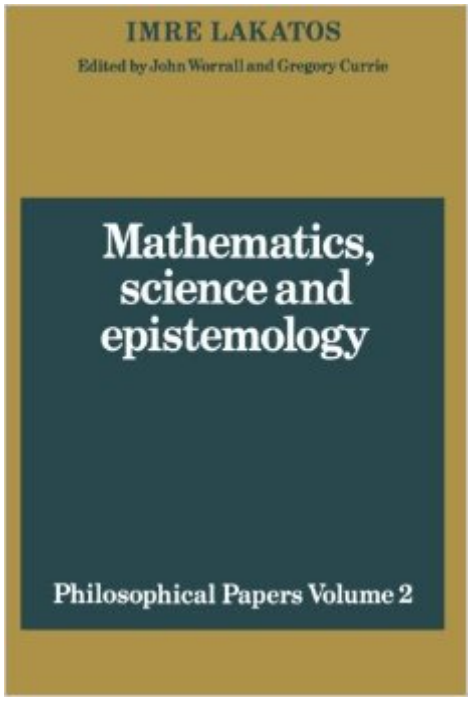
Mathematics, Science And Epistemology: Volume 2, Philosophical Papers (Philosophical Papers (Cambridge))



Synopsis

Imre Lakatos' philosophical and scientific papers are published here in two volumes. Volume I brings together his very influential but scattered papers on the philosophy of the physical sciences, and includes one important unpublished essay on the effect of Newton's scientific achievement. Volume 2 presents his work on the philosophy of mathematics (much of it unpublished), together with some critical essays on contemporary philosophers of science and some famous polemical writings on political and educational issues.

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Customer Reviews

Imre Lakatos (1922-1974) was a Hungarian philosopher of mathematics and science; the companion volume to this book is The Methodology of Scientific Research Programmes: Volume 1: Philosophical Papers.The Editor's Introduction states, "When Imre Lakatos died in 1974, many friends and colleagues expressed the hope that his unpublished papers would be made available. Some were also interested in seeing his contributions to journals and conference proceedings collected together in a book... we have prepared two volumes of selected papers which we hope will meet these demands. None of the papers published here for the first time was regarded by Lakatos as entirely satisfactory..." Volume 2 contains papers on the philosophy of mathematics, as well as some essays on contemporary philosophers on political and educational matters.He explains, "The Frege-Russell approach aimed to deduce all mathematical truths---with the help of ingenious defintions---from indubitably true logical axioms. It turned out that some of the logical ... axioms

were not only not indubitably true but not even consistent. It turned out that the sophisticated second ... axioms---devised to avoid the known paradoxes---even if true, were not indubitably true (and not even indubitably consistent), and that the crucial evidence for them was that classical mathematics might be EXPLAINED---but certainly not PROVED---by them." (Pg. 30)He states, "So we cannot prove in science; the most we can do, if we are anti-inductive empiricists, is to disprove. If, however, we extend our critical attitude to the facts too...

Foundations of mathematics. The Hilbert--Russell meta-mathematical programmes were meant to establish the infallibility of mathematics by the Euclidean method: "derive all mathematics from trivial logical principles" (p. 12). Although "From the seventeenth to the twentieth century Euclideanism has been on a great retreat" (p. 10), having failed again and again in numerous branches of knowledge, Russell and others had no doubt that mathematics would be different: "Too often it is said that there is no absolute truth ... Of such scepticism mathematics is a perpetual reproof; for its edifice of truths stands unshakeable ... to all the weapons of doubting cynicism" (p. 14). "We all know how the brief Euclidean 'honeymoon' gave place to 'intellectual sorrow', how the intended logico-trivialization of mathematics degenerated into a sophisticated system, including 'axioms' like that of reducibility, infinity, choice, and also ramified type theory---of on the most complicated conceptual labyrinths a human mind ever invented. ... There even emerged the completely un-Euclidean need for a consistency proof to ensure that the 'trivially true axioms' should not contradict one another. All this and what followed must strike any student of the seventeenth century as a dÃ©jÃ vu: proof had to give way to explanation, ... Euclidean theory to empiricist theory. We also encounter the same refusal to accept the dramatic change", e.g. "Like Newton hoping to explain the Law of Gravitation by principles of Cartesian push-mechanics, Russell hoped for the trivialization of the reducibility axiom" (p. 14). But eventually Russell admitted defeat: "When pure mathematics is organized as a deductive system ...

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