter? I don't have an easy answer, but would point to the ancient educational system, in which poetry was read as a matter of course as part of any educated person's basic formation, whereas the serious study of philosophy (though widespread from the late Republic onwards) was a conscious choice and never formed part of the normal curriculum. So even with an overlap in content (Lucretius' poem, for instance, is very much a serious philosophical text), the discourses may have been perceived as fundamentally different.