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Karl R. Popper  
Knowledge and the Body-Mind Problem  
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Karl R. Popper  
The Myth of the Framework  
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Intellectual reputations are changeable. Thinkers who are revered during their lifetimes are often forgotten afterwards. In the late sixteenth century the French philosopher Peter Ramus was widely acclaimed as the greatest logician since Aristotle, and most Victorians regarded the polymathic Herbert Spencer as the prime genius of their age. But now these two are now quite unread, and appear only as footnotes in historical surveys.

During his lifetime Sir Karl Popper was as revered it is possible for a philosopher to be. In addition to his many academic accolades, he was knighted in 1965 and made a Companion of Honour in 1982. He had the rare distinction of election as a Fellow both to the Royal Society and the British Academy. However, there is room to doubt that this standing will long outlast him. Indeed, it is already becoming difficult to understand exactly how Popper acquired his renown.

In large part Popper's eminence as a public figure stems from his political works, The Open Society and its Enemies (1945) and The Poverty of Historicism (1957). These were passionate defences of social democracy against the twin threats of fascism and communism. For all the virtues of social democracy, it is not often associated with passion, and many middle-of-the-roaders in the Butskellite years found Popper's fervour a welcome source of excitement. Even so, few of his supporters would argue that his political writings alone justify the stature of a major philosopher. If they are important, it is because they express the political credo of a philosopher of science who has shown us a new way to think about the relation between theory and reality.

In The Logic of Scientific Discovery (1957, originally Logik der Forschung, 1934), Conjectures and Refutations (1963), and Objective Knowledge (1972), Popper develops an analysis of science which breaks radically with previous views. If this analysis were right, it would have significant implications for most aspects of our intellectual life. Unfortunately, it does not stand up to examination.

Popper's philosophy of science centres on his rejection of inductive reasoning. This is the kind of reasoning by which we judge that some hitherto observed pattern will continue to hold good in the future. Popper objects that all such inferences are logically flawed, since nothing guarantees that the future will be like the past. Moreover, he argues that inductive reasoning is discredited by the history of science, since the characteristic fate of scientific theories, from Ptolemy to Newton, has been failure.

For Popper, these failures of induction do not demean science itself. This is because he views science as an essentially conjectural activity. On the conventional view of science, theories are derived inductively from past observations. Popper turns this conventional view of science on its head. Rather than starting with past observations, scientists first propose their theories as conjectures, and then try to test them against experience. If the theories pass these tests, they survive as conjectures. But if they fail, they must be rejected, and replaced by new conjectures.

At first blush, this vision of science can seem attractive. Popperian science is dynamic, yet free from any taint of induction. However, there is an obvious flaw. Popper's falsificationist strategy of conjectures and refutations can only deliver negative knowledge. It shows certain scientific theories are false, but it never shows that any theory is true.

Popper is driven to this denial of positive scientific knowledge by his rejection of induction. But the denial is hard to take seriously. Nobody properly acquainted with the evidence doubts that cigarettes cause lung cancer, or that matter is made of atoms. Science is a many-sided institution, and not all its deliverances deserve equal respect. But something is wrong with a philosophy that tells us that science can never yield any positive findings.

In retrospect, Popper's falsificationism can be seen as an over-reaction to the demise of classical physics at the turn of this century. The replacement of Newton's physics by Einstein's was a great surprise, and showed that the evidence underpinning the classical edifice was far less firm than everybody had supposed. Popper's mistake, however, was to condemn all inductive reasoning for this failure. Maybe inductive evidence will never suffice to lay bare the large-scale structure of space-time, or the other fundamental secrets of the cosmos. But this does not mean that it can never identify such more mundane facts as that cigarettes cause cancer.

It is true that induction presents an abstract philosophical puzzle. Inductive inferences are not logically compelling, and because of this their ultimate authority is an issue of philosophical controversy. But this is a puzzle, not the start of a philosophical system. It is akin to the question "How do I know there is a table in front of me?" This is a good issue for first-year philosophy students to cut their teeth on. But outside the classroom nobody seriously doubts that we do know about tables, and it is just as unserious for Popper to doubt that we know that smoking causes cancer.

It is sometimes said that even if Popper is wrong about induction, he still does a good job of "demarcating" the difference between science and non-science. Popper's answer to this "problem of demarcation" is that proper sciences, unlike "pseudo-sciences" such as astrology or phrenology, are distinguished by their falsifiability. They are precisely enough formulated to yield definite predictions against which they can be tested.

However, this "problem of demarcation" is not a genuine problem, but entirely of Popper's own making. The real difference between the atomic theory of matter, say, and astrology, is that the atomic theory is firmly established by a large amount of

evidence, whereas astrology is mere speculation. This is what most non-philosophers would say, and they would be quite right. But Popper cannot say this, because he thinks that inductive evidence is impotent. So he is forced to regard the atomic theory as no less speculative than astrology, and is stuck with the non-problem of explaining why some speculations are better than others.

Despite these manifest failings, Popper's falsificationism is popular among practising scientists. The reason is probably that Popper's story best fits science at the cutting edge of research. Most new ideas at the limits of knowledge do start life as pure speculations, and it is true that they are distinguished from the musings of madmen only by the precision which allows them to yield definite predictions. By focusing exclusively on this aspect of science, Popper creates the impression that all scientists, however workaday, are creative visionaries with minds of steel.

But speculative research is not the only kind of science, or even the most important kind. There would be no point to science unless its conjectures sometimes acquired enough inductive evidence to graduate to the status of established truths. This is the real reason for testing hypotheses against predictions. The aim is not to falsify them, but to identify those that can be turned into the kind of positive knowledge that enables us to build bridges and treat diseases.

Scientists who follow Popper in emphasising speculation over evidence are like architects who admire the aesthetic use of new materials, but don't care if the building leaks. We can see why they find innovation exciting. But they have lost their intellectual moorings if they think that originality for its own sake is the point of their profession.

None of these criticisms of Popper's philosophy of science are new. They have been well-known among professional philosophers for over half a century. However, Popper has never given straight answers to the objections. Instead he reassures his readers of the importance of his views, while throwing up various smokescreens to hide their deficiencies.

One of Popper's strategies is to use words in a way which make his views seem far more sensible than they are. The Australian philosopher David Stove has pointed out ([Popper and After](#), reviewed in the TLS, July 1 1983) that Popper characteristically talks about scientific "knowledge", "discovery" and "progress", even though his views imply there are no such things. In the normal sense of these words, we can only know or discover what we have reason to believe is true. Popper's official doctrine is that we never have any reason to believe that any scientific theory is true, but his non-standard usage often serves to obscure this from the less than fully attentive reader.

Another ploy is to refuse to engage with his critics. Throughout his career Popper belittled other professional philosophers for their finicky concern with definitions. He was certainly right to condemn much modern academic philosophy for its scholastic introspection. But modern philosophy is not all bad, and in particular its criticisms of Popper deserve answers. One unfortunate result of Popper's self-imposed intellectual quarantine is that the tradition in philosophy of

science that he founded is slowly having to relearn many of the basic philosophical truths that were omitted from its curriculum.

When Popper does offer arguments, they are not always strong. One of his objections to inductive reasoning is that it militates against bold theories of wide scope, since a wide-ranging theory is harder to confirm inductively than a more cautious and limited one. This argument has often been repeated, even though it did not take his opponents long to respond that it mixes chalk with cheese. Boldness and inductive confirmation are both important desiderata, and the fact they pull against each other is not a good reason for discarding the one for the other.

Another favourite Popperian argument against induction reasoning is that it focuses on support for subjective psychological states like belief, and so is of no importance to the objective realm of scientific methodology. But once more the repetition of this argument owes more to Popper's personality than to reason. It is true that beliefs are subjective states, but questions about which beliefs ought to be held are as objective as any other normative questions.

Towards the end of his career Popper inflated this jibe about the subjectivity of beliefs into an overarching metaphysical system. He postulated an interlinked universe of three worlds: the world of physics, the world of subjective psychological states, and the objective world of knowledge, theories, arguments, and problems. These three worlds are quite distinct, in that none reduces to any other, but at the same time each can influence the others.

Knowledge and the Body-Mind Problem is largely concerned with this system of worlds. The book is a version of a lecture series delivered by Popper at Emory University in 1969, complete with a transcript of a question-and-answer session from the end of each lecture. If the transcripts are a fair sample, Popper's non-specialist audience let him off lightly. Even Popper's own followers regarded his three worlds as cranky. The discussion in this volume betrays some of the effects of his intellectual isolation. He does not seem to understand the workings of alternative views, and the arguments he gives in favour of the three-world system could be countered by any well-trained philosophy undergraduate.

Both of the books under review are derived from the archive of Popper's papers now held at Stanford University. The Myth of the Framework is a more substantial volume, gathering together nine essays, mostly first published in the 1970s and 80s. In the course of these essays, Popper touches on a number of topics, and his comments on biology, the social sciences and the history of philosophy are worth having. Most of these essays are not easily accessible in their original places of publication, and it is a service to have them gathered in one volume.

The overall impression created by this volume, however, is not entirely pleasing. A constant theme running through these papers is the importance of free discussion and open-mindedness. Popper is of course right to emphasize these matters. But he is wrong to suggest that they are the special property of his falsificationism. Those who oppose Popper by seeking positive truths in science have just as much reason, if not more, to insist on the importance of critical discussion, and

Popper has no basis for his accusation that these opponents are all dogmatic authoritarians.

The survival of critical standards in the modern academy is by no means assured, and the fight to preserve them needs every support. It does not help the defence of these standards if their most prominent twentieth-century proponent failed to uphold them in his own intellectual practice. Popper preached the importance of open debate and recognition of error, but throughout his intellectual career he fought to insulate a discredited idea against any possible criticism. Perhaps it would be best now if we remember what Popper preached, and lay the rest of his doctrines quietly to rest.