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Animal Laborans, Homo Faber, or Something Else?

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Ashley Shew's *Animal Constructions and Technological Knowledge* is an interdisciplinary inquiry that incorporates resources from philosophical investigations into technology and biology, from scientists and others who work on animal behavior and cognition, and popular culture. These resources allow her to take on her central question, "do animal behaviors and constructions count as technological knowledge in the same way that human enterprises do?" (p. 3) She aims to "advance a more inclusive account of technology and tool use, give an argument for 'technological knowledge' as including animal tool-making and tool use, and look at actual cases of tool use in non-human animals" (p. 2).

One important outcome of her analysis is a two-dimensional chart on which various artifacts of human and non-human origin can be mapped. One dimension tracks the amount of knowledge "embodied" in the object, an amended version of Davis Baird's "thing knowledge"; the second dimension measures the "know-how" or the learned skill that the object requires of its user. By mapping out the overlap between human and non-human tools, Shew hopes that this book "unites dialogues about biological and engineering design and provides a more coherent, unified account of made things" (p. 3) and functions "to induce philosophers of technology to consider animal cases and to induce researchers in animal studies to think about animal tool use with the apparatus provided by philosophy of technology" (p. 11). The two-dimensional chart provides visual support for another goal of the book, which is to flatten the hierarchical view that sees humans as categorically different and superior to humans: based on her research, she wishes to "deny vehemently" the prospect that "humanity is somehow divorced from other life" (p. 32).

Shew's concise yet wide-ranging summary of the tool-using behavior of other animals is enlightening and an important contribution to the philosophy of technology literature. (I do not have the expertise necessary to assess its contribution to animal researchers, but given the rigidity of disciplinary strictures and the limited dissemination of ideas of philosophy of technology even into the broader philosophical circles, much less other sciences, I would surmise it to be of value there as well.) I regularly ask my ethics students to ponder whether Aristotle would have amended *De Anima* and what he derives from it in *Nicomachean Ethics* given what we now know about communication between dolphins and primate behavior but have never had the time to pursue this non-philosophical research.

Of course, as Shew points out, we must make an educated guess about what animals such as apes, dolphins, and whales, and New Caledonian crows are thinking about or thinking through when they are making or using tools because we cannot ask them in language they understand, and even if we could, we would not understand their responses. Moreover, scientific analyses that simply report observed actions seem even more susceptible to the kind of risks that Bruno Latour and Steve Woolgar identified in *Laboratory Life: The Construction of Scientific Facts* (1979), where anthropological techniques miss the meaning behind the acts that take place even as the target of their critique is one of the human sciences.

I am also sympathetic to Shew's goal of persuading more people to place non-human animals on a continuum with humans. The "divorce" between humans and our evolutionary ancestors that she identifies is relatively new, at least in a historical context. Our predecessors had it right: our commonality—evident in the Scholastics interpretation of Aristotle, where human are rational animals and in the middling spot in the hierarchy of Arthur Lovejoy's famous "Great Chain of Being" (Soper 1995, pp. 21-25)—has been lost in the wake of Enlightenment glorification of science and technology. As preservationist Aldo Leopold put it, we should see non-human organisms as "fellow-members" in the citizenship of the earth (1966, p. 240).

Shew's extensive review of animal studies research shows that many characteristics of technical activities thought by many to be uniquely human, including intentionality, problem solving, and innovation, are performed by other species, an insight that is not at all obvious to people who spend most of their time surrounded by other humans, often engrossed with their flat screens. This insight has received minimal attention recently in philosophy of technology literature, which, as Shew points out, has focused more on technologies associated with engineering sciences.

Having apprehended this important insight, it seems worth asking the question of whether what occurs in the making and use of modern technology is in fact categorically different than the tool making and construction that humans share with other animals. Put another way, the discontinuity that matters is not between human technologies and their animal counterparts, but rather between modern technology and its primitive human and animal counterparts. (Distinction, of course, need not imply superiority.)

Another way to express this discontinuity is to say that while humans and non-humans share technics and technique, though perhaps to varying degrees, some human technology seems like a different animal altogether. While neither Plato nor Aristotle "felt drawn to join the two words—to speak of a *logos* of *techné*," the cognitive dimension of high-tech objects has been present since the origins of the Greek term, i.e., "*techné* simply used *logos*" (Mitcham and Schatzberg 2009, p. 34). As Mitcham and Schatzberg put it, for Aristotle, *techné* itself is part of a "spectrum of different forms of engagement with reality, moving from sensation through experience to theory" (Mitcham and Schatzberg 2009, p. 33).

The theoretical dimension of technology functions for humans as a way of revealing the world. While it is possible that analogous cognitive processes occur in animals—we cannot be certain because we cannot communicate abstract and complex ideas with them—the evidence does not seem to me to support it, although perhaps I simply need to hear the (perhaps apocryphal) tale of the New Caledonian crow that falls into a well while staring into the heavens.

Moreover, several characteristics of modern technologies elucidate their human distinctiveness. Hans Jonas (1984) notes that modern technology, which is made possible by theory, operates at a more fundamental level, e.g., genetic or nano scales, than primitive technologies; their effects last longer; they have greater power and operate on a greater scale;

and, at least in some cases, they operate on objects—such as humans themselves—in a different way than primitive or non-human technologies. Consider genetic engineering, especially to the human germline, and atomic weapons.

While tools and technics for humans and non-humans can satisfy practical concerns and provide a source of play or amusement, they do something more for humans. As Jonas writes, “technology, apart from its objective works, assumes ethical significance by the central place it now occupies in human purpose. Its cumulative creation, the expanding artificial environment, continuously reinforces the particular powers in man that created it, by compelling their unceasing inventive employment in its management and further advance, and by rewarding them with additional success—which only adds to the relentless claim” (Jonas 1984, p. 9). According to Jonas, it is this characteristic that differentiates *homo faber* from *homo sapiens* and, similarly, it seems to me, from other animals and their techniques. These characteristics of modern technology, Jonas argues, also make it a suitable topic for ethics.

Yet Jonas and Shew are not as adversarial as the preceding makes it seem. Jonas’s analysis of technology is paired with a philosophical inquiry into evolutionary connections in *The Phenomenon of Life: Toward a Philosophical Biology* (2001), a project first published in 1966, completed before *The Imperative of Responsibility: In Search of an Ethics for the Technological Age* (1984), originally published in 1979. He argues that a philosophical approach to evolution highlights continuity of organisms, rather than rupture, and that advanced complexity is accompanied by increasing risk. In both of these respects, Jonas is a kindred spirit of Shew’s, who argues for continuity and notes that other organisms may be better adapted to their niches than humans (Shew 2017, p. 18).

Animal Constructions and Technological Knowledge left me wanting more. In particular, a longer second chapter, which sought to “disambiguate the relevant terminology—artifacts, tools, technology, and knowledge—in order to set up my argument that some non-human animal tool-related behavior should be seen as existing on a spectrum with technology” (p. 13), could have clarified the implications of her project for engineering design.

An expanded explanation of why the two dimensions that she used to map human and non-human artifacts are sufficient, or at least determinative, would have enabled the reader to more easily decide whether they should be considered on a continuum. Some mention of the ethical implications of her argument, however short, would have been welcome, although this concern is peripheral to her focus. A more expansive explanation of the benefits that animal researchers who employ her ideas would obtain would have also helped, though these may be obvious to practitioners in that field.

Finally, some comparison of her claims and those of Jonas mentioned above; Aristotle, whose work also integrated biological research and philosophy; and, relatedly, Martin Heidegger (2008), whose diagnosis of the flawed trajectory of Western culture begins with Aristotle’s *techne* that becomes the dominant way to see the world, a flaw that other species

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do not share, would have added helpful context her argument. Hopefully Shew is working on a sequel!

Shew's book, which Andrew Feenberg called "revolutionary" for philosophy of technology, is lucid and thought-provoking. It stimulates reflection on our relationships with non-humans and our technologies. It is worth reading.

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