

To What Extent, If Any, Does Modern Physics Invalidate Epicurean Philosophy?

Post by "Cassius" of August 15, 2020 at 9:27 AM

Here's the person who wrote the initial question, responding to my first answer (above)

Alan writing here:

Thanks for this treatment Cassius. I agree that it is useful for others to give the general context in which questions like these are asked. However, for me, I would say that I understand the Canon, have read Lucretius, and understand the nuance of the Epicurean conception of atoms. I also understand how he defends free-will against hard determinism by postulating the swerve, though I disagree. So to be clear and frank, the position which you stated is, although it may be a common one, is not mine and puts words in my mouth which I did not say. My position is that even if the conclusions of Epicurean physics are incorrect by modern standards, that in no way harms or reduces the impact of the ethics or epistemology (depending on how you interpret the latter). A modern Epicurean can still defend the metaphysical positions of naturalism/materialism and free-will even without the results of Epicurean physics, as those metaphysical positions can just as easily be arrived from the modern scientific view of physics.

That being said, when I said 'atoms' in my original question, I was specifically referring to the Epicurean conception of them. Therefore, when I ask if it is critical to hold to the idea that the atoms are indestructible (or perhaps the better way is to say eternal) and immutable, I am asking that in the context of whatever we now understand to be the smallest particle of matter (quarks and leptons). From quantum chromodynamics, we know that these particles do frequently change properties, such as 'flavor', or are converted spontaneously into other particles, so it would be wrong to say that they are eternal and unchanging (unless you want to suggest that there is something even smaller than these?). Additionally, when a quark or lepton meets an anti-quark or an anti-lepton, they are spontaneously annihilated to produce photons of equivalent energy (photons have no mass, they are non-matter particles, so categorically, Epicurean physics should have an issue here). Additionally, in the modern understanding of physics, the electron is a point particle with infinitesimal physical extent, occupying an infinitely small point in space (the electron radius is a classical physics approximation that is useful pedagogically in certain contexts). This seems to go against the view of Epicurus that the atom would be finite in physical extent. However to go to an even deeper level, in quantum field theory the particles are actually treated more as aberrations or excitations of an underlying field. So it is likely that fields are more fundamental than particles.

Also, I noticed in your response that you did not seriously engage with the problem of the absence of the concept of energy in Epicurean physics, an arguably even more fundamental

property of nature than matter. The Stoics had a notion of it, unfortunately however, (in my view) Stoic ethics is inhuman. Going back to the Epicureans, I think the easiest hypothesis is that they just didn't know about it, and that's OK, as it doesn't change the results of the ethics.

As a slight tangent, but which also might be relevant to this conversation, allow me to say that what I understand from Philodemus' inferential epistemology is that Epicureans can hold as equally true all satisfactory hypotheses that don't conflict with our observations of nature, until one or another of them do conflict with nature, at which point they can be discarded. (This approach is like an anti-Occam's razor, which says that among competing hypotheses, just take the one that makes the fewest assumptions). Rigorously employing this simultaneity of sound hypotheses would allow a modern Epicurean to both accept that the universe is finite and infinite, as both paradigms can be consistent with our scientific observations, and top cosmologists and theoretical physicists still have not concluded the issue.

Let me conclude by saying that from the position of modern empirical science, the reality of nature is under no obligation to comply with unsound deduction (as DeWitt would say Epicurus employed). Insisting on adhering to unsoundly deduced conclusions in Epicurean physics (e.g. swerve, infinity of universe, etc.) about reality (even if checked by our imperfect sensations) is deviating into the realm of the Platonic idealisms which you so vehemently detest.