Book Reviews

István Aranyosi. *The Peripheral Mind: Philosophy of Mind and the Peripheral Nervous System*. Philosophy of Mind. Oxford; New York: Oxford University Press, 2013. doi:10.1093/acprof:oso/9780199989607.001.0001.

The Peripheral Mind is a philosophical study defending the hypothesis that the peripheral nervous processes are "constitutive of mental states rather than merely causal contributors to their existence" (xi–xii). Its author, István Aranyosi, is a Romanian / Hungarian philosopher (PhD in 2005) currently working in Ankara, who was granted an award by the American Philosophical Association in 2012. He was encouraged to write this book by David Chalmers.

In chapter 1 of *The Peripheral Mind*, the author describes his personal story, which gave him an important experience, exploited in the book. Just after his PhD thesis defense, he was radiologically diagnosed with a tumor in his chest, and started chemotherapy. Vincristine is a drug that stops cell division, but in his case it turned out to be toxic for his axons. Shortly after the second dose, he realized that he was not able to stand on his feet. He writes: "in the first six weeks the denervation proceeded gradually from the toes to the ankles and middle of the legs, and also from the tip of my fingers to the middle of my forearms" (4). His limbs became alien to him. He ceased to feel his feet and hands. They became a part of the external world for him; a piece of denervated alien flesh. "The mind-world boundary seems to have moved from the skin / environment junction to the innervated / denervated junction within the body. So, part of the body has become external to the mind, or 'de-minded.' It was only then that I started thinking about the mind as really present throughout the body rather than as merely containing a body-image or being informed by the body" (10).

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In this chapter Aranyosi claims that mind is nothing more and nothing less but the entire nervous system, composed of both the central nervous system (the brain and spinal cord) and the peripheral nervous systems (the rest of innervated body). According to Aranyosi the peripheral nervous system (PNS) is part of the mind; it makes consciousness into something located all over and inside the body. For instance, pain is not located in a definite place in the brain, but is a continuous interaction among peripheral nerve fibers, the spinal cord, and some areas in the brain. "The main claim of this book is that we could think of the mind as constitutively incorporating not only the brain processes but also the ones that take place at the level of the PNS" (20). Mind involves all sensory systems like vision, tactile experience, auditory experience, proprioception, gustatory and olfactory experience, and nociception. Subprocesses occurring at the level of peripheral fibers partly constitute experiential states; their role is not confined to a causal one, especially where mental states are processes rather than final products.

Chapters 2–5 presuppose the peripheral mind theory and discuss the most famous thought experiments in the philosophy of mind: the idea of a zombie, the black-and-white-Mary, the brain-in-a-vat (BIV), and Twin Earth. A zombie is conceived as a physical duplicate of a conscious being, lacking consciousness, and is treated by property dualists as furnishing a basis for anti-physicalist arguments. David Chalmers wrote about his imagined zombie twin: "This creature is molecule for molecule identical to me, and identical in all low-level properties postulated by a complete physics, but he lacks conscious experience entirely."[1] Many philosophers believe that the zombie is conceivable, while Aranyosi argues against it. "If for the fiber to be 'conscious' (*in its own way*) is, or even *means*, for it to have a manner of firing, then a 'zombie fiber' is inconceivable. And then a zombie foot is inconceivable too; and so is a zombie nervous system" (52).

Black-and-white-Mary is conceived of as a person who has never experienced any colors, but nevertheless has complete scientific knowledge of the world alongside human vision. It seems obvious that when Mary is released from her black-and-white room and sees a red rose for the first time, she acquires new knowledge pertaining to the experience of color: namely, she now knows what it is like to experience red. According to Aranyosi "there are beliefs about color vision that even an omniscient sci-

1. David John Chalmers, *The Conscious Mind: In Search of a Theory of Conscious Experience*, Philosophy of Mind (New York; Oxford: Oxford University Press, 1996), 94.

entist would not have, unless she experienced colors" (57). Mary will be surprised when seeing red for the first time, but, Aranyosi writes, her new belief might be untrue. This explanation does not seem convincing: either Mary was not omniscient, or she has not acquired a new belief. In my view, Mary, as a person confined to a black-and-white environment, cannot be omniscient.

Some philosophers writing about brain-in-a-vat (BIV) cases presuppose that the brain is the seat of the mind. Others, such as supporters of the embodied cognition movement, claim that "bodiless BIV will not necessarily have to share the mental life of our embodied and embedded minds" (61). Aranyosi discusses Chalmers' thesis that a BIV can have its own world residing within a computer. In the case of a BIV, the peripheral nervous system would be some cables connecting the BIV to its computer. To simulate pain, the computer would have to simulate the whole pattern of neural firings: what is going on in both the PNS and the spinal cord. "The computer doesn't merely simulate the nervous structures in order to stimulate the BIV, but rather materially realizes, implements, or emulates it. It creates whatever is needed for the pain process to actually take place, and it is part of this process" (62). The computer counts as a body for the BIV, and the BIV counts as a body for the computer. The BIV is usually presented as a passive receiver of stimulation from the computer, but if it is to simulate human experience then it should be conceived of as interacting. "We can actually rule out that the BIV—supposed to have consciousness, perceptual and sensory states—is possible. The BIV and its connected computer are like two mirrors facing each other; there is no genuine information in the compound system. The electric nerve impulses are embedded in electric nerve impulses, which in turn are embedded in electric impulses again, not in anything like a world, or reality" (64).

Twin Earth is a thought experiment used to question narrow mental content and argue for wide mental content. Aranyosi claims that the Twin Earth example is inconclusive in seeking to establish the existence of wide content, but nevertheless is conclusive in establishing that it is not narrow. Content is not individuated by narrow psychological states, and neither is it individuated by facts outside the subject's skin. "It rather gets individuated by what a properly functioning entire nervous system sets as standards of veridicality for our experiences" (95). Aranyosi remarks that when Hilary Putnam writes "meanings just ain't in the head,"[2] he does not

2. Hilary Putnam, "Meaning and Reference," *Journal of Philosophy* 70 (1973), 706.

mean skull, but *head* is the metaphor of the first-person perspective. The meaning of "water" is not determined by subjective description (the first-person perspective), but it is also not determined by chemical composition. According to Aranyosi, the meaning of *water* is determined by those of our experiences that are caused by the liquid we have been causally interacting with on Earth.

Chapters 6–8 form the most significant and revealing part of this book. They discuss Chalmers' and Clark's theory of extended mind, together with the current of thinking that corresponds to the notion of embodied mind. These theories are very close to Aranyosi's own theory of peripheral mind. The extended mind theory defended by Andy Clark and David Chalmers is the view that certain cognitive processes and states transcend the body, are extended outside the organism—for instance, in ordinary cases of tool use, as with a phone or notebook. External objects like notebooks, hard disks, USB memory sticks, CDs, can serve as repositories of information for us. According to Clark and Chalmers, in the case of a person (Otto) suffering from Alzheimer's, his notebook plays a role similar to that of a biological memory. They claim that "we should attribute a standing belief to Otto, a belief that resides outside his brain, in the notebook" (113), even if the occurrent beliefs are only in his head. Aranyosi disagrees, claiming that "the cognitive mind is extended, but not beyond the bounds of PNS" (120). Consulting a notebook or a phone is not a direct process but requires peripheral mediation—for instance, looking at the screen or employing movements of one's fingers. Instead, the external part of the mind might well be confined to some sort of implant with a tight connection to the brain, interacting in a peripherally unmediated, direct way.

The book can therefore still be classified as belonging to the current of thinking we associate with ideas about "embodied mind": our mind is not enclosed in the brain, but extends out into the whole body. Indeed, Aranyosi claims that mind is essentially embodied, so that a realistic disembodied mind is excluded. A disembodied mind would be logically possible, but necessarily very far removed from the minds that people actually have.

According to Aranyosi, the representatives of the "embodied mind" movement (stretching back to the 1980s) "fail to appreciate the special role of the PNS in embodiment" (102). Aranyosi interprets the idea of the embodied mind not as a brain processing a body-image, but as a mind distributed right across the body. He calls his approach the theory of the "enminded body": the body is a constitutive part of what the mind is.

To show this, the book offers an analysis of tactile and proprioceptive phenomena. The argument principally appeals here to Aristotle's illusion (*Metaph.*, 1011a): when we cross our index and middle fingers and touch the two crossed fingers on the angle by pencil, we feel as if they were touched by two objects, not one (126). Aranyosi develops his own version of this illusion: when we first touch the middle finger (all the while keeping the index finger crossed over it) and then move the pencil upwards so that it touches the index finger, we feel the movement as if it were not an upwards one but a downwards one (129). Moving the pencil downwards and touching the finger below produces a similar effect: we feel an upwards movement. During the experiment it is better when we do not look at the fingers. This paradoxical experience is a kind of a tactile-proprioceptive illusion (another example is the rubber hand illusion). Additionally, there is the empirical research made by Benedetti, showing that "when human subjects are exposed to long-lasting tactile reversal (six months, in Benedetti's experiment), their tactile perception ceases to be illusory, that is, after they have their fingers crossed for a long time, they cease to have Aristotle's illusion or any version of it" (133). It seems that we need to be capable of adapting to unusual circumstances and the illusion is simply due to the absence of any previous tactile contact involving crossed fingers in this kind of way. On this basis, Aranyosi (in discussion here with O'Shaughnessy) claims that proprioception is not always prior to touch, but sometimes determined by it, and that if that is so, then peripheral nervous system processes will count as constitutive contributors to the experience.

According to Aranyosi, the *body image* is conscious, and involves the sense of ownership and attention, but the *body schema* is unconscious and involves external parts. The latter is probably a map of the body, in the sense of the brain's representation of it, and is the source of Aristotle's illusion. When we look at our limbs or face, we have exteroceptive awareness of our body. Proprioceptive awareness of our body is something other. "In proprioception there is nothing like an object to appear some way or other, but rather the self or mind suffusing the body in all its parts that are properly innervated" (139). Interoception is something different again,[3] encompassing as it does sensations associated with visceral signals, like hunger, thirst, and vasomotor activity. Pain, temperature, and itching are also cases of interoception. The sense of touch is close to pro-

3. One should not confuse *interoception* with *introspection*, i.e., perceiving one's self, which according to Aranyosi is a case of exteroception.

prioception and interoception, even if it is intentional. Aranyosi writes about the *primal body image* as corresponding to an interplay between proprioception, tactile perception and interoception. The PNS is responsible for this feeling of being embodied. "We feel ourselves not *in a body*, but *as a body*. Proprioception, interoception, and touch interact in ways to create this 'enminded body' experience. . . . [T]his presence in all parts of the body essentially involves intact PNS innervations" (144). Embodiment of mind is linked to innervation.

Peripheral sensory input and action has been included in the category of mental states by sensorimotor theories—for instance, by the enactivism developed by Alva Noë. Aranyosi disagrees: action plays an important role in mental states, but is a causal rather than a constitutive feature. "A mental state will be the causal link between a stimulus, understood as an extra-neural event, and behavior" (156). The last synapse before the muscle contracts is the boundary of mind. The main empirical basis for enactivism is the inverted goggles experiment. During the experiment, subjects are asked to wear goggles that invert the left-right orientation in space or invert the up-down spatial axis. But after training in various motor activities, the subjects adapt to the new condition (164). Empirical research revealed that motor performance adapts to the new condition a lot earlier than perception does. Indeed, "active movement plays a crucial role in adaptation to perceptual distortion" (170). Nevertheless, according to Aranyosi, it is not action that is constitutive of perception, but rather proprioception and kinesthesia.

The book demonstrates the cognitive role of the peripheral nervous system. It presents a well argued theory to the effect that the mind is not contained in the cranium, but extends out into the entire nervous system, suffusing the body as far as it is innervated. The book is based on personal experiences of severe peripheral nerve damage, and reveals what happens to the mind in such cases. The author draws on empirical science and engages most of the current topics in philosophy of mind, including them into his theory of peripheral mind. Reading this work, a student-reader will thus become acquainted with almost all of the details of recent philosophy of mind, while a scholar-reader will become acquainted with new developments in the theory of embodied and extended mind. In my view, Aranyosi has succeeded in providing the best descriptive account of embodiment so far in the philosophy of mind, and he is certainly right to assert that contemporary philosophy has unjustly neglected the significance of the peripheral nervous system. The peripheral nervous system does appear to furnish a promising basis for defining the boundary be-

tween the human mind and the external world, and with this, the whole innervated body then comes to be included into mind, which in turn seems like a definite resolution of the mind-body problem.

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Ian Dearden. *Do Philosophers Talk Nonsense? An Inquiry into the Possibility of Illusions of Meaning*. Revised ed. London: Rellet Press, 2013. First published 2005.

In his newly reissued and revised book, the philosopher Ian Dearden attempts a critical inquiry into a philosophical position he calls "nonsensicalism," which he takes to correspond to the view "that it is possible to be mistaken in thinking one means anything by what one says" (9).[1] He holds that an unexamined assumption to this effect is implicit in a large swathe of philosophical work dating from a period stretching throughout most of the 20th century (and to some degree extending to the present day), thanks to the widespread tendency of philosophers to accuse each other of talking nonsense. This is, according to the author of the book, most visible in the earlier and later philosophical writings of Wittgenstein, in logical positivism, and in representatives of the Oxford-based "ordinary language" philosophy movement, as well as in the writings of many of those subsequently writing under the influence of these. Dearden coins a special term to refer to the sort of error that philosophers are accusing each other of having committed: he calls such cases of error "illusions of meaning."

The author proposes to investigate, in an ostensibly open-minded but critical way, the issues raised by the assumption that such errors are possible at all—hence the subtitle of the book. After an introductory first chapter dedicated to sketching the overall contours of the problem as he finds it, Dearden gets his investigation underway by means of a consideration of the view put forward in Norman Malcolm's book *Dreaming*, according to which claims about dream-events having occurred during sleep are to be dismissed as nonsensical if construed as claims about something actually supposed to have occurred while the person in question was sleeping, rather than as claims reporting what a person just seems to remember af-

1. Unless otherwise indicated, all page references are to Dearden's book.

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