

What did Epicurus say about the size of the sun and whether the Earth was round or flat?

Post by “Cassius” of November 24, 2018 at 3:03 PM

What did Epicurus say about the size of the sun and whether the Earth was round or flat?

Post by “Cassius” of January 20, 2022 at 2:25 PM

Credit to [Joshua](#) for this:

Post

[RE: Epicurean Worldview, Personal Identity, and Creating Community](#)

[...]

[...]

I might agree with the first part, but not as much with the second.

It's important to consider the whole proposition. Epicurus thought that the sun was;

1. Wholly material
2. In constant but not uniform motion
3. In a centerless cosmos
4. Governed by the same laws as things on Earth
5. Arose out of matter, and has a finite period of existence
- 5a. But its matter will recombine into other things
6. About as big as it seems.

Compare Aristotle's sun;

1. Made of aether, an element that didn't exist on...



Joshua

January 20, 2022 at 12:45 PM

Quote

His idea, that the Sun is as big as it seems (—> DeWitt), is very naive...

Quote

...even in the ancient world.

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Compare Aristotle's sun;

1. Made of aether, an element that didn't exist on earth
2. In constant and uniform motion (because aetherial)
- 2a. Set in motion by unmoved mover (god)
3. Orbiting a stationary earth that was the center of everything
4. Governed by different laws than Earth (the laws of the aether)

5. Exists in perpetuity (because aetherial)
6. Size uncertain (not mentioned, as far as I can tell)

In view of the above, I think Epicurus came out alright.

Post by “Eikadistes” of January 11, 2023 at 7:18 AM

I wanted to document that vocabulary used to express the idea that the Sun is "*about as big as it seems*" (EP 91.1-3).

...ΜΕΝ ΤΟ ΠΡΟΣ ΗΜΑΣ ΤΗΛΙΚΟΥΤΟΝ ΕΣΤΙΝ ΦΑΙΝΕΤΑΙ

"...μέν τὸ πρὸς ἡμᾶς τηλικούτον ἔστιν φαίνεται."

(...mèn tò prós hēmâs tēlikoûtón éstin phaínetai)

"**...is for us what it appears to be**" (Bailey).

"**...relative to us is just as big as it appears.** [This is also in book 11 of the *On Nature*; for he says, if its size had been reduced because of the distance, its brightness would have been even more reduced; for there is no other distance more symmetrical with this [degree of brightness]]" (Inwood & Gerson).

"**...relative to us is as great as it appears** [*This he also says in the eleventh book of his work On Nature; 'for if, he says 'the size of a star had diminished on account of the distance, its brightness would have diminished much more.'*] For there is no other distance that could better correspond to this size." (Mensch).

"**...in relation to us, is as large as they appear.** <<This is also in *On Nature* Book 11 [F81]: 'For if,' he says, 'they had lost their size because of the distance, much more would they have lost their color'>> For there is no other distance more congruent with that." (White)

I am reflecting on the word ΤΗΛΙΚΟΥΤΟΝ (τηλικούτον or *tēlikoûtón*), a parsed form of τηλικούτος (*tēlikoûtos*) meaning "*of such a magnitude*", or "*as great as*". I like the latest translation by Stephen White (2021), "*is as large as they appear*", because that is how I think of the Sun (*subjectively, it seems to me to be larger than any terrestrial object*).

The allusion to Book 11 of *On Nature* seems to present the following argument (based on my reading): *If the Sun were both small and distant, it would appear dim or colorless. However, the*

Sun is very bright and colorful. Therefore, the Sun cannot be both small and distant. Based on Epicurus' rhetorical approach of entertaining a negative, I presume that he was implying either (1) the Sun is *very close*, (2) the Sun is *very big*, or (3) *both*.

Anyone (*like Epicurus*) who sailed across the Aegean (**multiple** times) would have known that the Sun does not reduce in size the further you sail from the horizon, so it must be significantly more massive than the mountains that shrink in the distance, or, as Anaxagoras proposed one century earlier, "larger than the Peloponnese". A ball of fire supposed to be the size of a *loaf of bread*, or a *house*, or even a *city* would never lead to this phenomena.

(It is also interesting that Epicurus' hypothetical description of a "small" and "distant" Sun matches the description of a "star", but I digress, since we have no evidence of Epicurus commenting on the correlation...)

Epicurus clearly misunderstood the fact that the Sun is actually over 100 times larger than the Earth. I am, however, **very** suspicious of *what I consider to be* a dubious claim that Epicurus thought the sun was a glowing basketball.

Translators of Diogenes Laërtius later note that Epicurus "*says [...] in the twelfth book of his work On Nature [...] that the sun is eclipsed when the moon obscures it, and that the moon is eclipsed by the shadow of the earth [...] This is also said by Diogenes the Epicurean in the first book of his Selected Writings*" (Mensch 525); "<<*In On Nature Book 12 [F83] he says these things and also that the sun is eclipsed when the moon overshadows it, and the moon when the earth's shadow does so [...] This point is also made by Diogenes the Epicurean in Selections Book I.>>*" (White 444)

Considering the lines following this description in the *Epistle To Pythokles*, where Epicurus acknowledges that the objective size of the Sun may **vary** from our perspective ("**vary**" being the key word; 91.3-92.1), it seems unlikely that he was making a hard argument that the Sun is some kind of hyper-radiant grapefruit. His Epistles on astronomy and geoscience weren't dogmatic, and, like his other explanations, his approach was intended to be flexible to accommodate new observations and discoveries, so long as the conclusions never contradict sensory evidence.

Post by "Joshua" of January 11, 2023 at 7:33 AM

My memory is that Gellar-Goad also describes the relevant passages as being grammatically uncertain--full of nesting subordinate clauses, hedging language, and so on. Epicurus and Lucretius were hesitant to draw any firm conclusion on this point.

Post by “Don” of January 11, 2023 at 8:14 AM

Okay, so this will be probably only minimally helpful, but I give below the Google Translate translation of On Nature, Book 11, from the French text in Les Epicureans.

You can find Hiram's commentary here:

[Epicurus' On Nature – Books XI-XIV | Society of Friends of Epicurus](#)

And here is PHerc. 1042:

[DCLP/Trismegistos 59756 = LDAB 860](#)

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ON NATURE, BOOK XI

[PHerc. 1042, supplemented by PHerc. 154: (26) Arrighetti]

[Frg. 3, 2: (26.17)]...would be encompassed¹ because of the density or scarcity of what envelops it, so as to give²...

[Column of location uncertain: (26.18)] possible to secure...firmly. For the current question, regarding exactly this thing, which is whether it is possible or completely impossible for it to happen...

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Epicurus

Frg 1, 1: (26.19). and receive a swerve because of infinity, if at that [lac 1 mot] thousand times [lac. 25 lines approximately] (4 (26.20) to make visible the [lac. 1 word] of this one and also of this one, either sooner or later; so that the [lac. 1 word] corresponding to infinity at all...

Frg 6, 10 (26.21)] [whether infinite number of atoms] meet them, or else [atoms] of a non-infinite number. That non-infinite number of atoms meet them would be [lac. 1 word], just like the fact that [infinite number of atoms] meet them, so that like substances possess [infinity] [lac. 2 columns approximately] (4:(26.22)) that one. But that Earth's gravity should not be feared as opposing its staying in the air, when [lac. 2 words] rare substance...

(Fig. 7, 1: (26.23)] things in our environment that have some ability to float on air and stay aloft and [lac. 30 lines or so] [2: (26.24)].. [not this species] of angularity, but that which could belong to the primary substances [lac. 25 lines approximately] [3: (26.26)]...exerting a kind of flotation, but, as I have said before, as if the bounds and inviolable [lac. 1 words] provided them with some kind of protection [lac. 8 lines] drum...

<http://www.epicureanfriends.com/thread/599-what-did-epicurus-say-about-the-size-of-the-sun-and-whether-the-earth-was-round/>

[Frg. 8, 2: (26.27)] be such as to preserve what has formed as the drum section. Because some have conceived [the limits of the sky] as walls encircling the Earth, with a whirlpool like this [lac. 4 lines] movement of the stars above the head (lac. 3 lines] circular [lac. 10 lines] (3+ PHerc. 154, frg. 3, 1: (26.28)) [lac. 1 line] placing for this reason of all sides the circumferences before our eyes, as being analogical indices of the same [lac. 1 line] of the world [lac. 7 lines] and assuming that the Earth is in the middle of the [all] [lac. 15 lines] place [lac. 1 line] feet [lac. 2 lines] above the head [lac. 2 lines] say above lac. 20 lines] [4+ PHerc. 154, frg. 3.3 (26.30 -31)] in transferences, let's say, upwards; [and] what he recently had above his head, we would have, by virtue of the transference, [the impression of seeing him below] [lac. y lines] of the Sun and the Moon] [lac. 2 lines] above [lac. 1 word] interval [lac. 25 lines] above the head [lac. 1 word] below the feet [lac. 20 (+ PHer, 154, fig. 3, 4 (26.32)] appearing to him below [under the] feet, he will not think that what he came to have, when he ascended above, to have under his feet, he had previously had above his head when he descended below. Thus, I say, because of the location of the Earth in the middle of the [lac. 1] center line [lac. 3 lines] protections [lat. 2 lines] cause the world to become round with the Earth in the middle, like (lac 2 words] the arrangement of the limbs [lac. 2 lines] do not reach [lac. 1 line] aporia [lac. 1 line] below (lat. 2 lines). [6: (2633)] Arranging the walls in a circle in order to protect us against the whirlpool, in the belief that the whirlpool is in a position to whirl outside, they circularly rotate the stars above the heads of all men [lac. To lines] the causes...

[Fig. 9, 1: (26.34)] a firm perception concerning objective things could be acquired, when [lac. 1 line] such and such species of movement upwards or downwards [lac. 1 line] infinity [lac. 1 line] name [lac. 20 lines approximately] [2: (26.35)] of the Sun (lac. 2 words] transmitted visually becomes [lac. 25 lines] [2: (26.36)] [lac. 1 line] things [lac. 2 words] down [lac. 1 line] up [lac. 1 line] from the sphere we see [lac. 20 lines approximately] [3: (26.37)] lac. line] If we walk towards the place from which the Sun seemed to us] to rise, heading higher in continental zone, it seems to us to lie down where we had passed before, sometimes even when we have only moved a short distance in all. And, this time, we cannot blame it on the oblique movements. Why, after all, should you treat the estimate of the distance from here, or from there, or this from here, as a more reliable estimate of the distance from sunrises or sunsets? As a result, [Lac. 8 to 10 lines] [4 (26.38)] [they cannot hope to] form a (mental) model, nor deduce any solution on these matters.

For it seems to me that when they spend their time making a few of them - I mean their instruments and whirling themselves inside some other of those instruments. it is not surprising, considering not only the slavery which their doctrines impose on them, but also (as far as the appearances of the Sun are concerned) because of the indeterminates of its risings and its setting, that 'they cannot form a adequate mental model by means of their instruments, which produce no regularity. But their instruments are [lac. 8 to 10 lines]] [5 : (26.39) All that is left to them is pretense and forced argument, according to which the indications given by the instrument create an analogy which corresponds to what we see in the celestial regions. For someone who is in his right mind must, it seems to me, make a prior distinction: when he argues about the world and about what appears to us in the world, he is arguing about a certain

image which comes from certain accidental properties of things, properties transmitted, through the medium of vision, to a process of thought or a process of memory permanently preserved by the soul itself, [communicating to it certain] quantities, qualities, [etc.] [lac. few lines] [6+ PHerc. 154, Fig. 25, 2: (26.40)] [So when, as I see, he happens to look at the thing objective and fails to distinguish between an utterance based on the object and another based on what is co perceived through the object, and that the objective thing does not give rise to multiple representations [of the world] in miniature, and even less of the world (itself), it is not surprising that he is embarrassed by the sunrises and sunsets, of which I have already spoken in connection with the Sun. For hoping, presumably, that each of the appearances [lac. about 10 lines]. [If] we do not want to attach to them the image of an inverted rising and setting, an image invented from the objective thing, we must form a mental conception of a movement of the Sun and the Moon. towards their rising and setting, and we must not say of the movement which always takes place in this way, nor of anything which moves in this way, that it occurs in the opposite direction according to the intrinsic nature of the something objective, and that, from some point of view other than our own, these things are ordered according to various different patterns. This, then, is the distinction we must make with regard to this subject.

(Frg 10, 1 + PHerc. 114, fg 21.3(26.41)] As for the props that support the Earth below, of which we say that the rare substance (lac. 4 lines) [2 + PHerc. 154 , Fig. 25, 4: (26.42) being limited by some interval, for thus the mind will understand the stability of the Earth more surely and more in harmony with sensible appearances.

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As for the density it has below, it must be conceived in its continuity with that which it has above, so that these densities, which are good for providing a counter-support, maintain the appropriate analogical model for immobility. of the earth. For, on this account, we shall in no way be bothered by the rotation of the Sun, provided we bear in mind in how many ways each of these phenomena can be realized, and that in some cases their very equalities are the causes of the fact that they do not share [lac. 2 words] Earth [lake. 2 words] [+ PHerc. 154, fig. 26, 1: (26.43)] will need. For, being equidistant on all sides, they will not be able to weigh down in any direction. In fact, what belongs to it by virtue of the nature of the air, namely that, because it receives a similar pressure from all sides, it is on all sides equidistant from the circle which limits the world], as if he said that, being such, it rests at the center of the world (and it is not impossible either that it is such) - it is that, and not what produces that, which is the of its stability. For the pressure of the air, which is alike on all sides, has ensured equality as the strongest of the means by which, in assuring the [lac. 1 word] of the circle, [it caused] stable immobility [of the Earth under equal pressure... [4 + PHerc. 154, frg. 26, 2: (26.44). it was more [convincing to say that this, namely equality, is causally responsible, rather than to say that it is the very fact of the immobility of the Earth at the center of the world which is the cause of [lac. 2 lines] being immobile; and they are sometimes in agreement with this, since they created the aerial stays because of the [lac. 2 words 307. These people there, even if by chance they have come to the correct conclusion, we should not consider them better than men who are in many matters, and in many matters completely, totally, many times better, and in some of them

immeasurably ...

(Frg, 11, 1: (26.45)] For [these theories] have all perished, having been posited on the basis of their eccentric mode of connection [lac. a few lines].

ing the subject proposed at the beginning is enough for us. In what follows, in this book, therefore, what we have said concerning we will continue by providing some additional clarifications on these celestial phenomena.