

event) or alternatively, as valued fellow-travelers of the philosophy profession (a remote possibility).

Furthermore, sensitive to the need to counter the suspicion that this 'third way' might constitute little more than an irrelevant pastime, like poetry or pushpin, Hands ends with a very perceptive chapter on the nascent attempt on the part of many writers to conjure an "economics of science." Readers of this journal will be aware of many esteemed philosophers of science who have sought to render philosophy more relevant to the changing modern landscape of scientific organization and research by recourse to conventional *economic* models of scientists' behavior. Economists debating the reorganization of universities and intellectual property in our era of globalization have done likewise. Hands does a wonderful job of exposing the many ironies and contradictions inherent in these forays, and suggests that the arbitrary disciplinary boundaries separating these two groups will not likely lead to mutually advantageous trade and discourse in the near future. Instead, he calls for his newly reconstituted economic methodologist to mediate between these two groups, identifying the ways in which economic models miss the real forces behind the vast reorganization of scientific inquiry which now have been recently made manifest as the consequences of prior attempts to protect the corporate interests of a certain large software firm which will remain nameless, or a certain cartoon rodent, or the governmental drive to wean universities off their dependence upon military funding. The capacity to think through the multivalent consequences of legal and economic changes which range so very far afield from any simplistic notion of scientific research as an epiphenomenon of individual utility and desire, something already called for by writers as diverse as James Boyle, John Ziman, Larry Lessig and Corynne McSherry, would be the competence of the kind of economic philosopher whom Hands conjures. This is truly a book for our time.

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Hugh Lacey, *Is Science Value Free?: Values & Scientific Understanding*. Routledge (1999), xiv + 285 pp., \$90.00 (cloth)

As philosophical debate over the role of values in science continues to smolder, Hugh Lacey's recent work adds richness to the terms of the debate and an intriguing philosophical framework for the questions at issue. While Lacey's own views have some serious difficulties yet to be faced, this work will raise important questions for anyone who has wondered, not whether science currently is value-free, but what such an ideal would be and whether the ideal is defensible.

At the beginning of Lacey's work, it seems like the project will be nor-

mative rather than descriptive. Lacey is primarily focused on whether science should be value-free, pointing out that “‘science is value free’ in general hardly represents a fact,” (2) and that examples of how science is not value free in practice do not refute the ideal or the goal of value-free science. Thus, one might expect a focus on what the current goal of value-free science should be, and how to achieve it. However, there is also a strong descriptive aspect to the work. In his grappling with the idea(l) of value-free science, Lacey turns to the seventeenth century (Galileo and Bacon) to uncover the various aspects that are packed into the notion of value-free science (chapter 1). The reader should be warned that out of these quasi-historical philosophical reflections, three distinct yet logically interrelated theses on value-free science emerge (impartiality, neutrality, and autonomy), although their importance is not immediately evident (emerging fully only in chapter 4). Even more confusing, Lacey reworks the definitions of the three aspects at several places in the book (several definitions of each appear in both chapter 4 and chapter 10), refining their definitions as he struggles to make them work. This can be a confusing process; one suspects that Lacey is trying to show how difficult it is to be true to the historical intuitions regarding the ideal while pinning down precisely what they mean. In the end, Lacey does not make strong endorsements for all the aspects, thus weakening the normative bent of the work. This reader would have preferred clear definitions upfront, and then further elaboration for why the definitions needed to be so structured.

In answer to the central question of the title, *Is Science Value-Free?*, Lacey presents us with a qualified “yes.” The qualified nature of the response rests on Lacey’s division of the question into the three theses, impartiality, neutrality and autonomy, with neutrality being logically dependent on impartiality, and autonomy being dependent on neutrality. Thus, science as value-free means, at its most basic, “impartiality,” i.e., the lack of non-cognitive values in the internal reasoning of science, or most importantly for Lacey, in the acceptance of scientific theories. Lacey emphatically defends this form of “value-free science,” although to do so, he must make some dubious presuppositions, which I will discuss shortly. The other two meanings prove to be more problematic for Lacey. “Neutrality” or the lack of value-implications in the results of properly impartial science, is extremely difficult to get, and Lacey spends much of the work focused on this middle ground, trying to develop some defensible version of neutrality. “Autonomy,” (or the detachment of science from social concerns) on the other hand, cannot currently be defended under Lacey’s view, but he is unwilling to completely give up on it (hence the normative ambiguity) (248–253).

Because it is the foundation for Lacey’s view, I will focus here on issues that arise with impartiality. In order to defend impartiality, Lacey’s bed-

rock of value-free science, Lacey needs two working presuppositions. The first is that a clear distinction can be made between cognitive and non-cognitive values, and that this distinction can act as the impermeable barrier one needs to carry the normative weight of the value-free science ideal. Lacey spends some time articulating and defending this distinction (chapter 3, and pages 216–223), but his ability to defend it rests in part on his second presupposition, concerning what it means to accept a theory. He defines acceptance early and in a very narrow way: To accept a theory in a scientific domain is “to judge that, in light of the available evidence, [the theory] is sufficiently well supported that it need not be submitted to further investigation” and that “[a]cceptance is a stance adopted when relevant research has become considered as effectively completed” (13).

Lacey considers other judgments regarding theories (judgments that are often spoken of in terms of acceptance: e.g., accepting as a provisional basis for further research, or accepting as a basis for informed action) as other “stances.” Lacey’s definition, asserted rather than defended, leads him astray in several places. With such a strong version of acceptance, Lacey misses the force of Rudner’s 1953 arguments (71–74) on the role of values in science. (Rudner was concerned with the acceptance of a theory as a sufficiently reliable basis for decision-making and action, and thus with the role of values in setting variable standards for such acceptance.) Later, when Lacey discusses interesting current examples of significant research from biotechnology and gender-related science, he implicitly recognizes weaker variants of acceptance (how else could one accept scientific explanations of human behavior for which the research is ongoing and contested), but does not incorporate them into his analysis.

This strong definition of acceptance allows Lacey to defend the cognitive/social values distinction from many criticisms. For example, novelty, a value that could be construed as both a social and a cognitive value, drops out as a cognitive value for the acceptance of theories given that acceptance is to occur only when investigation is done, and any theory so thoroughly investigated can hardly be considered novel (219). However, even with this strong definition of acceptance, it is not clear that the distinction holds. For example, when discussing Longino’s work (1996), Lacey acknowledges that empirical adequacy, the most paradigmatic of the cognitive values, often has a social component in its particular instantiation, e.g., which data one must consider when deciding upon empirical adequacy can be influenced by social values (221). If this is the case, then Lacey’s insistence that there is no logical role for social values in the acceptance of scientific theories appears to be in direct contradiction to his acceptance of a social aspect to empirical adequacy. Unfortunately, how this apparent contradiction is to be dealt with is not addressed by Lacey.

Without the sharp distinction between cognitive and social values, La-

cey's view of impartiality would collapse. Lacey fears that the loss of impartiality as an ideal in science would be devastating. Perhaps the most interesting unexplored territory in the book is why Lacey (and many philosophers of science) fear what would happen to science without the value-free ideal. We get hints of it throughout the book, but no in-depth examination. Without impartiality, we are warned, we lose "all prospects of gaining significant knowledge" (216). We would be thrown back on merely "wishing" the world to be a particular way or "the back and forth play of biases, with only power to settle the matter" (214–215). The exact source of this fear is not defended or explored by Lacey. Why we couldn't have a reasoned discourse concerning both values (cognitive and social) and evidence in science is not clear. Nor is why the agreement we seek must be made on ground free of values. One could exclude the most egregious cases (e.g., Lysenkoism) on the basis of bad arguments and non sequitur reasoning: "I wish X were true, therefore X is true" is generally a non sequitur (although there may be exceptions, e.g., in sports psychology). The issue of values *per se* may be irrelevant to the defense of good science.

Aside from the division of "science as value-free" into three distinct and approachable theses, Lacey's most significant contribution to the discussion is his elaboration of "strategies" of scientific research, which are essential to Lacey's view of neutrality. In the selection and shaping of these strategies, Lacey finds a legitimate role for social values. He also articulates how the current dominant strategies (materialist with emphasis on control) are neither necessary nor sufficient for science, and he provides provisional alternatives.

For those who still believe in a full ideal of value-free science (e.g., all three meanings), they will be able to work through the careful arguments that Lacey develops to show why the qualified answer is necessary. If still not convinced, at least the complexity of the claim that science is value-free can be appreciated. For those who do not accept the assumptions that provide even the qualified answer, Lacey's work provides some nice case studies and some useful language for thinking about the role of deep background assumptions through research strategies in the development of science, an area that has been quite slippery philosophically. Thus, there is something of value in Lacey for all engaged in the values-in-science debate.

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John McCumber, *Time in the Ditch: American Philosophy and the McCarthy Era*. Northwestern University Press (2001), xxiii + 213 pp., \$29.95 (cloth).

Does philosophy concerns truths and methods that are beyond the mundane reach of fashions and politics? No, says John McCumber, in this