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Cicero's Use of Astronomy as Proof of the Existence of the Gods

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Abstract. Some two thousand years before scientists in Rome and Tucson came up with the idea of INSAP, Marcus Tullius Cicero (106–43 BCE) was well on his way to exploring the reciprocal possibilities of astronomy's inspiration on human understanding. As he sometimes did, Cicero set up a fictional conversation, this one between advocates of Epicurean and Stoic philosophy and the philosophy of the Neo-Platonic school called 'The Academy'. In the course of the Stoic's presentation, the stars, planets, the sun and the moon are evoked. Are they gods? Is the universe itself God? Is the universe the living God with the planets being lesser gods? What is man's place in the cosmos? Why was the world (the totality of creation) formed, and by whom? What does the unchanging nature of the celestial order teach us about ourselves and our roles on earth and in the universe? These are some of the questions the discussants ask, and answer. Cicero's philosophy, based on his understanding of the heavens, the questions he asks, his obvious fascination with the heavens, are as contemporary as any modern poets'.

Marcus Tullius Cicero (106-43 BCE) was the first in his family to achieve consular rank, what the Romans called a 'New Man' (*Novus Homo*). Americans praise people such as these; old-style Europeans think of them as parvenus, or they did at least until recently. The point is that by extraordinary talent and education, augmented by ambition and tinged with luck, Cicero climbed the ladder of Roman success (the *cursus honorum*) from his first election as Quaestor (75 BCE), to Aedile (69), Praetor (66), and finally in 63, Consul.¹ Catiline, a rival for the office of

¹ Quaesters were assistants – to governors, Consuls, etc. Cicero drew as his share to assist the governor of Sicily where he requited himself well, but he was most

Consul, resentful that a mere *Novus Homo* had beaten him, conspired to overthrow the upstart, murder him, and seize power in Rome. Upon discovering the plot, Cicero took successful measures to thwart it. As a reward for saving the Republic he was hailed in his own lifetime as 'father of his country'. His mistake was in not seeing the inevitability of Julius Caesar, and in exposing the depths of maliciousness to which Marc Antony could sink. First he overruled Caesar and Antony, who wanted to spare the lives of the captured Catilinarian conspirators, then he sided with Pompey in the civil wars. These political gaffs, compounded by the loss of his beloved daughter Tullia, sent him into periods of remorseful but productive retirement in which he returned to his first love – the study of Greek philosophy, compiling a series of books, the intention of which was to make the philosophical thought of the Hellenes available to the intelligent Latin reader. *The Nature of The Gods (De natura deorum)* is of this period. Had he stuck to philosophy, Cicero might have lived to be an old man. But though not part of the conspiracy that assassinated Julius Caesar, he sympathized with his friend Brutus and made several public speeches called Philippics against Marc Antony. For this affront to his dignity, Antony put him on a hit list and had him rubbed out.²

Cicero was working on *The Nature of The Gods* in his 61st year during the summer 45 BCE into early 44, though he seems not to have

proud of the fact that he discovered the long lost grave of Archimedes; Aediles were in charge of public games, the spending of public money; Praetors were in charge of matters of justice, of the court system; Consuls were the chief administrators and generals. All served non-renewable terms of one year. They were elected by the people, approved by the Senate. At the end of their year of service they were eligible to sit in the Senate, from which they could emerge to run for higher office.

² The linguistic reference to the language of the Mafia is not unintentional. Plutarch describes the end of Cicero as follows: 'And Cicero, perceiving [his pursuers] running in the walks, commanded his servants to set down the litter; and stroking his chin, as he used to do, with his left hand, he looked steadfastly upon his murderers, his person covered with dust, his beard and hair untrimmed, and his face worn with his troubles. So that the greatest part of those that stood by covered their faces whilst Herennius slew him. And thus was he murdered, stretching forth his neck out of the litter, being now in his sixty-fourth year. Herennius cut off his head, and, by Antony's command, his hands also, by which his Philippics were written', which were then nailed to the speaker's podium in the Senate as a gloating warning to others. Plutarch, *The Lives of Noble Grecians and Romans*, trans. John Dryden, revised by Arthur Hugh Clough (New York: n.d.).

published the work, and quite possibly never finished it. The form we have it in was not the original design, a debate that would occupy three days, but a shorter version that ends rather abruptly, as though the author knew he did not have much time left.³ The dialogue purports to have taken place 40 years earlier during the Latin Festival of 76 BCE, a conversation between three representatives of the leading philosophical schools of Cicero's youth – Epicurean, Stoic, and Academic. Cicero, by far the youngest member of the quartet, agrees to be the judge in their game of intellectual give-and-take. The subject was: are there gods, and if there are, what are they, what do they expect of us, we of them. It could be argued that the fix was in. After all, Cicero identified himself with the neo-Platonic Academy, but in the end (and it is a truncated end, seemingly in the middle of an argument) he declares: 'Here the conversation ended, and we parted, Velleius [the Epicurean] thinking Cotta [representing the Academy] to be the truer, while I [Cicero] felt that that of Balbus [the Stoic] approximated more nearly to a semblance of the truth'.⁴ So, it is to the Stoic that I turn to show how Cicero believed things astronomical could answer the questions under discussion that long-ago afternoon.⁵

Let me briefly summarize the attitudes of the three schools. Epicureans believed that all is matter created by the collision of atoms at some time in the past continuing in the present and presumably indefinitely into the future. Eventually the atoms disconnect, as at death, and subsequently reform to become something new. The gods exist, but they too are matter and will eventually decompose into nothingness.⁶ They have no interest in humans. If we mortals have a soul, it is also made of matter and, after a brief time following death, will dissolve itself into a dew. Stoics believed in the gods and in something beyond them called upper case G God. The latter is an all-encompassing reason/rationality from whose essence the

³ Inserted for dramatic effect.

⁴ Cicero, *De natura deorum*, trans. H. Rackham, Loeb Classical series (1933; Cambridge MA: 1951), III: 95 p. 383 [hereafter Loeb], *Haec cum essent dicta, ita discessimus ut Velleio Cottae disputatio verior, mihi Balbi ad veritatis similitudinem videretur esse propensior.*

⁵ The Latin Festival (*Feriae Latinae*) was a movable feast arranged by consuls to fall sometime between April and July. I do not know when it occurred in 76, but I'm sure the weather was lovely.

⁶ The proof is that people all over the world believe in them, though each nation envisions them as similar to themselves.

universe was created. They are, therefore, pantheists. The lower case gods (Jupiter and his colleagues) are created beings such as we but, as they do not die, they have no incentive to improve. The Academy is skeptical; it is more of a belief in a process than a school of thought: prove something by logic or observation and it will be believed. Fail in this and it will not. As such, disciples of the Academy, such as Cicero, are free to jump from one school of thought to another or to combine several into a personal philosophy.

While I do not claim that the previous half-minute of explanation is complete, I hope, at least, that it is sufficient. As to myself and this paper, I see my role in the same way Cicero saw his. What follows is not original research, it is an attempt to take some of the writings of Cicero and those influenced by him and put them forth to an audience of intelligent moderns who are probably not familiar with the text. In no other way do I claim originality, except, perhaps, in the closing sentence or two.

First to speak was Velleius, the representative of the Epicurean school. He begins by attacking all previous thought on the gods which allows Cicero to inform his Roman readers what other philosophies have to say while also serving to set his Epicurean up for demolition by Cotta, the representative of the Academy. Finally he puts forth the Epicurean view that the gods are made of matter and do not give a fig about humans, thus undercutting both religion and religious based morality. The rest of Book I consists of Cotta's mocking reply to what Cicero clearly saw as Epicurean absurdity.⁷

This brings us to the heart of the matter, Balbus's exposition of the Stoic perspective.⁸ First, he says that Stoics believe in the gods and can explain their nature. As to the first proposition, that the gods exist, he begins with an astronomical allusion: 'For when we gaze upward to the sky and contemplate the heavenly bodies, what can be so obvious and so manifest as that there must exist some power possessing transcendent

⁷ Thomas Jefferson was an Epicurean and found this attack on his philosophical base particularly distasteful. John Adams, who followed the tenets of Stoicism, found it particularly enlightening. This *may* have been (I cannot say for sure) a source of the conflict that embittered the two men toward each other for decades until their reconciliation in political retirement.

⁸ In Book III, Cotta does not refute the basic premises of Balbus, he merely points out some logical flaws in the argument, concluding that while he believes in the gods, the more he hears the arguments put in favor of them by their adherents, the more difficult this becomes.

intelligence by whom these things are ruled?’⁹ Doubting the existence of this transcendent being is like doubting the existence of the sun. This first proof from astronomy merely sets the stage for a great deal more to come. I will skip the non-astronomical arguments, but assure you that they (like the gods?) exist. In fact, in discussing the nature of the gods, Cicero, through Balbus, asserts that:

the most potent cause of the belief... was the uniform motion and revolution of the heavens, and the varied groupings and ordered beauty of the sun, moon and the stars, the very sight of which was in itself enough to prove that these things are not the mere effect of chance.¹⁰

But it is not simply the awe the heavens inspire that convinces the Stoics that they are controlled by some divine super-intelligence called God. Logic dictates it. As the heavens are visible to us, as their orbits could not be man’s creation, they must have been created by something superior to man and we call that superior thing, God. And, as we could not create the heavens, He who did must be superior to us who reside in atmospheric fog in the basement of creation.¹¹ Then, and not for the last time, Balbus anticipates Newton’s famous leap that there is but one law of physics governing the universe, not two, one for the earth, the other for the heavens: ‘What is certain is that these processes [among others the ‘courses of the different stars... within the mighty revolution of the whole creation’] could not take place through harmonious activity in all parts of the universe unless they were each embraced by a single divine,

⁹ Loeb, II 4, p. 125. Horace C. P. McGregor, translator of the Penguin version (London: 1972) [hereafter Penguin], translates ‘some power possessing transcendent intelligence’ as ‘some divinity of superior intelligence’, p. 124, while P. G. Walsh (Oxford: 1997) [hereafter Oxford] has it as ‘some divine power of surpassing intelligence’. The Latin is: ‘*quam esse aliquod numen praestantissimae mentis quo haec regantur*’.

¹⁰ Loeb, II 15, p. 137.

¹¹ Loeb, II 16, pp. 139–40. Another argument from the same section – ‘If you see a spacious and beautiful house, you could not be induced to believe, even though you could not see its master, that it was built by mice and weasels’ but must have been built by a superior creature to those animals who may be temporarily residing in it.

all-pervading, spiritual force'.¹² Not exactly Newtonian, but on the path to it.¹³

But the Stoics are not satisfied merely to point to the universe out there and say God or a god created it and must be bigger than it, no, the argument then is made that the universe itself *is* God. As Zeno of Citium (c. 335–263 BCE), the founder of the school had said, 'That which has reason is more perfect than that which has not. But there is nothing more perfect than the universe: therefore the universe is a rational being'.¹⁴ To Zeno the universe and God are one and the same. He argues as follows: 'Nothing which is devoid of life and intelligence can give birth to any living creature which has intelligence. But the universe does give birth to living creatures which partake of intelligence in their degree. The universe is therefore itself a living intelligence'.¹⁵

So, the whole universe is divine, therefore so are we, though somewhat limited in our perfection. Given the divinity of the universe,

¹² Penguin II, 20 p. 131. Oxford p. 54 has it as 'All this can come about only through a harmony of all parts of the universe which would be impossible if it were not preserved throughout by one divine and omnipresent spirit'. Loeb has it as: 'These processes and this musical harmony of all the parts of the world assuredly could not go on were they not maintained in unison by a single divine and all-pervading spirit', p. 143.

¹³ In response to my e-mail question, did Newton read 'The Nature of the Gods', Joanna Ball, librarian of the Newton papers at the Wren Library, Trinity College Cambridge responded: 'Newton had several editions of Cicero in his library. None that contain *De natura deorum* survive in the collection at Trinity. According to John Harrison, *The Library of Isaac Newton* (CUP 1978), the Huggins List (1727) and Musgrave Catalogue (1767) both list two editions of the *Opera omnia*: 1. Published by J. Gulielmi & J. Gruteri, 5 vols in 2, Hamburg, 1677-1720 2. 25 vols. Amsterdam, J. Graevius and J. Davies, 1677-1720'.

¹⁴ Penguin II, 21, p. 132. Loeb has it as: 'That which has the faculty of reason is superior to that which has not the faculty of reason; but nothing is superior to the world; therefore the world has the faculty of reason', pp. 144–45, which is not quite the same thing as the world (the universe) *is* reason. Oxford renders the passage: 'That which employs reason is better than that which does not. Now nothing is superior to the universe; therefore the universe employs reason', pp. 54–55. I prefer Penguin's usage as I believe that while it may be farther from the Latin, it is closer to Cicero's intent. '*Quod ratione utitur id melius est quam id quod ratione non utitur; nihil autem mundo melius; ratione igitur mundus utitur*'

¹⁵ Penguin, II, 22, p. 132. The idea that the universe was created by Rationality from Itself was also expounded in Cicero's *De Legibus*, *The Laws*. It is a fundamental belief.

‘we must also recognize the divinity of the heavenly bodies’.¹⁶ This notion is based on the idea that if the whole is alive, its parts must be as well. It also asserts the Stoic assumption that anything giving off heat is alive. Here Balbus/Cicero, *almost* anticipates Newton: ‘Since the sun is a fire... it must either be similar to the fire which we use in our daily life or to that vital heat which permeates the bodies of living creatures’.¹⁷ Newtonian, but not quite Newton. Sir Isaac gives as his second rule for scientific thinking:

Therefore to the same natural effects we must, as far as possible, assign the same causes. As to respiration in a man, and in a beast; the descent of stones in Europe and in America; the light of our culinary fire and of the sun; the reflection of light in the earth, and in the planets.

Cicero, given the choice of saying the sun and earthly fire are the same or different chooses... different. Pity that. To the Stoics (Cicero here cites Cleanthes, a student of Zeno), since fire can either purify or destroy, and earthly fire destroys, the fire of the sun must be of the divine, purifying sort, the sort that gives us our body heat. So, ‘If the heat of the sun is similar to the vital heat of the bodies of living creatures, then the sun itself must be alive. So also must the other stars, which are born in that heavenly fire which we call the aether or the sky’.¹⁸

Not only are the stars alive, but as they exist in the element called *aetherm*,

... which is the most subtle of the elements... it follows that whatever creatures are native to it will have the keenest senses

¹⁶ Penguin, II, 39, p. 138. P.G. Walsh in Oxford, p. 177, reminds that ‘the Stoic doctrine that the stars are divine and endowed with intelligence and sensation, goes back to Plato and Aristotle, and ultimately to Babylonian and Egyptian thought’. Cicero would certainly know that his ideas are Greek; that, after all was his purpose, bringing Hellenic thought to Roman world. He would probably have found surprising the notion that the stars are divine could be traced back to the Egyptians and Babylonians. Granted, Plato’s *Timaeus* has the Athenian Solon go on a trip to Egypt where he learns of Atlantis, forbearer of all western thought and culture, but whether Cicero took this myth seriously I cannot say, though Cicero did translate the *Timaeus* from the Greek into Latin.

¹⁷ Penguin, II, 40, p. 139

¹⁸ Penguin, II, 41, p. 139.

and the swiftest movements. As the stars arise and are born in this element, we must infer that they are conscious and intelligent beings. From this it follows that we must include the stars in the company of the gods.¹⁹

Similar 'proofs' are offered.²⁰ The logic is impeccable; the only fault is in the original assumption.

Earlier we had seen Cicero argue through Balbus that the universe itself was alive, a god constituting reason, the stars and planets like cells in an organic body. Now, however, he shifts gears a bit. He is forced to concede that, as the stars and planets are all moving, they must be doing so of their own accord:

The conscious intelligence of the stars is most evident from the order and regularity of their movement. For nothing can move in a measured and orderly way without the guidance of an intelligence in which there is nothing arbitrary, dubious, or accidental. The orderly motion of the stars, which is constant throughout all eternity, cannot be attributed to natural processes alone. It is the expression of an inward purpose. Neither can it be attributed to accident, which is the friend of chaos and the enemy of order. It follows therefore that the stars move of their own free will and thought, their own divine intelligence.²¹

¹⁹ Penguin, II, 42, p. 139.

²⁰ For instance, anticipating Montesquieu's *Esprit Des Loix*, as people 'who live in countries where the air is pure and clear have keener minds and a quicker intelligence than those who breathe a thicker, denser air', as the stars reside in aether, the most pure of all elements, it seems 'probable that the heavenly bodies have superior intelligence, since their abode is in the aethereal regions of the universe and the vapors of earth and sea by which they are fed are rarefied by their long journey through the intervening space', Penguin II, 42, p. 140.

²¹ Penguin II, 43, p. 140. The problem, it seems to me, is that while planets seem to wander (hence their name from the Greek) independently of the other celestial bodies, when Cicero combines them with stars, which apparently move in conjunction with each other, all 1600 of them (Pliny's estimate) you have 1600 separate wills acting in harmony like soldiers in a phalanx, not like independent spirits. The analogy works far better with planets which he concedes: 'are wrongly called "the planets" or wandering stars. For there is no "wandering" in a star which through all eternity preserves its constant progress and recession and all its regular and measured movements. And it is even more wonderful in these stars which are now hidden, and then appear again: now approach and then recede: now preceded, and then follow: move now faster and now slower: and on occasion do not move at all but remain stationary for a time', Penguin II, 51.

Cicero concludes this section with words that could be the mantra of INSAP: ‘If any man cannot feel the power of God when he looks upon the stars, then I doubt whether he is capable of any feeling at all’.²² Are the planets the gods of Homeric song and story? Does Pindar in his history of the gods speak of them as planets? As Galileo would later write to the Grand-Duchess Christina, there is science and there is religion. Both are true, but religion speaks in the language people can understand. The stories of the gods in literature, Cicero tells his readers, are merely ‘impious tales...’ merely the picturesque disguises of a sophisticated scientific theory. Literature tells us that Saturn (Chronus to the Greeks) mutilated his father Uranus (the Sky-God) and in turn was made captive by his son Jupiter.²³ But all this is metaphor.²⁴ Science, Cicero tells us knows that Saturn (‘The Shining One’ to the Greeks) is the planet farthest from the Earth, completing its orbit in about thirty years. Jupiter (‘the Blazing One’ to the Greeks) is next, orbiting the Earth in twelve years, then Mars (‘the Fiery One’) in ‘twenty four months less six days’. Mercury, called ‘the Gleaming One’ by the Greeks takes about a year, as does Venus.²⁵ That his orbital numbers are off for Mars and the inferior

²² Penguin, II, 55. Loeb, p. 177, has these words as: ‘so that anyone who cannot perceive that they themselves [the stars] possess divinity would seem to be incapable of understanding anything at all’, Not exactly the same thing. Oxford, p. 66, has it as: ‘Hence anyone who fails to realise that they [the stars] possess the power of gods seems incapable of any kind of observation’. The Latin is: ‘*Earum autem perennes cursus atque perpetui cum admirabili incredibilique constantia declarant in his vim et mentem esse divinam, ut haec ipsa qui non sentiunt deorum vim habere is nihil omnino sensurus esse videatur*’. A Jewish variant on the same thing is found in Psalm 19:1 – ‘The Heavens declare the glory of God; and the firmament showeth His handiwork’.

²³ Another anticipation. Cicero cannot know of Sir Frederick William Herschel’s 1781 discovery of Uranus, yet he chooses to include him in his tale to show the metaphoric nature of the gods of literature. Note that Uranus was the father of Saturn who fathered Jupiter who fathered Mars, Mercury and Venus. The special order of the heavens thus reflects the chronological order of the gods.

²⁴ An idea later expressed by Max Müller’s nature worship theory. See, for instance his *Collected Works* Vol. I (London: 1898), p. 440, for his classic example of how *Phoebus* (the sun) chased *Daphne* (the dawn) as a linguistic usage becoming a part of mythology. The idea is mentioned again in, for instance Müller, *Collected Works*, Vol. III, p. 70 ff.

²⁵ Penguin, II, 53, p. 144.

planets is not our concern.²⁶ What matters is the order of things. It is all perfect, indeed, godlike. Echoing his earlier sentiment, Cicero admonishes that 'From the mysterious order and enduring wonder of the heavens flows all saving power and grace. If anyone thinks it mindless then he himself must be out of his mind'.²⁷ Not to belabor the point, but it is from the heavens (the stars and the planets) that all saving power and grace flow. The stars are the true gods, not the philandering murderers of the epic tales and dramatic tragedies and lyric poetry. After a discussion on the natural phenomena disguised as stories of the gods, Cicero concludes:

You see then how sound and useful discoveries in the field of natural science have led to the attribution of fictitious powers to these imaginary gods [which] has given rise to false, beliefs, wild errors and all the stuff of old wives' tales.²⁸

But the stories, though false, have value.

As long as divine power permeates everything in nature, the earth under the name of Ceres, the oceans under the name of Neptune, and so on... we ought to worship and revere these gods... Such

²⁶ Current calculations have Saturn taking 29.46 years and Jupiter 11.86 years – both very close to Cicero's ancient estimation. For Mars he was off by well over a month. (The Mars solar orbit of 687 Earth days equals an Earth year and 322 days, or in Cicero's terms two years less 43 days.) His estimates for Mercury and Venus (each 'about a year') are way off. Venus takes 225 days (7 ½ months) to orbit the Sun, Mercury only 88 days (2 ½ months).

²⁷ Penguin II, 56, p. 145. Loeb, has it, p. 177, as: 'Anyone therefore who thinks that the marvelous order and incredible regularity of the heavenly bodies, which is the sole source of preservation and safety for all things, is not rational, himself cannot be deemed a rational being'. Oxford, p. 67, has 'Therefore any person who imagines that the heavens are mindless, when their remarkable order and regularity beyond belief ensure the total preservation and well-being of everything in the universe, must himself be regarded as out of his mind'. The Latin is: *caelestium ergo admirabilem ordinem incredibilemque constantiam, ex qua conservatio et salus omnium omnis oritur, qui vacare mente putat is ipse mentis expers habendus est.*

²⁸ Penguin II, 70, p. 152.

worship of the gods is the best of all things, full of purity and holiness and piety.²⁹

In his belief that the planets and stars are themselves divinities, Cicero is not entirely consistent. As there is nothing ‘greater and more wonderful than the universe as a whole’, he concludes, ‘[t]herefore it must be governed by the wisdom and the foresight of the gods’.³⁰ So, is the universe itself God and the planets and stars also gods, or is there something beyond the universe which controls it all? The inconsistency is never resolved.

Stoics say the universe is formed and governed by nature the way a tree or an animal consists of inter-related perfectly working units, in which ‘there is nothing haphazard’.³¹ Again, anticipating Newton, Cicero’s Balbus informs that within this cosmic whole, some things are heavier and are at the center, others lighter and occupy the sky. ‘But all of them together comprise a single nature and a universal continuum’.³² Anticipating both William Paley’s ‘argument from design’ and the eighteenth century Deists, Cicero informs that the perfection of the universe cannot be denied and cannot be changed. Any attempt to do so would make matters worse (perfection altered can have only one result). Leibniz argued this using the clockmaker analogy. Would the inventor of a perfect timepiece open the back and change anything? No, that would ruin perfection. Paley argued in 1802 that ‘if you found a pocket watch on the ground, even if you had never seen such a thing before, you would instantly perceive that it had been made by an intelligent entity. So it was, he believed, with nature: its complexity was proof of its design’.³³ There were no mechanical clocks in Cicero’s day, but he anticipated this argument by asking:

²⁹ Penguin II, 71, p. 152. Loeb, p. 193, has this passage as: ‘But though repudiating these myths with contempt, we shall nevertheless be able to understand the personality and the nature of the divinities pervading the substance of the several elements, Ceres permeating earth, Neptune the sea and so on; and it is our duty to revere and worship these gods under the names which custom has bestowed upon them’.

³⁰ Penguin II, 77, p. 155.

³¹ Penguin II, 82, pp. 156–57.

³² Penguin II, 84, p. 157.

³³ Bill Bryson, *A Short History of Nearly Everything* (New York: 2003,) p. 390.

When you see a sundial or a water-clock, you see that it tells the time by design and not by chance. How then can you imagine that the universe as a whole is devoid of purpose and intelligence, when it embraces everything, including those artifacts themselves and their artificers.³⁴

At this point in his tale Balbus repeats most of his previous arguments.³⁵ I will spare you the repetitions. But it is curious that once again, Cicero anticipates modern scientific and astronomical theory. For instance, while discussing the nourishment of the stars from vapors arising from the Earth (ok, so he's not exactly modern) he anticipates the theory of conservation of matter: 'Nothing is destroyed, or only a very little'. And then in the next paragraph he anticipates the so-called 'hot death' (or 'closed universe') theory now repudiated, I believe. 'The philosophers of our school', he writes, 'believe that in the end it will come about... that the whole universe will be consumed in flame: because when all the water is dried up, there will be no source from which air can be derived and nothing but fire will be left. From this divine fire a new universe will then be born and rise again in splendour'. As I understand it the hot-death theory postulated that the universe will expand as far as it can, then contract, the whole being sucked into a point in space called 'singularity' from which the big bang will (and possibly already has any number of times) explode to create a new universe. Cicero does not have that exact scenario, but poetically he is circling around it.

For whom is the universe, that most excellent thing created? For those of us who have reason, for gods and man.³⁶ As we alone of mortal creatures can measure the heavens, predict eclipses and use the sky to navigate, surely all was created for our benefit. It is only our mortality that makes us inferior to the gods, and even that should not prevent us from living well.³⁷ With that Balbus concludes his arguments. It turns out, therefore, that we, mankind, the human race is actually the subject of Cicero's *Nature of the Gods*. We are the immortals who pass our knowledge down from one generation to the next.

³⁴ Penguin. II, 87, p. 159.

³⁵ Penguin II, 118 pp 171–72.

³⁶ Penguin II, 133, p. 177.

³⁷ Penguin II, 153, p. 185.

I said when I began that, in imitation of Cicero who brought Greek ideas to an intelligent audience of Latin readers, my purpose was to introduce the astronomical thoughts of Cicero to an intelligent audience of people interested in astronomy. I hope I have done so. But I also hinted that there might be something original in what I said, reserved to the end. We are now at the end. We meet under the auspices of INSAP, the society dedicated to the study of inspirations brought about by astronomical phenomena. This society was the brainchild of astronomers in Rome and Tucson. It has met four times since 1996 in Rome, Malta, Palermo and now Oxford. I wish it continued good fortune in the future. But lest we think that there is anything new under the sun, let us look to Cicero. He was inspired by the phenomena of the heavens 2000 years before it occurred to our founders to replicate his efforts. By looking up at the stars Cicero found the model for ideal government as I demonstrated at our meeting in Palermo. By looking at the stars, he found justification for belief in divinity and religion. Perhaps he is the true founder of our society. I leave you with that thought, and thank you for your attention.

