SHAPERE, Dudley, *Reason and the Search for Knowledge.* Boston Studies in the Philosophy of Science, Vol. 78. Dordrecht: D. Reidel, 1984.

One of the earliest introductions I had to philosophy of science was Shapere's slim volume on Galileo. I still remember the excitement I felt while reading that work, especially its ultimate chapter where the 'Platonic' Galileo of Koyré clashed swords with Shapere's Galileo over the relationship between reason and experience. Provoked by this work, I hunted out some of the other writings of Shapere : a perusal of his critique of Kuhn and Feyerabend in the third volume of the *Pittsburgh Series* and in the Achinstein and Baker volume (both reprinted in the book under review) elicited both affection and admiration for Shapere's writings which continues to this day. It is, therefore, a great pleasure to review this collection of classic articles of Shapere published handsomely by the editors in their *Boston Studies* series.

The book contains 19 articles and a long introduction (in itself an article),

of which about 14 were previously published. These include such contemporary classics as 'Meaning and Scientific Change', 'Scientific Theories and their Domains' as well as a term paper which Shapere wrote, in 1953 or 1954, at Harvard University. They all reveal the thoroughness, lucidity and the meticulousness characteristic of Shapere's thought.

The book is organized into three parts which deal respectively with criticisms of some of the proposals in philosophy of science, analysis of some of the issues and outlines of Shapere's own solutions. The classification is obviously not rigid. Critical papers, here and there, hint at solutions; proposals for alternatives which Shapere pleads for are based as much on criticisms of existing ideas as they do upon analysis of the issues.

The first part is dominated by Shapere's concern with the 'relativistic' rebellion bred by the disintegration of logical positivism. Kuhn and Feyerabend are, appropriately, the targets whose theories come under close acrutiny. His critique of Kuhn (Chap. 3 and 4), of Feyerabend mostly (chap. 5) and of such issues as meaning variance, incommensurability of theories, theory-ladenness of observation (chap. 2 to 6) have, since their initial publication, become some thing like classics. The basic arguments of Shapere have since then been absorbed into the consciousness of the philosophical community. To this day, no satisfactory rejoinders have been elaborated to Shapere's objections.

Part II consists of four articles : 'Space, time and language' deals with the role of notions like space and time in scientific theories. Chap. 8, 'Interpretation of science in America' is a brief, if critical, overview of philosophy of science as it formed a background for the 'relativism' of Kuhn and Feyerabend and as the latter developed it. 'Unity and Method in contemporary science' represents Shapere's attempts at outlining the "intimate relation" that obtains between "knowledge and the methods of gaining knowledge". (p. 178). One of the most sustained defences for the view that an "understanding of the honorific, as well as of the 'descriptive', aspects of the concepts of rationality and knowledge should and must be the results and not the prerequisites of an investigation of the scientific enterprise" (p. 201) is undertaken in chap. 10.

The other half of the book, constituting part III, consists of various articles which embody the proposals that Shapere has put forward in order to tackle some of the issues in philosophy of sciences. It opens with 'The character of scientific change', where he tries to focus upon the relationship between the development of science on the one hand and methodological standards for evaluating scientific theories on the other. It is followed by a hitherto unpublished material from a panel discussion on this chapter between Shapere and such philosophers of science as McMullin, Gutting, Laudan, Nickles etc. Chap. 12 takes up and elaborates some of the problems formulated in the previous one. 'Scientific theories and their domains' tries to explicate the notion of scientific theory. Chap. 14 and 15 focus upon the inherently dynamic and flexible nature of scientific domains. Chap. 17 deals with the notion of 'idealization' in scientific theories and comes to a more balanced assessment of the positivist contribution to the philosophy of science. Chap. 18 takes issue with 'essentialism' (of Kripke and Putnam) and suggests that philosophy of language may not have much to say regarding the nature of scientific enterprise. The last chapter, appropriately, is a reflection about the nature of scientific knowledge.

Each of these papers reveal Shapere at his best : a judicious mixture of rich,

historical studies of scientific episodes buttressed by lucid and penetrating arguments at a metascientific level. A deep respect for scientific enterprise, as it is actually carried out by scientific practitioners, coupled with a sensitivity for issues of philosophical significance make it a rewarding experience to read, or reread as the case may be, all of these articles.

I cannot, however, end this review without making an observation or two which trouble me. One of the legacies of logical positivism has been a tendency to concentrate exclusively on clear cut and less messy domains like Physics or Chemistry *in order to formulate* methodological criteria/standards for scientific theories. There is something faintly absurd about trying to criticize/solve the problem of, say, incommensurability of theories by appealing to some or other episode in the history of physics as there was something faintly ludicrous about the early attempts at explicating the nature of scientific explanation and of scientific laws by analysing the statement 'All ravens are black'. Though the impulse behind both attempts are understandable, they are no longer excusable.

Without the least bit of exaggeration, it can be maintained that 'relativism', 'incommensurability of theories' or 'theory-ladenness of observation' have been around and alive for much longer than Hanson's *Patterns of Discovery,* or Kuhn's *Structure of Scientific Revolutions,* or Feyerabend's *Against Method.* They have been a source of unending debates in anthropology, economics and psychology for nearly a hundred years. Here, in the messy arena of human, social life, these questions are not merely acute and actual but cry out for clarification as well. Here, where 'reason' mixes freely with 'prejudice' and where it is difficult to separate 'ideology' from 'argument', it is there that a "dogged reasonableness" (editorial preface) of a Shapere is urgently required. In all honesty, I must confess that I am yet to see a single philosophical proposal, made in the last 50 years or more in the field of philosophy of sciences, which comes even remotely close to qualifying itself for the job.

It is therefore of little wonder that Lakatos, Kuhn and Feyerabend (albeit in versions not really defended by them) are so immensly popular amongst social scientists: they merely legitimize existing prejudices. Is economics a "dismal science" ? Not to worry: it is in a pre-paradigmatic stage after all. Should Marxian thought be taken seriously ? Of course not: it is known to be a degenerating research programme. In which domains are the crudest versions of verificationism and operationalism the 'official' metascientific doctrines other than in economics and psychology ?

One could go on and on cataloguing, but I will not. Instead, I would like to make a suggestion to Prof. Shapere. He had promised us, in his book on Galileo, tht he would take up a 'series of important episodes in the development of science', focussing 'on those facets which are of relevance to the philosophical questions concerning the rationale of the scientific enterprise'. So, why not make good this promise by straying from the fascinating, but relatively safe, territory of natural sciences ? Why not take up a figure from the history of social sciences, say Marx, Keynes or Weber ? Lack of professional competence need be no hindrance; surely, there are many with whom Prof. Shapere can collaborate ?

Whether Prof. Shapere will entertain this suggestion seriously or not, the remarks which lead up to it should not be seen as detracting from the merits of ths book. It is a book which ought to be read widely: not just by professional

philosophers but also by under-graduate students in philosophy, practising scientists both natural and social. With just a little bit of effort, the arguments are accessible to an intelligent layman interested in questions about science and philosophy. My only worry is that its exhorbitant price (even in its paperback version) will make it inaccessible to all but specialized library shelves which is a pity, because it deserves a much, much wider audience than the one it will actually get.

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