

Review of Muhammad Ali Khalidi, *Natural Categories and Human Kinds*,
(Cambridge University Press, 2013)

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I have some sympathy with Ian Hacking's recent view that the topic of Natural Kinds is one that has outlived its usefulness (Hacking 2007), but *Natural Categories and Human Kinds* (hereafter NCHK) makes a convincing case to the contrary. According to Hacking, the topic of natural kinds now comprises a great diversity of solutions to an equal diversity of problems, and the concept is a source of little more than confusion. NCHK, however, offers a comprehensive account of Natural Kinds and their role in science that ties together at least a good selection of the issues that Hacking distinguishes

Khalidi's general thesis is that the members of a natural kind are the entities that occupy a node in the causal structures of nature. "Natural Kinds divide the world into individuals that share causal properties, enter into the same causal or similar causal relationships, and give rise to the same or similar causal processes" (NCHK p. 222). Because of this central role of causality in the account, natural kinds indicate the properties of things that are projectable, *sensu* Goodman, and thus enable us to pursue the traditional scientific goals of prediction, explanation, and control.

NCHK has two especially noteworthy virtues. First, it is a fully naturalistic account of natural kinds. Essentialism is properly disposed of in the first chapter by looking at the range of features that have been alleged to distinguish the essential properties of a kind, and deploying a mixture of philosophical argument and empirical fact to show the inadequacy of any such features to this task. As essentialism has had a discouraging revival in recent years this is important work. This ground-clearing opens a space for exploring the kinds of kinds that are distinguished in actual scientific practice across an impressive range of scientific domains.

The range of scientific topics that are discussed is the second especially valuable feature of the book. Certain domains, most notably the human and social sciences, require treatment simply because they are areas in which philosophers have alleged that there are obstacles in principle to discovering natural kinds therein. Part of the strategy for removing these obstacles is to look in some detail at parts of the physical sciences in which somewhat similar issues arise. Thus Khalidi explores areas such as fluid dynamics, astronomy, and polymer science, and shows that in these we find kinds that are fuzzy, cross-cutting, etiological, interactive, and so on. With this much established, Khalidi is able to attack a wide range of arguments for the exceptional status of kinds in the human and social sciences, such as Hacking's account of looping kinds, or Searle's of the role of convention in the construction of social kinds. Generally, Khalidi acknowledges that such features occur in some kinds, but there is nothing very special or exceptional: similar features are found in some physical kinds, and the features in question are not universal within the social domain.

The attention to these areas of science is important because it undermines the various dichotomies (hard/soft, physical/non-physical, fundamental/supervenient) that have been deployed to distinguish the sciences with natural kinds, laws of nature, and a range of epistemic virtues, from the second-rate sciences that lack these things. Khalidi does pay some apparent respect to the traditional distinction between basic and special sciences, at least in so far as that the former term appears in the title of chapter 3. But given his discussions of the 'special' parts of the physical sciences it is clear that this distinction can only be between fundamental physics and everything else, which leaves a not very special 99% of scientific activity located in the special sciences. Khalidi is also explicitly open to the possibility that there is no fundamental physics in the required sense, since it is an empirical question whether there is a bottom level to structural composition or whether, rather, every kind of entity is composed of smaller entities, and 100% of science is special. This latter possibility is interestingly deployed against Kim's well-known exclusion argument, that causal

completeness at the level of fundamental physics makes causality at any higher level redundant.

I am generally wholly sympathetic with the overall approach in NCHK. It presents a picture that should be congenial to most naturalistically inclined philosophers of science. And while it is highly pluralistic, it offers a unified framework within which these diverse kinds of kinds are located, something which will please those to whom an unconstrained pluralism is a step too close to anarchy. For the remainder of this review I shall briefly consider two points where Khalidi and I disagree.

Unsurprisingly, perhaps, I am not persuaded by his argument against my own extension of the pluralistic view of kinds beyond science. Khalidi wants all natural kinds to have epistemic value, but it seems that he simply identifies having epistemic value with being scientific. Unfortunately the argument is largely based on a poorly chosen example, the category of fish. Khalidi notes correctly that 'fish' has two uses, one that covers pretty much any aquatic animal, and the other that is limited at least to vertebrates. Khalidi takes the latter to be a scientific classification, and one that, contrary to a view I have defended, excludes whales (Dupré 2002, ch. 3). But this just seems wrong. A tuna and a whale have a more common recent ancestor than do a tuna and a lamprey, and it is entirely unclear in what sense the latter two nevertheless have more in common than the former.

I used to think that people had come to believe that whales were not fish because they had picked up the idea that scientists classified whales as mammals, but had not appreciated that fish no longer formed a respectable scientific category. A reasonable view would be that whales were mammalian fish. Real history turns out to be more interesting. It now appears that this linguistic legislation was settled by a high profile court case addressing a vital commercial question relating to tax liability, whether whale oil was a kind of fish oil (Burnett 2007). Mammalian fish would not have served the purpose. But to whatever extent fish is, nonetheless, an epistemic kind, it should include whales. At best it is a kind

based on convergent evolution, grounded in a suite of adaptations for mobile aquatic life. This convergent adaptation does provide a very modest basis for prediction. I actually suspect that our reluctance to include whales in the category of fish has most to do with our current view of their moral standing. In Norway whale meat is still sold in fish markets, and in Japan it is still served as sushi. At any rate, to sustain his exclusion of kinds important to non-scientific activities from the range of the natural, Khalidi needs to say more about what makes an activity scientific. I continue to maintain that most human activities have epistemic aspects and involve recognition of weakly natural kinds.

A second point of disagreement concerns Khalidi's too ready acceptance of a strict fact/value distinction (though, to be fair, he acknowledges that this is a much larger issue than he can properly address in this book (NCHK, 157)). Khalidi believes that normative and epistemic aspects of a kind must be disentangled if we are to identify natural kinds, but he is optimistic that this can be done (NCHK, pp.163-4). I doubt whether this disentanglement is generally possible but, provided we are willing, as many naturalists will be, to take a naturalistic view of value, I don't see that entanglement will necessarily preclude kinds from being natural enough. Consider as just one example, inflation, a concept which, incidentally, Khalidi treats as a paradigm of social science objectivity (p. 155). Prices of different goods change by different amounts and different people consume different bundles of goods. Every individual will experience a slightly different rate of inflation. A useable concept must be tied to some particular bundle of goods, or a bundle of goods defined by some particular method, and its choice will have important consequences, for example to people on inflation-linked pensions. This concept is deeply entangled with values, but is still one that can be deployed in properly epistemic practices (Dupré 2012, ch.3).

These are, however, minor disagreements relative to the main thrust of Khalidi's book. Overall, this seems to me the best general treatment of natural kinds for many years. It provides an important contribution to the general naturalistic trend of contemporary philosophy of science. It is always clearly written and clearly argued, and it would provide an excellent basis for seminars on its topic

at levels up to the postgraduate. And, contrary to Hacking's pessimism, I suspect it will reinvigorate discussion of what will continue to be seen as a central topic in philosophy of science and metaphysics.

References

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