PRESENTATION

Imre Lakatos was born in Debrecen, Hungary, on 9 November 1922[1], and he died in London on 2 February 1974. He is one of the classics in philosophy and methodology of science. His contribution to the field started after his arrival at Cambridge in 1956, and his work can be divided in two periods: the initial stage, devoted to the philosophy of mathematics (especially linked to the problem of proofs and refutations), and the posterior phase, which deals with the general methodology of science, better known as the "methodology of scientific research programmes". A separation between both periods could be drawn in 1965, when Lakatos organised the famous London Conference with K. Popper and Th. S. Kuhn[2]. From that year on he manifested a growing interest in a general approach to science within a historical setting.

The continuity and discontinuity between the two periods of Lakatos's thought is a key issue and one which has been addressed recently by John Worrall[3]. Before Lakatos started his Ph. D. -entitled *Essays in the Logic of Mathematical Discovery* and presented in 1961-, he had a Hegelian-Marxist background, which led him to put the emphasis on historicity. During his years working on philosophy of mathematics, he became Popperian in certain epistemological and methodological views, especially regarding the fallibilism of scientific knowledge and the role of refutations. Later on, he turned towards an increasing criticism of Popper's approach to science. Then Lakatos made his previous views on the historical character of human knowledge explicit, and showed some similiarities with Kuhn's conception of science. Thus, he offered the new methodology of scientific research programmes (MSRP), which maintained the Popperian heritage of the need of objectivity in science and defended the historicity of scientific change in connection with the "historical turn" which Kuhn started.

Now, more than 25 years after his death, it is time to evaluate his views. The perspective of time gives us a clear picture of his contributions to philosophy and methodology of science: this is the fundamental aim of this monographic issue on "Lakatos's philosophy today". On the one hand, this volume seeks to clarify some of his central tenets in epistemology and methodology; and, on the other, it offers an evaluation of some of his main theses, taking into account the contributions made in the last decades. Usually, the volume pays more attention to the second period, devoted to the MSRP. In fact, several papers have dealt with central questions which have

arisen within that intellectual phase: the novelty of facts, rational recon-
structions, epistemic aspirations, and role of predictions. In addition, an-
other paper studies his philosophy of mathematics in a new setting. Even
though these essays do not cover all the relevant aspects of how Lakatos's
philosophy is seen today, it is clear that they do offer important elements.
The aim of this monographic issue of *Theoria* is, of course, limited by the
length of this section of the Journal.

Here the order of the papers follows the criterion of closeness to Laka-
tos, "closeness" being understood, not in the sense of intellectual depend-
ence, but rather as a more personal relationship. Thus, the first paper, enti-
tled "The interdependence of the Core, the Heuristic and the Novelty of
Facts in Lakatos's MSRP", is written by Elie Zahar, who was at the London
School of Economics for many years since Lakatos's times and now works
at the University of Cambridge. Zahar wrote an important paper with
Imre[4], published short after his death, and edited with John Worrall *Proofs
and Refutations*[5]. The second essay -"Dynamic Interactions with the Phi-
losophy of Mathematics"- is by Donald Gillies, who completed his Ph. D.
on the foundations of probability with Professor Imre Lakatos as supervi-
sor. Gillies, who was the editor of the *British Journal for the Philosophy of
Science* from 1982 to 1985, publishes here with the Chinese professor Yuxin
Zheng. The third paper belongs to Peter Machamer, who was the director
of the Department of History and Philosophy of Science at the University
of Pittsburgh for 13 years. Machamer, who met our author at the LSE and
appears several times in the Lakatos-Feyerabend correspondence[6], is as-
sisted by Francesca Di Poppa. The fourth paper is written by Jarret Leplin,
who shares some important points with Larry Laudan regarding the phi-
losophy and methodology of science[7]. Finally, my essay has received di-
rect influence from J. Worrall and it is complementary to the paper which
I recently published in a book in honour of Imre Lakatos[8].

Elie Zahar develops the interdependence of three key components in
Lakatos's MSRP: the hard core, the heuristic and the novelty of facts. He
tries to explain why Lakatos's conventionalist view must be replaced by a
phenomenological conception of the empirical basis. For Zahar, this is the
way to make sense of the theses that the hard core of an research pro-
gramme can be shielded against refutations; that this *metaphysical* hard
core can be turned into a set of guidelines or, alternatively, into a set of
heuristic metaprinciples governing the development of a research pro-
gramme; and that a distinction can legitimately be made between novel
predictions and facts to which a theory might have been adjusted *post hoc.*

Finally, he examines two basic metaprinciples: the (conservative) Correspondence Principle and various (revolutionary) symmetry requirements. For him, both of these heuristic devices illustrate the fundamental role which, according to Lakatos, mathematics plays in the progress of empirical science.

Donald Gillies and Yuxin Zheng work on Lakatos's ways of analysing the growth of knowledge -particularly in mathematics and science-. Their paper tries to formulate a concept, that of *dynamic interaction*, which they believe is a commonly occurring pattern in the development of ideas and the growth of knowledge. They consider that the concept of "dynamic interaction" could be used for the study of many examples of the growth of mathematics and science. In the paper they apply it to the development of philosophy of mathematics, which, according to them, has involved significant interactions in the twentieth century with two other fields: philosophy of science and computer science. The first of these interactions establishes another link with Imre Lakatos whom they characterise as being the first significant thinker to apply ideas from the philosophy of science to the philosophy of mathematics.

Peter Machamer and Francesca Di Poppa focus their paper on a central element of Lakatos's thought in the second period: the rational reconstructions. They hold that Imre Lakatos' idea that history of science without philosophy of science is blind still survives scrutiny today, even though his theory of the methodology of scientific research programmes does not. They argue that the latter theory captures neither rationality in science nor the sense in which history must be told in a rational fashion. Nonetheless, they do agree that Lakatos was right in insisting that the discipline of history consists of written rational reconstructions. One way of writing history of science is to present how and why scientific practice was rational. But, they maintain that this is not the only way since historians of science may have many purposes in writing their texts.

Jarret Leplin deals with the problem of epistemic aspirations. The starting point is that Imre Lakatos argued that a theory of scientific method must be empirical, and therefore self-applicable; thus, the standards it imposes on scientific theories must be ones it satisfies itself. But he considers that, in relying on this standard of self-referential consistency to protect his theory from criticism, Lakatos becomes vulnerable to relativism. For Leplin, the author of the MSRP escapes from relativism by hypothesizing that scientific changes which are methodologically progressive according to his theory are also epistemically progressive. The ques-

tion is whether Lakatos's theory of method has the resources to warrant this hypothesis. Leplin constructs a line of argument logically open to the MSRP, and use what he sees as its inevitable failure to show that Lakatos's epistemic aspirations depend on precepts of method that he has wrongly rejected.

My essay analyses a pivotal tenet in Lakatos: his approach to prediction and novel facts. Prediction appears in his conception at three different levels: a) as an important aim of the research programs; b) as a procedure -a key method- for increasing our scientific knowledge both theoretically and empirically; and c) as a standard for assessing the scientific character of knowledge claims -a means for evaluating results-. At all these levels he envisages a close connection between prediction and novel facts. The paper has four aims. Firstly, to examine his concept of "prediction" in Lakatos's MSRP, taking into account different aspects (semantical, logical, epistemological, methodological and axiological). Secondly, to clarify the notion of "novel facts", which requires the consideration of the various ways in which *new facts* can be understood. Thirdly, to examine the prediction of novel facts as *criterion of appraisal* (theoretical, empirical and heuristical). Fourth, to explore Lakatos's approach (i.e., the concept of prediction linked to novel facts) in connection with the field of *economics*, in order to shed new light on issues that have been discussed in recent years.

These papers give an updated picture of Lakatos's philosophy. On the one hand, the essays emphasize his main insights both in philosophy of mathematics and in general philosophy and methodology of science, while, on the other, the articles of this monographic issue frequently contain criticisms of his conception. And this reflects the present situation of his thought: Lakatos is a classic whose views are seriously considered but very often are not used, because the criticisms are usually stronger than the points of acceptance. The general perception of his thought tends to see him as a step forward in comparison with Popper and Kuhn, but certainly not the "last word", because the philosophy and methodology of science has been very active during the 25 years since his death, and we have been continuously revising the main claims of the most influential authors.

Finally, I would like to express my gratitude to Elie G. Zahar (Cambridge University), Donald Gillies (King's College London) and Yuxin Zheng (Nanjing University), Peter Machamer and Francesca Di Poppa (University of Pittsburgh), and Jarret Leplin (University of North Carolina at Greensboro) for their contributions to this volume.

Notes

1 His real family name was Lipsitz, because he was the only child of Jacob Márton Lipsitz y Márgit Herczfeld, cf. Long, J.: 1998, 'Lakatos in Hungary', *Philosophy of the Social Sciences* 28/2, 248-249.

2 Some of the better known papers are in Lakatos, I. and Musgrave, A. (eds): 1970, *Criticism and the Growth of Knowledge*, Cambridge, Cambridge University Press.

3 Cf. Worrall, J.: 2001, 'De la Matemática a la Ciencia: Continuidad y discontinuidad en el Pensamiento de Imre Lakatos', in Gonzalez, W. J. (ed): *La Filosofía de Imre Lakatos: Evaluación de sus propuestas*, Madrid, UNED, pp. 107-128.

4 Cf. Lakatos, I. and Zahar, E. G.: 1976, 'Why Copernicus's Programme superseded Ptolemy's', in Westman, R. (ed): *The Copernican Achievement*, Los Angeles, University of California Press, pp. 354-383. Reprinted in Lakatos, I.: 1978, *The Methodology of Scientific Research Programmes, Philosopical Papers, vol. 1*, Cambridge, Cambridge University Press, pp. 168-192.

5 Lakatos, I.: 1976, *Proofs and Refutations. The Logic of Mathematical Discovery*, edited by J. Worrall and E. Zahar, Cambridge, Cambridge University Press.

6 Cf. Lakatos, I. and Feyerabend, P. K.: 1999, *For and Against Method*, edited by Matteo Motterlini, Chicago, University of Chicago Press, pp. 335, 345, 347, 348n and 363.

7 Cf. Laudan, L., Donovan, A., Laudan, R., Barker, P., Brown, H., Leplin, J., Thagard, P., and Wykstra, S.: 1986, 'Scientific Change: Philosophical Models and Historical Research', *Synthese* 69/2, 141-223; Laudan, L. and Leplin, J.: 1991, 'Empirical Equivalence and Underdetermination', *Journal of Philosophy* 88/9, 449-473; and Laudan, L. and Leplin, J.: 1993, 'Determination Underdeterred', *Analysis* 53/1, 8-16.

8 Cf. Gonzalez, W. J.: 2001, 'La Filosofía de I. Lakatos, 25 años después: Del 'giro histórico' a la incidencia metodológica en Economía', in Gonzalez, W. J. (ed): *La Filosofía de Imre Lakatos: Evaluación de sus propuestas*, pp. 13-103.

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