Anatomy of the Noosphere: Segment 4

David Sloan Wilson: One of Teilhard's concepts was that a superorganism might consist of a brain of brains that the lower level unit in some respects has this neuron-like status, but in other respects might be quite a sophisticated decision-making unit in its own right. And I know from honeybees that that's certainly the case. That the scout bees, for example, when they were evaluating a cavity, based on Tom Seeley's work, they're making, as individuals, quite nuanced decisions about the quality, multi-dimensional decisions, about the quality of the cavity. And then they go back and they vote in a social process. Is it also the case that an individual ant is in some ways just has a neuron-like status, but in other ways, could be a brain in its own right?

Deborah Gordon: Well, ants do have brains in their own right.

DSW: I mean function in as some kind of autonomous unit?

DG: Yeah. The ants do function as autonomous decision-making units and in the aggregate that creates the decisions of the colony. And I have found over time that it seems to me to be less and less useful to try to take those apart, because you can't really explain anything that the ant is doing except in the context of the colony. But the colony is no more than a bunch of ants. And so, I think that we can go around in circles trying to parse out which part is the individual, and which part is the colony. When those abstractions don't really apply to what's happening. Because what's happening is, ants are doing things and they interact with each other and we call the whole thing a colony.

DSW: Right. So the colony is truly the unit of selection in most respects.

DG: Yes.

DSW: Right, the final question, Deborah, is, I'm sure you're asked all the time, what's the relevance of this great ant work for human complex systems? And how do you answer that question? You already have to a degree, but so what's the relevance of studying this kind of superorganism, the ant superorganism for human social cooperation and so on?

DG: Well, I'll go back to where we started that because of the incredible diversity of ants and what we can learn from them about how collective behavior evolves in very different conditions. Maybe we can see general patterns that we could see also in human systems and in other systems like cellular systems, smaller…and I don't know if humans are bigger, but more towards human and more towards things we think of as more like cells, like bacteria and even cellular systems. So I don't think that people behave like ants or that people ought to try to emulate the ants, or anything like that. But I think that maybe we can learn from looking at the diversity of collective behavior about different possibilities for how collectives can operate and respond to changing conditions.