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Author credit	Kristin Andrews
Photos	
Captions/credit	
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Metazoa: Animal Life and the Birth of the Mind, by Peter Godfrey-Smith (Farrar, Straus, and Giroux/William Collins), \$28/£20

Some problems just get harder the more we work on them, and it takes insight to reframe the problem so you can see it in a different way. Consciousness is a notoriously hard problem—it's not called *the* hard problem without reason! No matter how much we squint at it, how much philosophy, neuroscience, or behavioural research we do, it can sometimes feel like the problem is just too hard, and the best we can do is embrace the mystery.

In *Metazoa*, Peter Godfrey-Smith takes us on a journey toward insight, offering an experience that nudges the reader to see the problem of consciousness differently by considering the evolution of animal life. As in his earlier book *Other Minds*, the journey includes stories of Godfrey-Smith's experiences diving—here including a touching meeting with a banded shrimp, his observation of a pair of fighting decorator crabs, and watching a hunting octopus—and he uses science and philosophy to illuminate the experiences. As we become immersed in this watery world, we start to think differently about what is animal and what is mind. Along the way, we are offered concepts to help understand this unfamiliar world. Godfrey-Smith invites us to think about sensory experience, evaluative experience, perspectives and points of view, and the reader is introduced to simple and widespread activities such as the sensing and responding found in bacteria, bean plants, and beetles, and the more sophisticated and less common activities such as the evaluating done by crabs, bees, and octopuses. Godfrey-Smith leaves us with the idea that evaluating, not sensing, was the first experience.

But it takes a while to get to that point. As promised at the beginning of the book, the pieces of the puzzle of consciousness are provided in good time. Godfrey-Smith begins his investigation not with animals but with life itself in the form of single cells, and shows us that cells' active lives include self-regulating their electric charge, maintaining their boundaries, and—though he doesn't put it this way—socially interacting with other cells. Cells are selves, Godfrey-Smith tells

us, and living cells are surrounded by other cell selves. Thus, it seems there is sociality even before animality. The cell selves sense and respond to the world, and such abilities, which later get described as minimal cognition, constitute the first stage of mind, but not yet the perspective and evaluation that is conscious experience.

From this discussion of cells Godfrey-Smith moves on to simple animals—sponges, corals, and jellies, and we are on our way. The journey includes discussions of the complexity of bee neurons, cleaner fish who pass the mirror test, hermit crabs who trade off good shells to avoid getting shocked, bilateral and decentralized bodies, and how many selves can exist in a single brain. He recounts the history of animal action, and reviews some of the key episodes in the evolution of animal sensing, including vision and touch. We revisit Octopolis, the community of octopuses he first introduced us to in *Other Minds*, and we find out that there is another community, Octlantia, that is also home to a surprisingly large number of octopuses.

The time spent with species that we are only distantly related to helps us to steer clear of our natural anthropocentrism, primatocentrism, and mammalocentrism that infuses so much work on animal consciousness. Godfrey-Smith is sensitive to anthropocentric pitfalls, as illustrated by an extended discussion of pain across species. He points out that human pain may not exist in all animals, but that doesn't mean that animals lack aversive experiences; just because animals such as sharks and insects don't nurse injured areas or seek out morphine when they experience bodily damage doesn't mean they can't feel bad. There may be different kinds of aversive experience for sharks and insects that are appropriate to their particular life histories, bodily structures, and environments. For example, when we see that bees display optimism and pessimism after positive and negative experiences, it suggests that these insects have evaluative experiences, even if they don't seek out morphine after a researcher clamps tight clips on their legs. Call the pessimism pain or not, that isn't what matters.

Our -centrisms are natural biases, and hard to avoid. Even when one is as committed to seeing the world from a variety of animal perspectives as Godfrey-Smith is, it is possible to fall into the trap. For example, when he discusses plants, Godfrey-Smith suggests they have less of a self than animals such as bees and octopuses, because they are not just individuals, but also communities. The entanglements of plants can cause consternation when we try to individuate selves—consider the 100 acre stand of aspen in Utah that is categorized as a single organism, the oldest and largest lifeform in existence. Is it *really* only one plant? Individual humans are also communities of cell selves, and, as Godfrey-Smith explained in *Other Minds*, we are each also communities of systems. We have digestive and circulatory systems, and some of us arguably have separate systems in the brain if the corpus callosum is severed. Our microbiomes are systems inside and on the surface of our bodies that have a correlate in plants' relationship with the soil and its mycelium networks. When we look at animals and plants in this way, as parts of interconnected systems, we see that we are all in some way partly a community and partly an individual. It is rather anthropocentric, or perhaps more correctly Eurocentric, to suggest that human selves are not also engaging with the world both as a *you* and as an *us*. And even if plants are more physically connected to each other than humans are, it is never clear why this physical organization can't permit the kinds of subjectivity we see in evaluating agents.

Plants are even more alien than the octopus, and it requires a greater shift in perspective to see them as possible sources of experience.

This is a book you will want to read to the end. It is in the last chapters that you learn that Godfrey-Smith is a gradualist about consciousness who thinks that being conscious isn't a lights on/lights off sort of phenomenon. His arguments against the on-or-off view are grounded in the evolutionary premise that at least some of the physical-biological transitions in the story of consciousness were gradual changes, and that with gradual physical changes we should expect gradual experiential changes. He sets up this view at the beginning of the book when he endorses a form of identity theory according to which physical activity of a sensing and acting body *is* conscious experience. The physical and biological structures and processes of bodies don't *cause* mind, they *are* mind. This means that there is something special about life that gives us an experiencing mind. Not all living beings experience, but life is a prerequisite for consciousness. For this reason, Godfrey-Smith is dismissive of the idea popular in some areas of artificial intelligence research that we will someday be able to upload our minds into a computing cloud and enjoy life after bodily death. Too bad for us. But good for the animals, who Godfrey-Smith presents as morally considerable (though the tough job of moral accounting is left for others). By the end of the journey, the problem of consciousness seems not so hard, and new paths for investigation appear. This is the best kind of philosophy—a combination of story and science and argument that leaves us with a new perspective, and a sense of excitement that progress can be made.