# "Lucretius on the Size of the Sun", by T.H.M. Gellar-Goad

## Post by “Cassius” of June 15, 2022 at 12:02 PM

Equally or more important:

> Quote
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> Size of the Sun as Didactic Challenge
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> Getting to this state of reasoned aporia is no simple task, as my ruminations above indicate. The text of DRN presents what can be taken on a simple surface reading to mean that the sun is the size of a soccer ball, a claim that may strike ancient and modern readers alike as patently ridiculous. I suggest that the complication and the seemingly questionable wording are part of the point of the passage, a call for us to apply our Epicurean philosophical and critical thinking to a knotty problem. In this respect, the Lucretian presentation of the size of the sun can be compared to the role of hunting imagery throughout the poem (Whitlatch: 2014) or the final-exam interpretation of the plague scene at the poem’s end (e.g., Clay: 1983, 257-266). Each of the three constitutes a didactic challenge to the reader, whose successful progression through the Lucretian narrator’s didactic plot entails solving the riddle it presents.
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> A principal element of the response to the solar challenge is to think about optics and perspective when it comes to figuring out the size of the sun. Contrary to Barnes’ claim that “there is virtually no evidence on how the Epicureans understood the perception of size,” recent scholarship on perspective in the atomic theory of Democritus gives ample clues for Epicurus’ own thinking, which can in turn be confirmed as Epicurean by examination of relevant passages elsewhere in Lucretius’ DRN. Kelli Rudolph’s study of Democritus clarifies the theoretical function of eidola in the perception of size in relation to distance. Rudolph also explores the importance of Democritus’ metaphor of wax impressions for his atomic theory of vision: Because “a wax impression is an isomorphic copy of the original, but never an exact replica” (2011, 79), the eidolic-vision theory of Democritus allows for “epistemic uncertainty in the images we see” (80). Since, according to Democritus, sight consists in the physical reception of physical emissions from viewed bodies, the objects so viewed and visions of them should not be considered identical, because the εἴδωλον of the thing is never the thing itself. For Epicurus and his followers who have adopted Democritean atomism and optics, therefore, visual sensation – though it may (inasmuch as it is a sense-perception) be infallible – requires active cognition in order for sensations to be properly related to and

with their sources.

We can verify that some such theory of vision at a distance is in force in DRN by considering passages that deal with perspective in the treatment of simulacra in Book 4. The main description of how we are able to judge distance by sight appears at 4.244-255. In essence, the image emitted by the perceived object to the viewer pushes the intervening “air” (aer, 247-251) past the viewer’s eyes, and the quantity of the air is directly proportional to the distance between viewer and viewed. That the sun falls into the category of distant objects requiring intentional perspective-taking along these lines is arguably obvious, but is also suggested by the Lucretian speaker’s explanation, shortly thereafter in the same book, of the sun’s blinding power (4.325-328). According to the Lucretius-ego, the sun is endowed with great power even though it is shining from on high (vis magnast ipsius . . . alte, 326); the sun’s simulacra, therefore, as they travel through air (aera per purum, 327, a phrase that looks back to the importance of air in 4.244-255), can strike the eyes heavily enough to harm their atomic compounding. From these lines the reader can determine that the sun is not entirely a special case, but is subject to the same air-based perspectival adjustments as are other observable objects.

The image most often cited by scholars examining the Lucretian treatment of perspective is that of the tower seen from far away (4.353-363), which is square but appears at a distance to be round. According to the speaker’s explanation for the apparent roundness of the tower’s “angle” (angulus, 355), “while the simulacra are moving through a lot of air, the air with constant collisions forces it [the angle] to become dull” (aera per multum quia dum simulacra feruntur, | cogit hebescere eum crebris ostensibus aer, 358-359). As a result, “every angle all at once has escaped our perception” (suffugit sensum simul angulus omnis, 360). That the tower appears round does not make it round; that the tower is in reality square does not invalidate our perceiving it as having a round appearance from a distance. The fact that the Lucretian discussion of the size of the sun invokes readers’ sense-perception (with videtur at 5.565, inter alia) prompts them to think back to the Lucretian discussion of perception at a distance, and to recall from the tower example that data derived from visual perception degrades over distance along with the simulacra themselves. We know intuitively that the sun is farther away than such a tower, and thus we know that we need care in assessing the size of the sun, just as we would in assessing the size (and shape) of a far-off tower.

Finally, there must be perspective-taking on our tactile sensation of warmth as well as on our sight. The heat emitted by a candle, by a bonfire and by a burning building fades away at profoundly different distances – an important piece of evidence in figuring out just how big the sun appears to be. Similarly, the Lucretian speaker’s explicit introduction of heat into the Epicurean doctrine on the size of the sun may suggest to readers that they ponder as well the difference in perceived heat

transmitted by the sun and the moon, despite the roughly equivalent percentage of the sky they fill – attested by, among other things, the moon's ability to eclipse the sun for terrestrial viewers. Vision alone, it appears, is insufficient for solving the puzzle.

So the implied prompts to remember the role of heat in addition to light, and to apply our understanding of perspective to the question of the size of the sun, amount to another current in the didactic airstream of DRN. The Lucretian speaker, rather than merely parroting a ruthlessly ridiculed doctrine, instead pulls his student-readers into the process of inquiry. It becomes the didactic audience's task to receive data from sense-perception, and to use lessons learned earlier in the poem (as about perspective and distance, cf. 4.239-268, 353-363) in making correct rational judgments based upon that sense data. Asmis reminds us that for the Lucretius-ego "there is no clash between the judgment of the senses and objective reality, because the type of fact that seems to be in conflict with sense perception does not fall within the province of sense perception at all, but belongs to an entirely distinct domain of reality . . . judged by reason." As Demetrius Lacon writes of a related solar question, "the sun does not appear stationary, but rather it is thought to appear stationary" (Greek omitted, PHerc. 1013 col. 20.7-9; cited by Barnes: 1989, 35-36 n.36). Tricky cases such as the size of the sun, where sense data is incomplete, may require suspension of such reasoned judgment, until enough evidence becomes available to evaluate our hypotheses through the process of ἐπιμαρτύρησις, until which point the opinion must remain a προσμένον.

In the Epicurean and Lucretian account of reality, the senses themselves are infallible. The Lucretian speaker's assertion that the sun is just as big as it is perceived to be by our senses must therefore also be infallible – just as the perception that the sun is bigger when it is close to the horizon at sunrise and sunset must be infallible, without our having to believe that the sun actually changes sizes dramatically during the day. But our interpretation of what exactly that assertion entails about the sun's actual size is a matter of judgment, and as such is fallible and uncertain indeed. As with the argumentation presented by the Lucretius-ego throughout the poem, and as with the gripping, awful plague scene at the end of Book 6, we must be keen-scented, relentless and detached from mundane concerns and fears in order to reckon and judge accurately in cosmic matters.

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