

CHAPTER 1

THE CRITICAL TRADITION AND SOME OF ITS DISCONTENTS

One of the cornerstones of much philosophy is the idea that it has a critical tradition, and that this tradition has informed our general knowledge, science, mathematics and even philosophy itself. Also the tradition has not remained static and given once and for all, but has grown and developed alongside these subjects. The earliest aspects of the critical tradition, as they arise in Western philosophy (but also elsewhere), can be found in the Presocratic philosophers, Plato and Aristotle. Since then, the tradition has grown and developed in the course of the history of philosophy and science, sometimes strongly, sometimes fitfully. How some contemporary philosophers of science have understood aspects of this tradition is outlined in sections 1.1 and 1.2. Some of the detractors from the tradition are discussed in section 1.3. They include some sociologists of scientific knowledge and postmodernists, with other leading detractors being left for discussion in Parts II, III and IV. Some philosophers of science, such as Kuhn and Feyerabend, have also been thought to be renegades from the critical tradition. However as the final two sections 1.4 and 1.5 argue, the critical tradition can be understood broadly enough to contain Kuhn's position, and a good deal of Feyerabend's position, without it being undermined by either.

1.1 ON THE VERY IDEA OF A CRITICAL TRADITION

1.1.1 Critical and Non-Critical Traditions

One useful way to orient oneself in the debate about the rationality of science is to take a cue from Karl Popper's idea of different traditions of belief for understanding the world as set out in his 'Towards a Rational Theory of Tradition' (Popper (1963), chapter 4). People have attempted to understand the world through traditions of belief and practice ranging from myth and religion to science. Thus using human agency as a model and appealing to super-human beings, one Ancient Greek tradition claims that lightning in a thunderstorm is to be explained by the displeasure of the God Zeus, or a storm at sea by the anger of the God Poseidon. Again, the Homeric tradition held that dreams were objective visions of the supernatural in which other-worldly things and persons paid the dreamer a visit. In contrast the rival tradition of the atomists held that, for example, storms at sea were a complex interaction of the surface of the water with the movement of the atmosphere

and its different levels of temperature. A rival tradition involving Xenophanes, Heraclitus and Aristotle rejected the supernatural view of dream contents. Aristotle criticised the theories of his predecessors and claimed that dreams were a 'replay of previous waking experience, sometimes bizarrely scrambled as a result of physiological disturbance' (Gallop (1990), p. 19), while normal sensory function is suspended in sleep.

Why is there a change from one tradition of belief to another? What is the cause of such change? Why bother criticising alternative views and proposing new ones, as Aristotle commonly did? Why not remain content with the old beliefs, or be content with a plurality of old and new beliefs in some area even if they conflict? That a later tradition provides easier understanding than an earlier tradition may not suffice as an adequate explanation; often it is around the other way. Moreover, what is so great about 'easier understanding' so that it (or any other) criterion is to be adopted as the arbiter between different traditions?

Popper's suggestion is that alongside the stories that we tell in our various traditions, there emerged a second-order tradition – a tradition of critically discussing the first-order traditions, whether of myth, science or whatever. The second-order tradition would ask us to try to tell a better first-order story – in some sense of 'better' to be spelled out in the second-order tradition. It would also bid us introduce new requirements on explanation, and adopt explanatory mechanisms other than, for example, mythical explanations modelled on human agency. It would also bid us to adopt a critical attitude to the first-order stories and look for ways of challenging both the storyteller and the story by inventing other stories and then comparing the two stories according to various criteria. This much is evident in Aristotle's work on dreams and divination, in which he reviews, as he does in writings on many other topics, the views of his predecessors, criticises them and then proposes his own account. In this way, says Popper, science emerged as a first-order tradition competing with other traditions such as those of myths – but with this difference: the scientific tradition is accompanied by a second-order tradition in which first order traditions, mythical, scientific or whatever, can be critically evaluated. (Popper does not discuss whether or not pre-scientific mythical traditions have their own second-order critical tradition. There is no reason to suppose that myths are always to be treated in a non-critical fashion and that there may not be, in some cases, a second-order tradition for the evaluation of rival mythical traditions. However for Popper what demarcates science from myth is that the first-order tradition has a second-order *rational* critical tradition applied to it – and this makes the first order tradition scientific.)

What can be said of the second-order tradition? We need not, as Popper does, identify it with his falsificationist account of scientific method. The

second-order tradition has a long history, starting even before Aristotle's first self-conscious attempt to codify the canons of critical inquiry in science in his *Organon*. Amongst other important contributors to logical, epistemological and methodological aspects of the critical tradition we can selectively list: philosophers and scientists such as Descartes, Bacon, Galileo, Newton, Whewell and Mill; inductivists from Hume to Reichenbach and Carnap; the growing legion of Bayesians who, on various interpretations of the probability calculus, devise Bayesian theories of confirmation and decision; the anti-inductivists and anti-Bayesians such as Popper, Lakatos and Kuhn; the host of statisticians who have developed principles of statistical inference and experimental techniques to accompany them, such as double- and triple-blind experiments. Our second-order critical tradition has not been static; it was not given once and for all. Instead it has historically evolved, developing novel ways in which scientific reasoning can be carried out, such as the reforms suggested in R. A. Fisher's statistical analysis of experimental design (Fisher (1926)).

We are familiar with many first-order traditions. For example, few societies lack a theory about dreams. Our earliest western records begin with theories found in Homer and criticised in Aristotle; and the twentieth century begins with rival theories such as those of Freud and Jung and ends with theories quite opposed to the psychoanalytic tradition such as those of Francis Crick and Allan Hobson.¹ Again there are theories of motion from Aristotle to Einstein. And so on. Perhaps less familiar are the theories of our second-order tradition mentioned in the previous paragraph. Popper suggests two such theories, his own critical and revolutionary model in which theories replace one another through falsification, and a cumulative model in which science arises from the steady accretion of observational facts. True to the critical tradition of which he is a member, Popper proceeds to criticise the second and argue for the first. Just as there is a long history of theories within the first-order tradition many of which rival or complement one another, so there is a long history of theories of scientific method, or of scientific rationality, in the second-order tradition some of which rival one another, and others of which complement one another.

1.1.2 Values, Rules and Principles of the Critical Tradition

In general we can say that the critical tradition embodies a number of theories of method. These contain principles of method, each principle containing either a value (goal, aim or prized end) that our first order theories ought to realise, or rules which are categorical imperatives telling us what to do concerning theory choice, or hypothetical imperatives telling us what to do in order to realise some value. Sometimes the principles of the second-order tradition may be explicitly set out and followed (as in the case of Descartes or

Rescuing Reason

A Critique of Anti-Rationalist Views of Science and
Knowledge

Nola, R.

2003, XI, 559 p., Hardcover

ISBN: 978-1-4020-1042-2