Book Reviews

Philosophy of Science, by Alexander Bird. London, UCL Press, 1998. Pp. x + 313. P/b £12.95.

This book is part of the *Fundamentals in Philosophy* series, edited by John Shand, offering introductions to core areas of philosophy which are "not mere bland expositions, and as such are original pieces of philosophy in their own right". Alexander Bird's book meets this remit admirably. In my review I shall concentrate on the philosophical argument of the work and set aside its merits as a student text though they compare well with rivals currently on offer.

Bird takes a problem-based approach to the subject rather than a historical one as a number of studies on this topic have done. He divides these problems into two kinds: those which concern the subject matter of science, in Part I, and those which concern the method, theory and progress of science, in Part II.

Part I addresses problems concerning laws of nature, explanation, natural kinds and realism. On natural laws, in chapter one, regularity theories are dismissed, as we would expect, but so are the Ramsey-Lewis theory and Armstrong's necessitation account, the two most popular contemporary accounts. A key problem is the inability of laws, understood in these ways, to explain their instances. No such explanation will be possible whenever the laws are derived from their instances. Though Bird does not take this further here, his attack is in line with a general critique that denies the supervenience of laws upon regularities in events. Dispositionalist theories of law, for instance, could endorse the point. Bird offers instead a "criterial" account of the relation between laws and regularities. Regularities are evidence of laws but not constitutive of them. Bird does not say what exactly does constitute a natural law if it is not a regularity but it does seem that he has given us a useful characterisation of the relation of regularity to law and one that may be retained when a satisfactory metaphysic for laws is produced. The distancing of laws from the contingencies of the world's events, even their omnitemporal histories of events, will attract those who seek a realist metaphysic for laws. Events as criterial of laws would be consistent, for instance, with a realist metaphysic in which laws were principles which governed regularities.

On the topic of explanation in chapter two, some of the book's other themes come to the fore. A holistic approach is defended, as it is in chapter eight on scientific progress, where models of explanation (and of scientific progress) are rejected on the grounds of over-simplification. Bird supports Inference to the Best Explanation where the criterion of being a best explanation is determined by a variety of "good-making" features.

A number of problems are raised in chapter three, on natural kinds, that do not get resolved until later in chapter seven. There are things we can say about the subject, for instance, that concepts will be most useful which denote a unified collection and that natural kinds will figure in natural laws, but these fail to prove that there is only one set of real kinds and real laws as the "full-blooded" theorist wants. We might think that we have a natural kind only if it figures in natural laws. But here there is a problem of circularity, for what we take the laws to be itself depends on our choice of kinds, as Goodman shows us. Hence, we may have a choice between "emeralds are green" and "emerires are grue" as our true laws (that is, true law statements) and which is acceptable will in part be determined by which of emeralds and emerires we take to form a natural kind. So we cannot settle the laws until we have determined which are the natural kinds but we cannot settle the natural kinds until we have determined the natural laws.

Bird wants to base the objectivity of natural kinds in our recognitional abilities but there is an issue of whether these abilities themselves stand in need of justification. Is it reasonable to infer kinds from perceived differences? How do we know that our recognitional abilities are not misleading? How do we know that they provide knowledge of the world's kinds? The answers to these questions, and the problem of induction itself, Bird finds in a position of *reliabilism* that is derived from Armstrong and Papineau. This is an externalism about knowledge which rejects the K-K principle. Hence I can come to know something when my reasoning is reliable even though I do not know that I know it nor know that the reasoning is reliable. The related J-J principle, that to be justified one must be able to justify one's justification, is also discarded. We can, therefore, have knowledge that p if N believes that p, p is true, and N's belief that p rests upon a reliable method such that the explanation of the general reliability of the method also explains its success on this occasion. The latter clause is to exclude counterexamples to reliabiliism where a true belief is held after use of a reliable method but only accidentally, for instance, a true diagnosis of cancer after a reliable method was used, made true by an unknown cancer but believed on the basis of a fictitious cancer.

Such reliabilism can redeem observation even if observation is theory-dependent, as many have held. Observational knowledge can be acquired by use of a reliable method: one which in general produces true beliefs. It need only tend to produce true beliefs as a matter of fact and I need not know that it does. Thus we can know the true natural kinds and we can acquire inductive knowledge. What counts as good inductive inference, in keeping with another of the book's themes, cannot be made explicit. Instead we must take the holistic approach and look for good-making features. All that matters for the reliabilist is that inductive knowledge is possible, not that we know when we have it, and inductive knowledge, it seems, is possible; for instance, where an inductive inference is backed with a law-like truth.

The remaining chapters deal with realism, inductive scepticism and probabilistic inductive reasoning. Chapter four argues, against anti-realism, that our empirical practices work only if they are inferences to truth rather than, say, empirical adequacy as Bas van Fraassen has argued. Bird argues that if we cannot know a theory to be true we cannot know it to be empirically adequate either. Chapter five introduces inductive scepticism, taking the reader through familiar debates. Chapter six discusses the probabilistic attempts to salvage inductive reasoning with particular attention to Bayes's theorem. Though capable of yielding some impressive results, Bayes's theorem cannot replace induction as it suffers from a number of problems when applied to scientific practice. It takes no account of the simplicity and explanatory unity of a theory, for instance, concentrating solely on the probabilistic relations between hypotheses and evidence. Rapid convergence of opinions will fail where extreme priors are adopted and there would have to be an infinite regress of reasoning if every prior is determined by Bayes's conditionalizing.

The final chapter, on method and progress, has much good sense to impart. There is nothing prescriptive to say about scientific method, as many have attempted and failed. We can describe best practice, such as randomized controlled trials, blind where possible, but there is nothing a priori about this; best practice is discovered a posteriori. There is reason to be optimistic about the progress of science but, again, this is justified through a holistic array of methods and principles rather than a single, uniquely scientific method.

Bird develops a systematic stance about the unsystematic nature of scientific knowledge and progress. His book contains many familiar elements, such as Inference to the Best Explanation and reliabilism, but Bird succeeds in drawing disparate themes together. He provides a single line of argument that represents an excellent introduction to the current state of thinking in one of the chief areas of human thought.

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Getting What You Want? A Critique of Liberal Morality, by Bob Brecher. London: Routledge, 1998. Pp. x + 217. P/b. £11.99.

The three combined "empirico-liberal" theses forming the focus of Bob Brecher's book are: a conception of the individual as fundamentally a "wanting thing"; a view of moral justification wherein justifying reasons must be motivating reasons; and a theory of motivation which identifies motivating reasons exclusively with wants. Brecher's project is purely negative: he intends only to clear the ground for a rationalistic moral theory that will deliver us from the "consumerism" (p. 2, 7, 144) of contemporary society and provide a genuine alternative to post-modern relativisms. He argues that the