

Martin Carrier, Don Howard and Janet Kourany, eds.
*The Challenge of the Social and the Pressure of Practice:
Science and Values Revisited.*
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Once there may have been a philosopher who thought that science was rational because it was an objective, value-free endeavor that pursued theories that could be algorithmically demonstrated to be the best fit with the broadest possible number of facts. But, today there are very few philosophers of science who seriously contend that there is any algorithm for the empirical sciences. The failure to formalize inductive logic suggests, at a minimum, that there will always be some need for judgments about reasonableness in the empirical sciences that cannot be mechanically arbitrated, even by Bayesian techniques. Some historians and sociologists of science take this philosophical discovery to sanction the further claim that the various criteria used and valued in the sciences as standards of rational judgment are arbitrary. To support this, they have mustered an impressive and ever-growing array of case studies and historical examples that show that there have been, and continue to be, a varied assortment of standards at work across the sciences. Many philosophers have treated these claims with caution since, so the argument goes, judgments about reasonableness may be informal and even contingent without being arbitrary. Yet, now philosophers, and hopefully also practicing scientists, are faced with a difficult but interesting question: which criteria or standards of reasonable judgment ought to be valued in the sciences? The eleven papers collected in this volume grapple with this question under the rubric of the role of values in the sciences.

Most philosophers of science are agreed that judgments about reasonableness in the sciences involve a number of constitutive values, for example, simplicity, coherence, accuracy and scope. These values are taken to be conducive to the creation of truth or rational belief. It is controversial whether or not there are contextual values—say, fit with orthodoxy, applicability to human needs or profitability—that are similarly conducive to the production of true beliefs. At first glance, contextual values would seem to be little more than epistemic obstacles. But, in this volume, Helen E. Longino and Janet Kourany make strong cases for the importance of contextual values in the practice of good science. Longino argues for a pluralistic conception of science in which ‘models of natural processes developed within an approach that holds a given set of virtues paramount are part of a plurality of adequate representations answering to different cognitive aims’ (83). Similarly, Kourany argues that since ‘we simply cannot say, *a priori*, what kind of research will produce the best results,’ it follows that effective research programs could be guided as effectively by ‘sound egalitarian social values’ working alongside ‘sound epistemic values’ (100, 102).

Of course, the traditional view that contextual values have no place in good science is also well represented. John D. Norton claims that a very modest set of constitutive values and a refined inductive algorithm are sufficient to account for theory choice, so there is no need for contextual values. Margaret Morrison argues that Ernst Mayr and others should not have rejected the statistical work of Karl Pearson and R. A. Fischer on the contextual grounds that it supported eugenics. Jay F. Rosenberg maintains that ‘the constitutive goal of scientific inquiry is the explanatory accommodation of experience,’ and that this goal might be better achieved by embracing ‘an empirically acceptable conception of objectivity’ rather than ‘an epistemically transcendent notion of truth’ (117, 125).

Arguments for the role and significance of contextual values are not usually veiled appeals for the introduction of literary fuzziness into the sciences. Further, as Roger Strand observes, appeals to contextual values should not be understood as a ‘denunciation’ of ‘science, scientific practice or practicing scientists’. Instead, ‘the target is a set of myths about science that serve to uphold an inappropriate confidence in expert advice in policy making under uncertainty and complexity’ (155). Strand’s point is well taken, but arguments for contextual values are also concerned about how to balance liberal-democratic value pluralism and authoritative technical expertise without granting the constituencies of science (whatever they might be) an anti-democratic fiat. This is clearly the case in the essays by Longino and Kourany. In recent literature in science studies, this democratic concern has been expressed in shorthand by terms like ‘socially responsible science’ or ‘socially robust science’. The underlying idea is that in policy matters with broad ranging social repercussions—like responses to mad cow disease, SARS and genetically-engineered foods—the constitutive values of science are by themselves poor guides for democratic decision-making, since they reflect a relatively narrow domain of technical desiderata rather than more general social, political and economic values.

Christopher Hamlin argues that the divide between constitutive and contextual values might be bridged if the concept of expertise were distinguished from the concept of being merely knowledgeable. He suggests that expertise be recast so that it ‘will include not only narrow technical competence but the ability to recognize the need for action, to recognize and criticize multiple options, to understand the political and social structures in which knowledge is to be applied, and to privilege practicability and flexibility’ (179). In contrast, Peter Weingart is sympathetic with the project of socially robust science, but he worries that its proponents have the ‘misplaced expectation’ of solving ‘the dilemma of power and truth’. Weingart argues that democratic processes cannot ‘control the production of knowledge’ and so the most that they can do is ‘contribute to a better understanding of the scientific issues on the side of the lay public, and a better understanding of the lay public’s concerns with regard to scientific knowledge and its social implications’ (142-4).

Even if you think that contextual values ought not to play a role in the sciences, it is difficult to deny that values do in fact play a role, for better or for worse. This is, perhaps, most evident in commercial science where the expected or actual profitability of research decides whether research is undertaken or continued. The epistemological consequences of the commercialization of science is the subject of essays by James Brown, Martin Carrier and Matthias Adam. Brown sets the stage for the discussion by castigating ‘Big Pharmacy’ for a multitude of epistemic sins: gerrymandering of results, obscuring biases and outright bribery, among others. These sins, he goes on to argue, are an inevitable consequence of medical research under capitalist competition. To solve these problems, Brown calls for ‘socialized science’, which is nothing less than ‘patent-free public funding in medical research’ (213). Brown’s argument has two clear problems. First, it makes an illicit move from the specific fact that some pharmaceutical companies have behaved badly to the general assertion that the bad behavior is inevitable under capitalism. On this matter, Carrier pragmatically suggests that the obvious moral and epistemic deficiencies of commercial science may be less serious than Brown supposes, since ‘the practical objectives of gaining or maintaining the power of intervention drives applied research toward (other) epistemic goals like causal understanding’ (225). The second problem with Brown’s argument is that it assumes socialized science will behave better than commercialized science. Adam points out that ‘even a competition based on sufficient and distributed resources and on transparency seems not to guarantee increased reliability and trustworthiness’ and so *all* scientific research must have ‘a motivation in favor of disinterestedness’ (248-9).

Taken altogether this is both an admirable and frustrating collection of essays. The collection is admirable because it offers eleven solid papers discussing the role of values in the sciences, which is almost certainly the most significant developing issue in the philosophy of science, science studies and science policy. The collection is frustrating because many of the papers uncritically accept philosophical assumptions about the sciences. For example, there is the tendency to assume the methodological or epistemic unity of the sciences, a tendency manifest in the recurring use of ‘science’ rather than ‘sciences’. This comes with the concomitant assumption that there is some set of values, constitutive or contextual, that is appropriate for some singular enterprise called ‘science’ and is capable of fulfilling the epistemic ideals of philosophy. Furthermore, the very demarcation between constitutive and contextual values presupposes that contextual factors do not shape the evaluation of constitutive matters like simplicity, accuracy and breadth.

Nowhere is this problem more evident than in the recurring motif among the papers that ‘disinterestedness’ or ‘objectivity’ should be counted among the values of science. This overlooks Lorraine Daston and Peter Galison’s *Objectivity* (2007) which shows how claims about scientific objectivity do not refer to any well-defined value, but are situated in specific historical and disciplinary contexts. Daston and Galison suggest that appeals to objectivity tend to be a means of expressing worries about threats to a

specific conception of proper scientific investigation. Hamlin, who seems to be the only contributor to the volume who is not a philosopher, seems to express much the same frustration when he writes: ‘the historian must be the resister of reification, by insisting on the fragility of confidence and the inescapability of context’ (179). But surely this might be a description of a philosopher as well as a historian—a philosopher who embraces the full anthropological import of Immanuel Kant’s famous insight that ‘out of the crooked timber of humanity no straight thing was ever made.’

Jay Foster

Memorial University