Mediterranean Archaeology and Archaeometry, Vol. 18, No 4, (2018), pp. 319-325

DOI: 10.5281/zenodo.1477993

MILKY WAY VICISSITUDES: MACROBIUS TO GALILEO

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Received: 27/02/2018
Accepted: 26/06/2018
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ABSTRACT

Amongst the many astronomical phenomena that have inspired speculation regarding their nature, the Milky Way takes a prominent position. In late antiquity, the Galaxy (from Greek *gala*, or milk) held pride of place in Martianus Capella's *Marriage of Philology and Mercury* and in Macrobius' *Commentary on the Dream of Scipio*, two texts that transmitted classical astronomical knowledge to medieval Latin Europe. But these works also transmitted pagan beliefs that ecclesiastical authorities found disturbing. One such pagan idea held that the Milky Way was the celestial abode of souls, a belief that had been reported by Heraclides of Pontus, Cicero, Manilius, Numenius, Martianus Capella and Macrobius.

Several strategies seemed to have evolved in the medieval era in order to minimize the impact of this pagan notion. One strategy was to demonize the Milky Way, as in Michael Scot's 'Daemon Meridianus' that mortals should fear and avoid. Another strategy would be to ignore the Milky Way altogether, as in Sacrobosco's popular astronomical textbook *De Sphaera Mundi*. But the most effective strategy against the pagan idea of the Milky Way as celestial abode would be to remove the Galaxy from the heavens. In antiquity, Aristotle had declared that the Milky Way was an atmospheric phenomenon, thereby removing it from the celestial regions.

Although Aristotle's theory of a sublunary Milky Way had been criticized and mostly ignored in antiquity, it would resurface when Aquinas adopted Aristotle as *The Philosopher*. It took some time for the Church and university scholars to embrace Aristotle, but his dictum that the Milky Way was an atmospheric phenomenon would become the prevailing view for centuries.

Published in 1610, *Sidereus Nuncius* was arguably the most important booklet in the history of science. There Galileo reported his telescopic confirmation of the Milky Way's celestial status that, until then, had been denied by the medieval Aristotelian tradition.

KEYWORDS: Medieval Platonism, Chartres, Aristotle, Aquinas

1. INTRODUCTION

At the beginning of his paper on Antiplatonism in the Middle Ages, Hankins frames his question regarding this historical phenomenon as follows:

> I should like to address in this paper an issue central to our understanding of the development of philosophy and theology in the Middle Ages. It is also an issue that, oddly enough, has been almost completely neglected in the historiography of philosophy. The issue I refer to is the secular shift from the patristic and early medieval situation, where philosophy and rationalistic theology took Plato as its point of departure, to the high and late medieval situation where Aristotle dominates the curriculum in arts faculties and becomes the great philosophical authority to be reckoned with in theology faculties. The question I should like to ask is why this shift took place… The eclipse of Plato is particularly hard to understand. (Hankins, 1996)

The medieval shift from Platonism to Aristotelianism that, as Hankins says "has been almost completely neglected," also played out in a different, though related, arena: cosmology.

The Platonist conception of the universe had survived into the twelfth–century renaissance of the "school" of Chartres mainly through Macrobius' early fifth–century *Commentary on the Dream of Scipio*. But the pagan underpinnings of the Platonist cosmic view elicited strong reactions from ecclesiastical authorities. For example, c. 1140, the abbot Bernard of Clairvaux (later canonized as a saint) attacked Peter Abelard for his Platonist leanings. In a letter to the Duchess of Burgundy, Bernard accused Abelard of being a heretic: "Here while he exhausts his strength to make Plato a Christian, he proves himself a heathen." (*Letters*, trans. Eales, 1904).

Accusations of heresy would hound Chartrian Platonist scholars, but a more lasting solution was needed. Enter Thomas Aquinas (1225–1274), whose readings of William of Moerbeke's new translations from Greek would put Aristotle on the path to becoming, as Hankins put it, "the great philosophical authority to be reckoned with..." The pivot from Platonist cosmology to Aristotelian cosmology – which parallels the philosophical shift that Hankins highlights – may have hinged, at least in part, on the interpretation of a prominent astronomical phenomenon.

The Milky Way had been seen in pagan antiquity as a heavenly abode. "A connection between milk and the stars, heaven, and especially the Milky Way, is confirmed in a number of written sources from the seventh century BC onwards" (Torjussen, 2008). Toward the end of the Roman Empire, the pagan belief that the Milky Way harboured virtuous souls was associated with Platonist cosmology, as presented in Martianus Capella's *Marriage of Philology and Mercury* and in Macrobius' *Commentary on the Dream of Scipio*. These two texts transmitted classical astronomical knowledge to Latin medieval Europe (McCluskey, 1998). Also they transmitted the pagan belief that the Milky Way was the heavenly abode, a belief that drew reactions from ecclesiastical authorities.

Several strategies, seemingly adopted to combat this pagan heresy, can be traced in the time period covered by Hankins, from the High Middle Ages to the Renaissance. One strategy was Michael Scot's inversion of the Milky Way (early 1200's) from an abode of virtuous souls to an abode of learned demons that mortals ought to fear, a region denominated as "Daemon Meridianus." Another strategy involved ignoring the Milky Way in astronomical discussions altogether, as in Sacrobosco's *De Sphaera Mundi,* one of the most popular astronomical textbooks of the era, written in the first half of the thirteenth century.

But the most effective strategy would harken back to Plato's famous student at the Academy – Aristotle – who explained away the Milky Way as an atmospheric phenomenon in *Meteorologica,* thereby removing it from the heavens. The Aristotelian theory regarding the Milky Way was "widely rejected in antiquity" (Wilson, 2013). Yet medieval ecclesiastical and scholastic authorities eventually embraced Aristotle's dictum regarding the Milky Way on the strength of Aquinas' adoption of Aristotle as *The Philosopher*. The Milky Way was no longer considered an astronomical phenomenon. Centuries later, the Aristotelian interpretation of the Milky Way would be proved incorrect by Galileo, who reported his telescopic observations in *Sidereus Nuncius* (1610).

2. THE MILKY WAY IN ANTIQUITY

Before Aristotle gives his opinion about the nature of the Milky Way in *Meteorologica* (trans. Lee, 1916), he mentions the purported opinions of others: Pythagoreans, the schools of Anaxagoras and Democritus, etc. But Aristotle's own explanation of the Milky Way as a non–celestial phenomenon would be mostly ignored in antiquity, and rejected in late antiquity by Olympiodorus.

> Olympiodorus (fl. 530), a Neoplatonist… felt no qualms about laying bare Aristotle's errors. He noted at the outset of his comments on Aristotle's explanation of the Milky Way that all those whom Aristotle criticized of-

> fered better ideas than he did. "All of them were eager to have the galaxy in the heavens, except Aristotle who mistakenly insisted upon saying that it was in the upper air." (Jaki, 1972)

Philoponus (c. 550) also pointed out Aristotle's errors concerning the location of the Milky Way in the upper atmosphere.

> These are Aristotle's opinions about the Milky Way. But his account contains many incongruities and impossibilities and merely arbitrary statements. For, if the Milky Way were, like a comet, a condition of the air, why is it always the same, never becoming different either generally or in some of its parts…? (*On Aristotle: Meteorology,* trans. Kupreeva, 2012)

Though Aristotle mentions some "Pythagorean" myths as explanation of the Milky Way, he fails to relate the explication that would best survive: the belief that the Milky Way was the celestial abode of souls. Why was there this failure in Aristotle's methodology of rejecting previous explanations?

Heraclides of Pontus, another scholar at Plato's Academy, had attended lectures given by Pythagoreans (Gottschalk, 1980), while Plato himself had befriended the Pythagorean *strategos* Archytas on his journey to Magna Graecia. Following his teacher Plato, who had composed the mythic Vision of Er at the end of *Republic*, Heraclides wrote of the vision of Empedotimus that paralleled the afterlife vision of Er. In these afterlife visions, Plato wrote about a light that is the "girdle of the heavens," while Heraclides wrote about the "light that runs in a circle."

> But when seven days had elapsed for each group in the meadow, they were required to rise up on the eighth and journey on, and they came in four days to a spot whence they discerned, extended from above throughout the heaven and the earth, a straight light like a pillar, most nearly resembling the rainbow…this light was the girdle of the heavens… (Plato, *Republic* X, 616b, trans. Shorey, 1935).

> Nor is it impossible that a human soul gained the divine truth of the situation in the Underworld and reported it to humans. This is also shown by the account according to Empedotimus, which Heraclides Ponticus narrated. Heraclides says that while Empedotimus was hunting in some place with other people at high noon, he himself was left alone, and after encountering the epiphany of Pluto and of Persephone the light that runs in a circle around the gods shone down upon him, and through it he saw in visions that he personally experienced the whole truth about souls. (*Texts and Translation,* trans. Schutrumpf, 2008).

What could be the celestial "light that runs in a circle?" According to Damascius, the last head of the Academy before it was shut down by Theodosius in 529, Heraclides' circle of light was the Milky Way.

> Damascius appropriates the hypothesis of Empedotimus concerning the Milky Way, calling it a fact and not a myth. For he says that the Milky Way is the path of souls that travel through the Underworld in the sky. (*Texts and Translation,* trans. Schutrumpf, 2008)

The belief in the Milky Way as heavenly abode appeared in the *Dream of Scipio* at the end of Cicero's *De Re Publica*, and here too the Milky Way is referred to as a circle of light.

> But, Scipio, imitate your grandfather here, imitate me, your father; love justice and duty, which are strictly due to parents and kinsmen, but most of all to the fatherland. Such a life is the road to the skies, to that gathering of those who have completed their earthly lives and been relieved of the body, and who live in yonder place which you now see [it was the circle of light which blazed most brightly among the other fires], and which you on earth, borrowing a Greek term, call the Milky Circle. (*De Re Publica*, trans. Keyes, 1928)

The Milky Way as celestial abode journeyed through the Roman world in the writings of Cicero, Ovid (*Metamorphoses,* trans. Miller, 1916), Manilius (*Astronomica,* trans. Goold, 1977), Numenius (trans. de Ley, 1972), Martianus Capella (*The Marriage of Philology and Mercury,* trans. Stahl et al., 1977) and Macrobius (*Commentary,* trans. Stahl, 1952). Macrobius' writings especially would be influential in transmitting Platonist beliefs to medieval Latin Europe, where illustrations for his *Commentary* on Cicero's Dream of Scipio show the Platonist cosmos composed of the intersecting circles of the Planetary orbits and the Milky Way. The latter is the celestial abode where Scipio meets his ancestors (Figure 1). Such surviving depictions illustrate the continuing fascination that ancient Platonist cosmology held for post–classical and medieval scholars for almost a millennium, with the Milky Way as the heavenly abode of souls that have lived a virtuous, pious and dutiful life while on earth.

Figure 1. Illustration of the Dream of Scipio in Macrobius' Commentary showing the intersecting circles of the Planetary orbits and the Milky Way (Harvard University, Houghton Library, MS Typ 7, 1469).

3. THE MILKY WAY, MACROBIUS AND CHARTRES

Cicero's *Dream of Scipio* survived in medieval Western Europe (though the rest of *De Re Publica* did not) because Macrobius included it in his commentary on Cicero's soteriological text. Macrobius describes his understanding of the soul descending to this earthly life from the Milky Way, and eventually returning there.

> Pythagoras also thinks that the infernal regions of Dis [Hades] begin with the Milky Way, and extend downwards, because souls falling away from it seem to have withdrawn from the heavens. He says that the reason why milk is the first nourishment offered to the newborn infant is that the first movement of souls slipping into earthly bodies is from the Milky Way. Now you see, too, why Scipio, when the Milky Way had been shown to him, was told that the souls of the blessed proceed from here and return hither. (*Commentary,* trans. Stahl, 1952)

Macrobius's *Commentary* managed to migrate to the twelfth–century Chartrian "mini–renaissance," where the Milky Way is mentioned by Bernardus Silvestris (fl. 1136) in his *Cosmographia*.

> She [Noys, or Providence] divided the heaven into quarters with encircling colures… and set out the circle of the Zodiac… Likewise that milky band whose radiance is produced by clustering stars was cast across the sky. (*Cosmographia,* trans. Wetherbee, 1973)

Bernardus Silvestris expresses no doubts here concerning the heavenly nature of the Milky Way, whose brightness is produced by "clustering stars." In this astronomical discussion, Silvestris mentions the Zodiac and the Milky Way, at whose intersections Macrobius' *Commentary* had located the heavenly portals (cited by Stahl, 1952).

Regarding the Milky Way, William of Conches, who taught at Chartres, recommended Macrobius to his reader in *Dragmaticon*.

> The second of the visible circles is called the galaxy (*galaxias*) by the Greeks, that is, the Milky Way. For *galac* is "milk", *xios* is "circle"… It is called the Milky Way on account of its remarkable brilliance. If you wish to know the reason for this brilliance, you ought to read Macrobius. (*A Dialogue on Natural Philosophy,* trans. Ronca, Curr, 1997)

William of Conches' seeming reluctance to delve any further into the Platonist question of the Milky Way may have been linked, like the charges that Bernard of Clairvaux levelled at Abelard, to his Platonist views. William of Conches narrowly missed being charged with heresy (Dutton, 2006), as the study of Platonist texts brought the full weight of ecclesiastical opprobrium upon offending Chartrian scholars (Ellard, 2007).

4. ANTIPLATONISM IN MEDIEVAL COSMOLOGY

As in Hankins' research, a pattern of Antiplatonism appears to emerge in medieval cosmological and astronomical writings. In order to combat the perceived heretical tendencies of Platonist scholars, various strategies seemed to have evolved regarding the Milky Way that in antiquity had been seen as the celestial abode.

Turning the Milky Way from a heavenly abode to one inhabited by demons, Michael Scot inverted the ancient Platonist view into the "Daemon Meridianus" that mortals should fear (Bertola, 2003; Harris, 2012). Illustrations of this demonic Milky Way survive (Fig. 2), as does Scot's astrological assessment of those who are born under this so–called "constellation."

> For the constellation, Galaxia: One born in this sign will always be sick, wretched, poor, and in the desolation of peoples, wherefore

> he will spend his life in hospital and…will be unfortunate… (cited by Thorndike, 1965)

Whereas in antiquity the Milky Way had been seen as divine, for Michael Scot and his followers a connection to the Milky Way was unfortunate and demonic.

Figure 2. The Milky Way as 'Daemon Meridianus,' abode of demons (Warburg Institute Iconographic Database. Original (1435) in Oxford, Bodleian Library, Canon. Misc. 554, fol. 154v)

Another strategy for dismissing the Milky Way as a celestial abode seems to have been to ignore it. Sacrobosco's astronomical textbook *De Sphaera Mundi*, or *Tractatus de Sphaera* (c. 1230) was very popular in this era, proving its "dominance of the astronomical curriculum" with "hundreds of surviving manuscripts and over seventy early printed editions" (McCluskey, 1998). Sacrobosco, who taught at the University of Paris, makes no mention of the Milky Way in *De Sphaera* (see Thorndike, 1949) nor do commentaries on his work (Jaki, 1972).

A third strategy would prove, perhaps unwittingly, to be the most effective. Using Moerbeke's recent translations from the Greek (c. 1260), Thomas Aquinas embraced Aristotle as *The Philosopher*, displacing Plato from that lofty standing. By discussing the Milky Way in *Meteorologica, A*ristotle had argued that the Milky Way was not a celestial, but an atmospheric, phenomenon, a view that Aquinas passed along in his commentary on Aristotle's *Meteorologica* (c. 1270).

> Aquinas clearly grasped the substance of Aristotle's theory. His acceptance of it accorded with his intention to reject only that part of Aristotle's physical and cosmological theories which patently contradicted tenets of the faith. The Milky Way, as Aristotle explained it, presented no area of conflict. (Jaki, 1972)

Aquinas' acceptance of Aristotle as ultimate philosophical authority would eventually be adopted by the Church and by university faculties.

> Considered in the historical perspective of thirteenth–century ideas, Thomism emerges as the culmination of all the efforts of arts scholars and speculative theologians to build a new philosophy on an Aristotelian foundation, while taking into account the soundest philosophical conclusions reached since Aristotle, and the essential requirements of Christian thought. (Steenberghen, 1955)
>
> For centuries, Christian culture embraced Aristotelian thought as its own, reconciling his philosophy with theology and ecclesiastical doctrine. (Martin, 2014).

Parallel to Hankins' "eclipse of Plato" by the resurrection of Aristotle's texts in medieval Europe, the Platonist view of the Milky Way as heavenly abode was eclipsed by the Aristotelian opinion that it was but a sublunary phenomenon, an opinion that prevailed for centuries in medieval Latin Europe. What would it take to re–open people's eyes to the celestial nature of the Milky Way?

5. MILKY WAY AND GALILEO

In 1610, Galileo published *Sidereus Nuncius*. There Galileo gave a report of his observations of the Milky Way.

> What we observed in the third place is the essence, namely the matter, of the Milky Way, which can be seen so clearly with the aid of the telescope that what philosophers for centuries found an excruciating problem has been solved with ocular certainty, thus freeing us from wordy disputes. For the Galaxy is nothing else but a collection of innumerable stars heaped together. In whatever part of the Milky Way you point the spyglass, a vast crowd of stars immediately present themselves. (*Sidereus Nuncius,* trans. Shea, 2009)

The "excruciating problem" that Galileo refers to is the Aristotelian dictum that the Milky Way was composed of vaporous exhalations that reside in the atmospheric regions. The resolution to this problem was brought about by the "ocular certainty" that Galileo's telescope provided.

> As a consequence of Galileo's telescopic observations, the whitish, cloudlike Milky Way was seen to be composed of clusters of small stars that were individually indiscernible to the naked eye. That they were perceived as stars in the celestial region marked a radical departure from the medieval Aristotelian tradition, which

> denied the Milky Way celestial status and located it in the upper reaches of the sublunary region. (Grant, 1996).

Galileo's astronomical observations would help disprove the geocentric model of the universe, while his report that the Milky Way was composed of stars, a fact observable by anyone with a spyglass, would bring into question Aristotle's status as highest authority on questions of natural philosophy.

6. CONCLUSIONS

Interpretations of the nature of the Milky Way underwent precipitous reversals, vertiginous vicissitudes, in the period between the end of the Roman Empire and the days of Galileo. Macrobius, following Cicero, wrote of the pagan belief that the Milky Way was the heavenly abode of souls, a belief associated with Platonist philosophy. Macrobius' *Commentary* survived in the medieval "school" of Chartres, whose Platonist scholars would at times face charges of heresy. Attacks on the Milky Way included its moral inversion into the "Daemon Meridianus," an abode of demons, as well as a strategy of ignoring it entirely in astronomical textbooks. The low point of the Milky Way's fall from grace came when Aquinas adopted Aristotle as *The Philosopher*, thus eclipsing Platonist cosmology for centuries.

The removal of the Milky Way from the heavens by Aristotle, with his claim that it is an atmospheric phenomenon, seems to have provided a philosophical dictum to ecclesiastical authorities that might have been looking to end possibly heretical Platonist speculations. Galileo pointing his telescope at the Milky Way upset the Aristotelian atmospheric interpretation. Once again, the Milky Way was seen in the night sky as an astronomical phenomenon, an inspiration for humanity's cosmological investigations.

ACKNOWLEDGEMENTS

My gratitude to James Brannon for his presentation at the 2015 Notre Dame Biennial Workshop on the History of Astronomy, where he spoke of the different treatments of the Milky Way by William of Conches and Sacrobosco, and to Bernadette Brady for her pointing to Aquinas at the 2016 SEAC Conference at Bath, UK.

My thanks also to the reviewers for their helpful comments and suggestions.

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