

Notes on Chauncey Maher, "Plant Minds" blog series at *The Brains Blog*.

POST #1, FEBRUARY 19: "DO PLANTS HAVE MINDS?"

Why don't most people think plants don't have minds? Probably because they have a representational theory of mind. To have a mind is to have ideas or thoughts, which are representations ("inner pictures, sentences, or maps of the environment external to the mind"), and plants don't have reps. But you can be inclusive here and define reps such that plants and bacteria have them (Millikan / Dretske), or you can be exclusionary (Sellars / Brandom) and think only humans have reps.

If you start out thinking plants don't have minds (the extension of the concept "mind" must exclude "plants"), then you can't appeal to a definition (the intension of the concept) that produces such exclusion to justify excluding them.

If you're going to produce a concept of mind that draws a distinction between humans and non-humans (at some stop on the scale) then you're must do a good naturalistic study of what organisms do and what distinguishes them from non-living systems. Not many philosophers have done that. (Naturalism as "empirically responsible philosophy" – you're philosophy should be consistent with science – but of course there are lots of scientific controversies, so often you're in a position of "under-determination of theory by fact," at which point your own values can justify adopting one position or another – you have to explicate the value implications here.)

Danger of panpsychism: if you're too generous with your definition of mind (that is, you don't want to be so strict so that only humans have minds), then you've opened the door to the charge that stopping at the level of living vs non-living (and thus avoiding panpsychism) is arbitrary.

COMMENTS: first exchange btw Schwenkler and Maher: why stick with "mind"? why not break it down into consciousness, feeling, perception, emotion, memory, volition, etc.? Evan Thompson comment: autopoiesis as metabolism / membrane recursivity does not require DNA, though that's how it works on earth. "Mind in life" thesis for ET: life is sufficient for mind, and hence mind is necessary for life. But is mind sufficient for life (and hence life necessary for mind)?

POST #2, FEBRUARY 22: "REMEMBERING PLANTS"

Examples purport to show that "plants encode, store, and retrieve information. In that respect, it is reasonable to say they remember." Comment from Maher on info as covariance: "X carries information about Y if X covaries with Y. In that respect, bird tracks carry information about the birds that leave them. Similarly, cellular states of plants carry information about their environments. This information is 'retrieved' when and to the extent that influences subsequent behaviors."

POST #3, FEBRUARY 23: "REPRESENTING PLANTS"

Phototropism as representation. Sun's EMR impacts photoreceptors; those effects are representations, i.e., a sign of the sun, like the images on our eye lenses. (Link goes to SEP article on causal theories of content: a thing causes a representation.) If X causes Y, then Y represents X; hence smoke represents fire. To many folks, this implies lots of representations!

Teleological content: X represents Y if it is X's function is to be an effect of Y. This seems to work with plants: stimulation of Venus flytrap hairs represents presence of an object, because the hairs were selected for such sensitivity. But again, this seems to produce an awful lot of representations.

So we don't quite have a theory of plant representation yet. But this doesn't seem to bother botanists. Example of growth in the direction of heavy subcellular parts: that doesn't mean the heavy bits represent "down" or "toward the center of the earth."

But do we really need to tie mind to representation?

COMMENTS: the memory abilities of plants don't need to be cashed out as reps, that is, as internal elements that "say" or "depict" where the sun will be in the morning; rather, we can understand that behavior as "a series of complex feedback loops between the leaves and the environment."

POST #4, FEBRUARY 24: "PLANT MINDS"

"Plants have minds because their activities disclose a world of things that have significance for them. Following Evan Thompson, we can call this an enactive approach to plant minds."

We can see this by looking at an author's study: the elements in the room have significance for the author; they are not, relative to the author, mere clumps of matter. Each of the things has a "for-the-sake-of" structure, so that they can be properly or improperly used (there is a normativity at work). These "for" relations have wider contexts as well: the computer is "for" writing, and writing is "for" teaching, and teaching is "for" my life's work as a project, etc.

Okay, let's look now at a magnolia tree. Its attracting or repelling of things, its turning to or from things, its capture or excretion of things are all matters of significance for the magnolia in its "ongoing self-production." It's that "for" relation that distinguishes the tree from the way a puddle represent rain in a causal theory or a turning water wheel represents flowing water in a teleological theory.

Story of the ontogenesis of the tree from the acorn. All its changes are adaptations to the environment for the sake of its auto-production; the environmental factors to which the tree parts adapted were significant to it, and the tree's access to them is a "disclosure" rather than a picturing or modeling.

COMMENTS: first topic: representation. Schwenkler: isn't registering of significance a sort of "representation" even if there is no separate and discrete internal state doing the registering? Maher: yes, there is covariance of plant states with external objects of perception; these wouldn't have truth conditions, but might have "correctness" conditions (has the plant correctly perceived the amount of water it needs?) This would be "weak" representation. Schwenkler: but what about Gibsonian direct perception? There needn't be a representational state, but the organism can detect affordances and change its behavior accordingly.

Second topic: what about an Aristotelian vocabulary of psyche? That would be a goal-directed activity, of which human nous is a specific case.