obituary

I. Lakatos

IMRE LAKATOS, Professor of Logic at the London School of Economics, was born in Hungary in 1922 and died suddenly in London on February 2, 1974. He was a forceful and original thinker, with an equally forceful and original personality. His chief contributions lay in the philosophy and history of mathematics and of the physical sciences. To those who found the combination of philosophy with history a strange one, Lakatos replied (paraphrasing Kant), "Philosophy of science without history of science is empty; history of science without philosophy of science is blind".

Most people think that the history of mathematics, while a legitimate object of curiosity, is not essential to the understanding or philosophical evaluation of mathematics itself. In mathematics, they say, we begin with axioms and definitions, and prove theorems from them. But Lakatos asked how the axioms and definitions came to be proposed, and how the proofs came to be discovered. Answering these questions led him into the territory of mathematical discovery or mathematical heuristics. It is a strange territory, where theorems get proved and then refuted, where the theorem and its proof get elaborated to deal with the refutation, refuted again, and once more elaborated, until in the end something like an axiomatic theory emerges. Lakatos's brilliant 'Proofs and Refutations' (*Br. J. Phil. Sci.*, 1963) is a case study of this process. Its dialogue form is no accident, for according to Lakatos, mathematical discovery is brought about, essentially, by critical debate. The dialogue sparkles, and comes nearer than any of Lakatos's writings to capturing the unique style of the man.

Working mathematicians who, after all, inhabit these regions may find Lakatos's topography of them familiar. And yet the mathematics student is still confronted with long and complicated 'definitions', which may be the end product of centuries of trial and error, and expected to understand them without knowing their history. All he can do in this situation is memorise the definitions parrot fashion. The implications of Lakatos's work for the teaching of mathematics have yet to be explored.

Philosophers of mathematics have a different reaction to Lakatos's work. They insist that what he describes is only the murky preamble to the placing of mathematical results on a firm, rigorous and certain foundation. They see nothing in it to alter their view, held since Plato, that mathematics is the repository of absolutely certain knowledge. In another important paper, 'Infinite Regress and the Foundations of Mathematics', (*Aristotelian Soc., supplementary volume,* 1962) Lakatos examined the most recent attempts to provide secure foundations for mathematical theories (Frege, Russell and Hilbert). He showed that all these failed, but failed gloriously: their so-called 'foundations of mathematics' actually turned out to be new and exciting mathematical theories (mathematical logic, set theory, and recursive function theory, respectively).

Much of this carries over to Lakatos's more recent work in the philosophy and history of the physical sciences. Here, of course, Lakatos was heir to the critical philosophy of science of Sir Karl Popper. (Indeed, his philosophy of mathematics is in some respects an extension of Popper's views to mathematics, an extension which Popper himself never made but later welcomed.) Lakatos developed Popper's philosophy of science in two directions. One was the emphasis upon the importance of history for the rational evaluation of scientific theories. He insisted, against the dominant view in this field, that scientific contributions cannot be appraised independently of the historical development which produced them. His second main interest was in whether a critical philosophy of science, which eschews any firm foundations for scientific knowledge, can avoid scepticism and irrationalism. His 'methodology of scientific research programmes' was an attempt to show that it can. In it, he was sharply critical of both the irrationalist tendencies he detected in recent writers (notably Thomas Kuhn) and of some features of Popper's own views.

Like all original work, Lakatos's work raised more questions than it answered. He still had much to teach us about these questions, for he died at the height of his powers. All that remains is to hope that his unpublished work, which is considerable, will appear, and that the students he inspired will continue the 'research programme' which he initiated.

Announcements

Awards

Graham Higman has been awarded the **De Morgan Medal** and **Paul M. Cohn** the **Senior Berwick Prize** of the **London Mathematical Society** (corrected announcement).

Cecil A. Hoare has been awarded the **Manson Medal** and **Alister Voller** the **Chalmers Medal** of the **Royal Society of Tropical Medicine and Hygiene.**

Appointments

David Robinson has been appointed Professor of Food Science at the University of Leeds.

R. E. Cotton, B. D. Edwards, J. A. Scott and **G. K. Williamson** have been awarded Special Professorships at the University of Nottingham.

Erratum

In the article "Aftershocks caused by the Novaya Zemlya explosion on October 27, 1973" by Hans Israelson, Ragnar Slunga and Ola Dahlman (*Nature*, **247**, 450; 1974) the distance scale in Fig. 1 should read 500 km. See also *Nature*, **248**, 712; 1974.

International meetings

September 30–October 2, **1st Annual Philadelphia Symposium on Ageing** (Dr Richard C. Adelman, Fels Research Institute, 3420 North Broad Street, Philadelphia, Pennsylvania 19140).

October 1–4, **2nd International Colloquium on the Exploitation of the Oceans** (Association pour l'Organisation de Colloques Océanologiques à Bordeaux, B.P. No. 315–16, 75767 Paris, Cedex 16, France).

October 3–9, **14th International Congress of Pediatrics** (Sr Secretario General, XIV Congreso Internacional de Pediatria, Casilla de Correo 3177, Buenos Aires, Argentina).

October 7–14, **1st International Colloquium on Physical and Chemical Information Transfer and Regulation of Reproduction and Ageing** (Dr J. G.