Carl Sagan, the 4th dimension, episode 20 of Lucretius Today, physics

Post by “Mathitis Kipouros” of August 14, 2021 at 11:41 AM

In episode 20 of Lucretius Today there's mention of the possibility of "us being in a 'hypersphere'" and some other mathematical "possibilities" to describe our existence; among them was mentioned the comparison between "beings" that could live in two dimensions compared to us; and then, extrapolating from there, the possibility of there being a 4th dimension of reality that we could not see or understand, as the 2D beings could not see or understand our 3D world. There's a video of Carl Sagan about it here:

https://www.youtube.com/watch?v=N0WjV6MmCyM&ab_channel=AstronomyCorner

As expected, nobody in the podcast said they considered this to be true, or that they accepted these views as valid. I just wanted to post this as an example of the type of paradoxes that may confuse people into thinking that because these mathematical definitions are valid in the realm of math they could be valid in reality automatically, which was pointed out in the show and I appreciated it. This is something I think is not pointed out often enough.

Also in the podcast, I percieved a need of most to justify that even if Epicurus got some things wrong in his physics, "he got most things right" and "it's impressive how he could explain these things", as if there had to be a balance in favor of having gotten the most things right. But there's something that bothers me about trying to say that Epicurus "had a lot of things right" when it comes to physics, as if, if he hadn't, everything else could be discarded as invalid. Ironically, I think there is something platonic about this search for the ultimate truth and most accurate description of our existence, as an ideal state of perfect knowledge; and as such, I think we should be wary of it. Mostly because we're likely to have mistakes when we extend beyond what we can experience immediately, and could suffer from founding ourselves in theories of things we may not even be able to comprehend ever, and when proven wrong or contradicted, it might conflict us.

Whereas, if the physics is seen as something that serves the purpose of giving an adequate context, or better understanding, of our immediate reality, we can accept that they can be good for a while, and then perhaps we could find out they're actually wrong, but that doesn't change our reality. What I'm saying is that Epicurus proposed some theory of physics to give a sufficiently good context to the obvious things we experience in reality, not as a foundation of everything. I'm not saying not to keep on researching and trying to learn about our environment better. I just say that we should do it as I think Epicirus did it: Either for the intrinsic joy that the research activity brings to the researcher, or to give a context that could allow us to better understand our immediate reality and life experience, not as a way to find the

ultimate and most accurate foundation of reality; as I understand it, he didn't say that his physics were the foundationi of his whole philosophy, but the Canon is, but I may be wrong about this. But still, with the Canon we can be certain of many things even if the current theory of physics is proven to be wrong afterwards, because it is related to our immediate reality and life experience.

Using the Canon we can be aware that the fact is that not even us can experience an interaction with "beings" in 2D, because even a line in a paper is a 3D thing when looked at the proper scale and perspective. For us, there's no 2D in our immediate experience, as there's no 4D. I'm not saying there's no 4D in the universe, I'm not the owner of the truth, perhaps there is, but most importantly, it doesn't concern me; what I'm saying is that, in our immediate experience there is nothing that could allow us to think there is.

On line with what was talked about in the episode, there might as well be a material end point to the vacuum we now think engulfs all matter in the universe (doesn't make sense to me, but we wouldn't be able to see it anyway), and there might as well be one or many supreme beings out there, creators even, with what we would call supernatural powers, in a more complex reality that we couldn't understand, and, theye may even find in the future that the model por atomic particles allows for them to propose further divisions of these particles... but the point is, even if there were, what's evident for us in our life experience is that this shouldn't concern us, because it doesn't influence our lives, or if it does we can't percieve it at all.

So, even if the vacuum is not infinite, even if matter is finite (which it could be and we could be just existing in the right place at the right time, as we now know this could be because statistically somebody had to, not because we're special beings) and it is about to be dissipated to the point of not being able to form compounds anymore, and even if we find out that probably black holes eject into our universe matter that wasn't here before, or they disappear matter into apparently "nothingness"... all of this doesn't change the fact that in our immediate experience, even though these observations (if they were observed) may contradict the theories put forth by the epicureans, it doesn't change our immediate reality and life experience as we can percieve it with the bodies we are, in the place we are now.

One of the key takeaways I got from reading DeWitt is that Epicirus was first and foremost an observer of nature, and thus, of our immediate experiences, so it's hard for me to accept that the physics, extended to the end of the universe, and to the infinitesimal size of atomic particles, are the whole foundation of the philosophy, as I understand has been proposed sometimes. Physics help us have a common context, most of us can agree with at some point in time, that's adequate to confirm what we experience in reality.

So my guess is that he, and they, ventured into giving an explanation of the whole universe, from the atomic to the astronomical level (I say this particularly because they were usinig mostly logic to do so, which they themselves said could not be trusted), not because they wanted to find ultimate and unchangeable truths, but because they wanted to give this common context, that helped most refute the possibility of us experiencing, in this reality we live in, in this Earth, the things that we, after observation can be sure that are impossible (like

having external invisible forces influencing our lives and having things appearing or disappearing to and out of nowhere), and thus, carry on to more important things, like learning how to enjoy life.