

Challenging the View That Science is Value Free

A Book Review of
IS SCIENCE VALUE FREE? VALUES AND SCIENTIFIC
UNDERSTANDING. By Hugh Lacey. London and New York:
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Joseph Satish V
University of Hyderabad

Recent events in the world's two largest democracies have challenged the way scientists and scientific agencies practice modern science. The election of Donald Trump as President of the United States of America has been followed by widespread anxiety regarding his "unscientific" approach, particularly towards climate science (Krauss, 2016). On the other side of the globe, there have been concerns that the Indian government under Prime Minister Narendra Modi is promoting "folk remedies" as science (Kumar, 2017). No matter where one lives geographically, and no matter where one stands politically, one cannot deny that science and values interact at the levels of individuals, communities, and societies. But what about the age-old assertion that "science is value free"? It is this question that Hugh Lacey attempts to explore in *"Is Science Value Free? Values and Scientific Understanding"* (Lacey, 1999). In this book, Lacey discusses the role of values in science with a focus on the epistemological and methodological issues of the debate, and also the role of science in development, particularly in third-world countries.

What is the fundamental objective of science? Hugh Lacey answers that it is to "understand" natural objects and phenomena (p. 95). This objective requires that we follow a particular "approach" which in turn requires the adoption of a set of "strategies" (p. 256). The choice of approaches and strategies to pursue any form of systematic empirical enquiry indicates the role of values (personal, social, cognitive) in

scientific practice. But the public image of modern science is such that science is value free; to deny this would amount to treason. But that “science is value free” is by itself a representation of “a value, a goal” (p. 2). It is *this* idea that needs to be appraised, says Lacey; in fact, it is “one of the urgent moral questions of our day (p. 260)”.

The book could be considered as having three parts: an introductory section (Chapters 1-4) where Lacey provides a general account of the idea that science is value free and develops the provisional theses that three constituents - impartiality, neutrality and autonomy – jointly constitute the idea that science is value free. In the second part (Chapters 5-9) Lacey critically appraises these theses by submitting that values pervade science, particularly due to the adoption of a singular approach involving materialist strategies which have subordinated other strategies. He then explores two alternative approaches: grassroots empowerment (Chapter 8) and a feminist approach (Chapter 9) which could provide a fuller understanding of “human flourishing” that is not provided by the materialist approach. In the final part (Chapter 10), Lacey provides a revision of his initial theses where he submits that science *cannot* be value free but should strive towards the value of impartiality to gain a better understanding of phenomena that promotes “authentic development” involving a plurality of approaches.

The usefulness of Lacey’s account is in the thorough manner he develops his analysis. He first provides a general account of what values are, how values are manifested in human action (p. 24), and how values are embodied in society (p. 26). Lacey also presents the sources of personal and social values, and how people come to hold a “complex of values” (p. 30). He follows this “grammar of values” with a detailed account of cognitive values (the characteristics of “good” beliefs and “good” theories) which are the values desired to be reflected in the choice and the content of scientific theories (p. 45). He provides a fairly long list of “candidates” for inclusion in the list of cognitive values: to help the reader distinguish between what is a cognitive value and what is not (p. 58).

Having developed a foundational account of the discourse on values in science, Lacey presents provisional theses of three focal ideas – impartiality, neutrality, and autonomy (Chapter 4). Here he submits that modern science has privileged one set of strategies over others in the pursuit of understanding natural phenomenon: the “materialist strategies” which compromise the “generally quantitative and mathematical... kinds of terms that apply to phenomena considered as generated from underlying

structure, processes and laws rather than considered as an integral part of daily life and social practice” (p. 68). He further explicates the reasons why the materialist strategies were adopted in scientific enquiry: first, the appeal that all phenomena are generated from underlying structure, process, and law; second, that adopting materialist strategies enhances the human capability for exercising control over nature; and finally, that we have a “successful track record” of establishing theories using materialist strategies (p. 105).

The reason for the “success” of materialist strategies, Lacey feels, lies in the modern attitude towards “exercising control over (material) things” such that gaining control has become a “highly rated social value” (p. 113). In what he calls the “modern values of control” (as opposed to older traditions), natural objects are treated on par with technological products “largely for their instrumental value” (p. 114). Lacey does not romanticize older traditions of understanding; he does concede that “Human activity in all cultures involves some measure of exercising control over natural things” (p. 134). But the materialist understanding “abstracts from the human, social and ecological dimensions” of natural phenomena (p. 139). Here, Lacey disagrees with Kuhn who maintained that only cognitive values play an important role in scientific activity; Lacey emphasizes the role of social values too (Chapter 7). Acknowledging this can open the possibility of other “fruitful strategies” which can be adopted under appropriate material and social conditions to carry out scientific activity.

While exploring alternative strategies of scientific enquiry, Lacey questions what “human flourishing” means, since the modern, materialist viewpoint is being contested by many. He discusses different notions of “development” since many nations in the Third World find that “development” undermines several dimensions of their lives (p. 183). Lacey puts forth the notion of “authentic development” where values of local well-being, agency, and community lead to the alternative approach of “grassroots empowerment” (p. 185) which have shown to inform scientific enquiry in some Third World nations and have assisted in the development of “appropriate technologies” (p. 187). Using the case of the green revolution, he shows how “modernizing development” has promoted material progress but lost the opportunity of nurturing the values of social and ecological stability (p. 193). Similarly, Lacey argues that the adoption of a “feminist” approach in science will not harm the “value-free” nature of scientific practice because “autonomy does not hold even of research conducted under the materialist strategies” (p. 201).

Finally, Lacey formulates new versions of impartiality and neutrality to articulate the positive ways in which values may interact with science. Science cannot be associated with autonomy, Lacey submits, because “values pervade and must pervade the practices of scientific enquiry (p. 259)”. However, the defenders of the idea that “science is value free” should display their commitment by manifesting impartiality – by conducting research under a variety of strategies (and not just materialist). As an ideal, Lacey feels that fuller manifestations of impartiality will be followed by fuller manifestations of neutrality.

Hugh Lacey’s book provides an introduction to the controversial and even convoluted discourse on science and values. His treatment of the topic is balanced with references to some of the leading writers in this field - Poincare, Putnam, Rudner, Longino and Maxwell, to name a few – thus, providing a starting point for readers to explore this discourse further. However, the intense, analytic treatment of the topics (though progressively developed) can be a deterrent for graduate students. Yet, this book is a valuable addition to anyone working on the margins of science and policy.

References

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