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Bent for philosophy

H. C. Longuet-Higgins

Mind from Matter? An Essay on Evolutionary Epistemology. By Max Delbrück. Edited by Gunther S. Stent *et al.* *Blackwell Scientific: 1986. Pp.290. Hbk £29.50, \$29.95; pbk £14.80, \$14.95.*

MAX Delbrück was one of the very few physicists who have ever really made good in biology. A not unusual pattern is for an eminent physicist to distil into a public lecture or a slim volume his or her philosophical reflections on the nature of life and then to rest on his Laureate, leaving younger scientists to fill in the essential details. Fortunately for molecular biology, Delbrück never achieved great distinction in theoretical physics, and wisely decided, in the mid 1930s, to devote himself to the study of bacterial viruses and, later, bacterial resistance to virus infection. In 1969, with Luria and Hershey, he won the Nobel Prize in Medicine or Physiology. But all his life Delbrück was an earnest philosopher of science, having sat as a young man at the feet of Niels Bohr and heard him discourse upon the principle of complementarity and how it might apply to living organisms. Delbrück's 1949 essay *A Physicist Looks at Biology* was his first — somewhat baffling — contribution to the philosophy of science; his posthumous book *Mind from Matter?* he epitomized as "an investigation into human cognitive capabilities, as expressed in various sciences".

Mind from Matter? is a labour of love by a number of Delbrück's friends — most notably Gunther Stent, whose introduction to the book is a model of clarity and insight. Stent evidently shares Delbrück's perplexities about the relations between life and non-life, mind and matter, and appearance and reality, and this makes it possible for him to act as a sympathetic interpreter and expositor of Delbrück's often difficult ideas. As he explains, the book originated as a course of lectures at Caltech on "evolutionary epistemology" — a phrase strongly reminiscent of Jean Piaget's "genetic epistemology", which Delbrück freely acknowledges as a major philosophical influence. Unfortunately, Delbrück's declining health did not permit him to do more than publish a couple of articles summarizing the lectures; the present volume is consequently a heavily restored mosaic of Delbrück's notes and the lectures he based on them, recorded and interpreted by his students and colleagues. It would obviously be ungenerous to criticize too sharply the outcome of their unselfish endeavours.

Delbrück's message is not easy to capture in a few sentences, because the book ends by declaring its own title to be

absurd, claiming with no obvious justification that "if we can learn to accept this ultimate absurdity, there may yet be hope for developing a formal approach that will permit a grand synthesis". But it is better to travel hopefully than to arrive, and *Mind from Matter?* supplies much intellectual refreshment along the road. The first half-dozen or so chapters present a matter-of-fact, almost tedious account of cosmic evolution, the origin of life and the ascent of man. Then there is a subtle change of perspective and we find ourselves looking at perceptual and cognitive psychology *from the inside*. In discussing the acquisition of fundamental physical concepts Delbrück leans heavily on the writings of Piaget, and reveals him in his true colours as a philosopher of mind rather than a mere developmental psychologist.

There follows a set of chapters on pure mathematics and the paradoxes which gave birth to modern mathematical logic. Delbrück makes the interesting proposal that our mathematics inevitably suffers from the same limitations as our own minds when we attempt to describe those parts of reality which lie too far outside our day-to-day experience. Delbrück obviously enjoyed airing his wide knowledge of number theory and quantum theory, but all too often the intellectual virtuosity of the book obscures its main theme. Relativity is used as a text for the unreliability of naive physics; quantum theory as a warning against attaching too much objectivity to the outcome of a measurement. The chapter on "the cartesian cut" argues cogently that many of our most acute philosophical problems arise from the misguided attempt to erect a barrier between subjective and objective reality: "Is there not but one reality: the act of seeing what our language makes us call an 'object'?"

Unfortunately the chapter on language is something of a disappointment when it arrives; it is largely taken up, in fact, with a cursory account of artificial intelligence. Perhaps Delbrück felt that AI raises philosophical issues which he hadn't yet had time to think about, but must nevertheless be raised in any serious discussion of the nature of mind.

What the professional philosophers will make of *Mind from Matter?* remains to be seen, but at least it should be required reading for students of the philosophy of science, who so often pronounce on the notions that inform scientific enquiry without acquainting themselves with the considered philosophical positions of real scientists. Max Delbrück may not have been a great philosopher, but he certainly knew his trade as a scientist. □

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