Opinion Page

Appropriate Roles for Ethical and Social Values in Scientific Activity

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A review of: Kevin C. Elliott: *A Tapestry of Values: An introduction to values in science*. New York, Oxford University Press, 2017. xiv + 208pp. From: *Metascience* 2018, vol.27 no.1, 69-73. With thanks to editors K. Brad Wray and Luciano Boschiero.

A Tapestry of Values aims to establish that values "are not completely absent from any area of science" (p. 11) and should not "be excluded from central aspects of scientific reasoning, such as decisions about what methodologies or standards of evidence to employ" (p. 7);[1] and, also, to identify how appropriate and inappropriate roles of values may be distinguished in scientific activity. To pursue these aims, Kevin Elliott critically examines a variety of (appropriate and inappropriate) roles played by values in connection with five aspects of scientific activity:

1. choice of research topics and areas of research to prioritize,
2. methods utilized for research in areas like agriculture and medicine, and their background assumptions,
3. aims of particular scientific investigations,
4. responses to uncertainty, and

[1] The term "values" (unqualified) designates ethical and social (or, more generally, non-cognitive) values.

5. language used for describing and communicating scientific results.

Instead of discussing the specific arguments offered in connection with each of (1)–(5), I will make a few general remarks. The author maintains that values of any kind, "except for those that violate well-supported ethical principles" (p. 120), may have appropriate roles in scientific activity; and his emphasis is to clarify in general when, where and how values may have such roles. To be appropriate, roles played by values should "do adequate justice to empirical evidence" (p. 163); and they should be transparent, i.e., explicitly and clearly stated, so as to be open for critical discussion in forums, in which the values held among their participants are representative of those held in the social contexts that are affected by the outcomes of the relevant scientific activity, and in which there is engagement with those who question the roles, or the specific values in play in them, that draws in appropriate ways (discussed in detail in ch. 7) on the experience, values and knowledge of all the participants.

Elliott discusses the roles played by specific values (e.g., of commerce, or of social justice and respect for human rights) only insofar as they illustrate conflicts that affect scientific outcomes. However, his interpretation of representativeness and engagement is informed by his refined liberal sensibility, awareness of diversity and sense of social justice sharpened by empathy with the marginalized. This leads him to foreground some conflicts (e.g., regarding priorities for medical research) whose outcomes may disadvantage people in poor regions of the world, and methodological approaches that are favorable to the marginalized (e.g., community based participatory research, p. 133).

According to the author, when roles played by values lead to controversial outcomes, "more thoughtful" discussion of the values involved is facilitated by holding to the conditions of transparency, representativeness and engagement, in the light of which, he hopes, "we can guide the values that influence research so that we can better serve our ethical and social goals" (p. xi). It is likely to contribute to more thoughtful discussion, but unlikely to ensure generally that conflicts will be resolved or consensus reached; and, as acknowledged (p. 174), there are dif-

ficulties confronting efforts to engage in discussion in which these conditions are respected, especially when there are inequalities of power and adequate democratic forums are not available.

Questions that do not lie within the purview of *A Tapestry of Values* thereby arise, e.g.: (a) How to proceed in situations when consensus is not reached and conflict remains, or when efforts to engage in discussion, in which the three conditions are satisfied, are unsuccessful? In those situations: (b) what kind of reasoning should be deployed to support the particular value judgments that may inform one's scientific activity? and (c) what political activities and alliances might have to be pursued in order to obtain the financial and other conditions needed to engage in research that is not prioritized by the dominant interests in a society, e.g., where values related to the interests of the marginalized connected with agriculture or medicine inform key aspects of it? (d) What are the systematic implications of adhering to specific values (e.g., those embodied in commercial interests) – either by individual scientists and institutions – regarding the form and direction of the overall trajectory of scientific activity, and regarding adherence to the three conditions of transparency, representativeness and engagement?

What does lie within the book's purview – how values may play appropriate roles in all of the aspects (1)–(5) of scientific activity, and steps that can be taken to identify and counter inappropriate ones – is of considerable interest. Moreover, it is well-argued, well-organized, and presented lucidly. The issues addressed are well illustrated by numerous case studies, engaging anecdotes and mini portraits of relevant scientists. As the author intends, the book is accessible to the general public, as well as to students in elementary courses on science policy, research ethics, history of science, environmental studies, science and technology studies, and the philosophy of science. In addition, it draws freely on, and serves as an introduction to, the wide range of recent philosophical writings that deal with questions of science and values, including writings by Helen Longino, Philip Kitcher, Heather Douglas, Kristin Shrader-Frechette, Carl Cranor, Sheldon Krimsky, Janet Kourany, Hugh Lacey and (of course) the author himself. Kevin Elliott, an associate professor of philosophy at Michigan State University, is a leading and prolific

contributor to current discussions on the themes of the book, and co-editor with Daniel Steel of *Current Controversies in Values and Science* (New York, Routledge, 2017) and with Ted Richards of *Exploring Inductive Risk: Case studies of values in science* (New York, Oxford University Press, 2017). Hopefully he will write a sequel to this book that goes beyond the introductory level and that also addresses questions like (a)–(d) above.

The strength of this book lies in its marshalling of compelling arguments concerning each of the aspects (1)–(5), and enabling some generalizations to be drawn from them. However, a notable aspect of scientific activity (for many scientists, the central one) is barely glanced at, namely, that scientific activity has given rise to a vast and growing repository of settled scientific knowledge, whose empirical credentials are recognized as sound regardless of value disagreements, about a wide range of objects and phenomena. All of (1)–(5), to greater or lesser degrees, draw upon this repository and sometimes contribute to its expansion. Students being educated in the natural science disciplines spend a large part of their time becoming immersed in it. Moreover, the textbooks they study and the journal articles they read do not seem to support (for values are seldom even mentioned in them) that values have a role to play connected with what methodologies to deploy for dealing with their disciplines' objects of inquiry and the standards of evidence deployed in appraising claims of scientific knowledge. *A Tapestry of Values* does not engage with this.

In particular, none of (1)–(5) has to do with the criteria and evidential standards involved in making sound judgments about claims of scientific knowledge, exemplary items of which are found in the natural sciences. Some of them do pertain to research activities carried out in the natural science: "even in theoretical areas of physics, scientists and policymakers still face decisions about how much money to spend on different topics and how best to frame and communicate new findings" (p. 11). All concern the agency of scientists, and/or the interface of scientific activity with social/institutional/political/commercial practices or with phenomena of significance or personal interest in the social world, in contexts where (in varying degrees) agents, who are not professional scientists, are also appropriate

participants in making decisions. The five aspects are indeed value-laden in many of the ways described in the book; but, no basis is offered for generalizing this conclusion to all aspects of scientific activity, in particular to those that involve making judgments about the cognitive credentials of claims of scientific knowledge and understanding.

Elliott maintains that collectively his arguments provide grounds for rejecting what he (and several recent writers) have called the value-free ideal, the ideal that "values should be excluded from central aspects of scientific reasoning, such as decisions about what methodologies or standards of evidence to employ" (p. 7). This "ideal" should be rejected, he maintains, because it is the source of distorted understanding of science and its role in society, and because it can enable claims, based on research or arguments where specific values are covertly functioning, to pass as outcomes of sound scientific research. I agree that it should be rejected, both as an empirical idealization and as a regulative ideal of inquiry. Not only has the author clearly demonstrated the value-laden character of the five aspects of scientific activity he discusses, but also it is hard to imagine what kinds of arguments might be proposed to support it.[2] Those who do appeal to the "ideal" tend to just insinuate that it is a traditional ideal of modern science.

Elliott cites my book (Lacey, 1999), among other writings, as providing arguments for the *value-free ideal* (p. 17). It does not. Here labels can mislead. Throughout its history, modern science has been said to incorporate two ideals that, at some risk of over-simplification, may be put: (i) the criteria for determining whether or not a claim (hypothesis) is an item of established scientific knowledge, and the standards for appraising the sufficiency of the evidence supporting it, do not presuppose or depend upon any ethical and social value judgments (for convenience, call this the VALUE-FREE IDEAL); and (ii) scientific knowledge belongs to the patrimony of humankind; its uses should be inclusive and evenhanded, not predominantly at the service of interests that embody specific values at the expense of others (Lacey, 1999, 2017).

[2] I have kept in close touch with the literature on these themes for decades, but I have never seen a carefully argued defence of the *value-free ideal*.

Note that the VALUE-FREE IDEAL has to do with established scientific knowledge. The standards for appraising the sufficiency of the evidence appealed to, when considering whether or not *a claim is an item of established scientific knowledge*, do not presuppose or depend upon value judgments.[3] They are different from the standards used for judging that *a claim is sufficiently well confirmed to justify its informing practical social actions* (including those involved in conducting scientific research) and deliberations about regulatory and policy matters. Here we are at the interface of scientific activity and social practices, where – unless action is to come to a standstill – it is appropriate to allow action to be informed by results of scientific research that do not meet the standards of evidence required for items of scientific knowledge. When determining what these latter standards should be, value judgments have roles that cannot be avoided. (How to distinguish appropriate from inappropriate uses of values in this context is well illustrated by the discussion of risk studies in chapter 5.) I do defend the VALUE-FREE IDEAL. But it does not imply the *value-free ideal*.

Moreover, I suggest, any plausibility that the *value-free ideal* may appear to have derives from its being a distortion of the VALUE-FREE IDEAL, one that results from ignoring or denying that there are different evidential standards, and different kinds of considerations involved in setting them, for (on the one hand) appraising scientific knowledge and (on the other hand) judging that a claim is sufficiently well confirmed to justify its informing decisions at the interface of scientific activity and broader social practices. Furthermore, the ideal (ii) (itself functioning at this interface) is inconsistent with the *value-free ideal*; and adhering to it would support the requirements of transparency, representativeness and engagement in the way that the author proposes.

Elliott is right that many important aspects of scientific activity, including some that concern decisions taken in connection with cutting-edge research, are value-

[3] There are hints that the author might agree. He writes, "If a group of scientists is trying to decide whether a theory is likely to be true or reliable, then values are typically not relevant to answering this question. …Values may not be relevant when scientists are deciding what to accept …" (p. 73), and "When science is being produced primarily for other scientists, it might seem somewhat questionable to appeal to social values when setting standards of evidence" (p. 99). But the hints are not followed up.

laden. It is certainly worthwhile to challenge science students (as well as the public in general) to think about this. But these students are being formed in a context that generally presupposes that scientific activity leaves in its wake a repository of settled knowledge that has been established using criteria/standards that are not value-laden, and that this repository may be drawn upon as appropriate in any on-going scientific activities without its cognitive credentials being questioned. The challenge to these students is weakened, I suggest, when this presupposition is not addressed. Philosophers, who do not accept it, should offer arguments directly against it; and this would entail offering arguments against the VALUE-FREE IDEAL and not just the *value-free ideal*. It is not uncommon that writings in the philosophy of science (e.g., of the logical empiricists, Popper, Kuhn and Laudan) give scant attention to the interface of scientific activity and broader social practices, and focus on such general matters as confirmation, falsification and explanation, the nature and structure of physical and biological theories, and the unfolding of the internal dynamic of scientific investigation, in connection with which values (as distinct from epistemic or cognitive values) seldom are mentioned. It is as if these writings provide the underpinnings of the VALUE-FREE IDEAL, without bothering to point out that it does not imply the *value-free ideal*.

A Tapestry of Values does more or less the opposite; it provides compelling arguments to reject the value-free ideal; but, since it includes only passing remarks on the aspects of science under discussion in these writings, it leaves the value-free ideal untouched. There are writings that do put the two together (Feyerabend, Hacking and Kitcher come to mind), but I am not aware of an elementary text that does so. I suggest that this book could be very useful in elementary courses of philosophy of science, especially if it were paired with some elementary writings on the themes just mentioned. That would foster a more complete and ethically informed understanding of science.

References

Lacey, H. (1999) *Is Science Value Free? Values and scientific understanding*. London: Routledge.

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