"Epicurean Philosophy: An Introduction from the 'Garden of Athens'" edited by Christos Yapijakis

Post by “Joshua” of January 12, 2023 at 5:53 PM

Richard Dawkins proposed a line of thinking several years ago that might shed light on the whole "different levels of reality" issue. He suggested four different 'worlds' that living organisms might model for themselves in order to be better suited for their own size and speed;

- Atomic Scale (hypothetical)
- Microbe/Insect scale
- Animal Scale
- Cosmic Scale (Hypothetical)

Essentially what he's doing is extrapolating from the two middle scales outward in both directions to get to the hypothetical edges. The edges are hypothetical not because the don't exist in reality, but because there are no known organisms that operate in such a way as to require them to successfully model physics at those scales. In reality, there are more "worlds" modeled than the ones above--for example, blue herons model movement under water far better than humans do, because herons stand above the surface of water and hunt fast moving prey below it. Another example; creatures that live in ocean depths would model their world differently to those on dry land, or to those floating on air currents high above land. And further; the strange ability of hive insects to find their way back to the hive by 'recording' distance and estimating angles. There are apparently ants that can do this, or something very much like it.

Here's the general idea; at different scales, different physical forces interact in interesting ways. Here's one example; humans can't stand on water, but some insects can. At the insect scale, the forces of surface tension and air friction "outweigh" the force of gravity. They can walk on water, fall from high places without injury, etc. The result of this is that insects will be better fit for survival if they can successfully model surface tension, and humans will be better fit for survival if they can successfully model gravity. Nature is the same at each scale, but its implications for living things are different. If you were to imagine a whale-like animal the size of an asteroid that could live in space, the whale would need to successfully model things like the two body problem, inertial movement in a frictionless environment, how to use gravity wells as 'slingshots', and how to avoid falling into them--precisely the kinds of things that NASA needs to model when sending out probes and shuttles.

For more information:

- A short Wikipedia page on this topic.

- This TEDtalk starting around the five minute mark.