

# Anti-Totalitarian Research Programs and Their Tacit Components

Gábor Palló

In 1976, two years after Imre Lakatos, early death, a paper he had written with Elie Zahar on the Copernican revolution was published. Lakatos contrasted his views on the philosophy of science to among others, those of Michael Polanyi[1]. Since Polányi, in his famous book, *Personal Knowledge*, also gave an account on the Copernicus case[2], by comparing these two texts we can perhaps better understand the profundity of the disagreement between these philosophers of science.

Imre Lakatos, in an other piece, accused Polányi of swinging „towards conservative authoritarianism”[3]. This accusation could be very relevant, if we consider that the principal goal of the philosophies of both Lakatos and Polányi was to make a clear distinction between the Stalinist and a Western type, liberal philosophy of science. They were upset by the 1939 case in the Soviet Union, when the scientific debate in genetics between Vavilov and Lysenko was decided by a Communist party declaration based on some philosophical presuppositions. Polányi wanted to make these presuppositions explicit and contrast them with his, while Lakatos’s main concern was to demarcate between science and pseudoscience on the basis of rational rules, in order to prevent any non-scientific establishment from deciding in scientific matters[4].

Their goals showed significant parallelism, but their conclusions deviated from each other, as their interpretations of the Copernican case demonstrates.

According to Michael Polányi the basic question is this: „Why did Copernicus exchange his actual terrestrial situation for an imaginary solar standpoint?” (p. [2] 3) In Polányi’s views, the positivist approach, which was looking for the answer in experimental fields does not apply. The story is related to two old traditions, which fought against each other in the history of science. The first one, the Pythagorean tradition interpreted the universe „Exclusively in terms of numbers”. (p. [2] 6.) This way, it started a tradition, which relied more on theoretical thinking than on observation of material elements. In contrast, the second tradition, originating from the Ionians, which described „the universe in terms of certain material elements (fire, air, water, etc.)”. (p. [2] 6.) Copernicus left this more victorious second one, and returned to the Pythagorean tradition when he changed to the solar position.

Polányi pointed out that, in fact, Copernicus gave preference to the abstract theoretical standpoint instead of the much more obvious one, which puts the earth into the center of the universe and accepts the everyday experience of the rising and setting sun and moon. Polányi explains Copernicus’ act not by new observational evidence but by „the greater intellectual satisfaction he [Copernicus] derived from the celestial panorama as seen from the sun instead of the earth.”. (p. [2] 3.) Polányi did not attribute Copernicus’ decision to a personal taste. He thought that, in essence, Copernicus’ choice can be explained by three principal advantages.

The first one is objectivity, in the sense that theory is independent of personal traits, situations or illusions. The second is rationality, which means that theory is based on and contains rules to be followed by other researchers. The third factor is perhaps the most important. It states that Copernicus' theory „went far beyond its inherent rationality. It was to speak to Keple (sixty years after the death of Copernicus)”, (p. 5.) and, some more decades later, to Galileo and to Newton. How did this communication over time go? Through commitment, according to Polányi. „Those who wholeheartedly embraced the Copernican system at an early stage committed themselves thereby to the expectation of an indefinite range of possible future confirmations of the theory, and this expectation was essential to their belief in the superior rationality and objective validity of the system”. (p. [2] 5.)

This belief and the commitment to a tradition are for Polányi the most important elements in becoming a scientist. The student, while accepting the authority of his master, assimilates the conceptual scheme of science, together with the rules of the scientific community, and, through this, even the wider society, which appreciates and reveres pure science. In Polányi's views the only social institution qualified to decide in scientific matters is the scientific community, the „Republic of Science”, as he put it[5]. This way, the Western, liberal philosophy is in principle against Marxist views, which he characterized by three points. (1) There is no pure science, only needs of a given society which should be met. (2) Science must be controlled so that it should not decline to serve its own interests. (3) Scientists themselves must participate in the work of political power to promote the right direction of scientific development. Polányi's philosophy certainly contradicts to these Marxist principles[6].

Imre Lakatos, on the other hand, being unsatisfied with the Popperian demarcation criterium of falsificationism, developed a philosophy based on long term research programs. These programs have hard core scientific statements, which cannot be falsified, because they are protected by a system of ad hoc hypotheses. Research programs are not individual scientific statements but large, complicated theoretical structures. They compete with each other throughout the history of science.

In the Lakatos version of the Copernicus case, „both Ptolemy and Copernicus worked on research programmes ... Both programmes branched off from the Pythagorean-Platonic program, whose basic principle was that since heavenly bodies are perfect, all astronomical phenomena should be saved by a combination of as few uniform circular motions ... as possible.” (p. [1] 180) As the hard core of the program is just this, without any stipulation concerning the center of the circular motion, it could be either on the earth or in the sun. As the Ptolemy theory evolved, it contained more anomalies but did not produce more new predictions. Therefore, it deviated from the Platonic heuristics, which required perfectness, in this case „a single uniform rotation about an axis”. (p. [1] 182.) The Copernican system not only satisfied these requirements better than the Ptolemaic astronomy, but, besides saving the known phenomena, „it also predicted novel facts”, like the phases of Venus, which made the program progressive. (p. [1] 183.)

According to Lakatos, however, there was nothing like a Copernican revolution, because the corroboration of Copernicus' prediction concerning Venus only came up in the frame of an other research program. Galileo and Newton started a completely new program, „the dynamics oriented

physics”, while „the Copernican program was not further developed but rather abandoned by Kepler, Galileo and Newton”. (p. [1] 184.) Therefore, the Copernican system has never been progressive, in the sense that it did not predict new phenomena that could be shown within its own framework. This is most relevant, because in Lakatos‘ philosophy, the value of a program should be measured by its progressive character, on the basis of its heuristics.

What can be told about Marxism in this philosophical framework? First, Marxism should be considered a research program. Then it should be evaluated by its progressive character. As Marxist predictions proved to be false and it could only give post festa explanations to various social and political phenomena, Marxism could not be considered science, just pseudoscience.

This very brief comparison between Polányi‘s and Lakatos‘ philosophy showed important similarities and differences. The similarities were perhaps these. First, the rejection of Marxism in declaration and in philosophical thinking; second, the emphasis on the rational character of scientific theories, though in Polányi‘s argumentation, science is not equal to theories as he included in his argumentation the sociological and psychological factors. Third, both gave an outstanding role in the evaluation of a theory to its predictive power.

The differences might be a bit more interesting. First, Polányi‘s fundamental term, commitment, does not play any part in Lakatos‘ theory. In contrast, Lakatos denied that either Ptolemy or Copernicus „commit themselves to any community based ‘paradigms‘.”(p. [1] 180.) Polányi, on the other hand, did not strive to make demarcation between science and pseudoscience, and certainly could not be satisfied with assigning a pseudoscientific position to Marxism. According to Lakatos in Polányi‘s philosophy, because he was an externalist, the Copernican revolution cannot be considered scientific, but a cultural, sociological, maybe metaphysical change.

But why is it relevant to compare precisely these two anti-Marxist philosophies? Perhaps because of the similarities and differences of the authors‘ social, political background. Both Polányi and Lakatos emigrated from Hungary and settled down in England, where they started a new carrier. Moreover, they both had personal experience with Communism and fled from Hungary after a revolution, for fear of the persecution by the post-revolution authorities.

But they did not belong to the same generation.

Michael Polányi was born in 1891, in the Budapest of the Austro-Hungarian Monarchy. Although his friends were, almost without exception, leftist rebels, Polányi has never in his life (he died in 1976) felt any leftist inclinations. His favourite writers, Dostoevsky and Tolstoy caused a lifelong commitment to the purest morality, and this fact made a most significant mark on his philosophy. After World War I, two revolutions took place in Hungary. The first one was democratic, during which the young Polányi, a physician by training, worked for the Ministry of Health. But right after this, mostly as a result of the devastating Paris peace treaty, the Bela Kun communist regime took over, and Polányi left his post to join the department of practical physics at Budapest University headed by George Hevesy, later Nobel

Laureate. During this short period, 133 days altogether, he learnt what communism, in fact, was. After the suppression of this early communist rule, when Horthy's antidemocratic, right wing regime came to power, Polányi decided to leave for Germany, where he later joined Fritz Haber's Kaiser Wilhelm Institut to become a leading physical chemist. Following the next totalitarian takeover, Nazism, Polányi had to continue his chemist career somewhere else, as it happened in Manchester, Great Britain, where he turned to philosophy in 1948, at the age of 57. Being such a morally sensitive person, Polányi assigned great importance to the 1956 Hungarian revolution, which he regarded the revolt of human dignity, and which whirled Imre Lakatos away from Hungary.

Lakatos, born in 1922, belonged to the next intellectual generation after Polányi. Although the members of his generation inherited from their fathers the striving to be brilliant in an intellectual field, they grew up under non-democratic circumstances. Lakatos, as a young student got involved in the illegal communist movement. He soon got the reputation of being a most fervent type, for which morality meant only helping the party in its fight for power. During World War II, with his comrades, he persuaded a young girl, a member of his group to commit suicide, because she could not find a safe hiding place from the police. After the war, when the communist party began to reshape the Hungarian society, Lakatos took part in the purge of intellectuals, but, in 1950, he also became a victim of the purge and was imprisoned till 1953. After this, an agent of the Stalinist secret police, he had to report even on his close friends. For him, to leave behind all this hell, and begin a new life in Cambridge, then at the London School of Economics, was more than a necessity.

My guess, in conclusion, is that Polányi's high morality, his intended distance from political hassles, his deep commitment to European culture and social, political values on the one hand, and Lakatos' activism and entanglement in the Stalinist political sins, on the other, might explain the difference between their philosophies. Though they established a personal relationship in England and mutually appreciated each other's intellectual achievements, the disagreement between them is conspicuous. Polányi's opposition to Marxism appears more external than that of Lakatos. Moreover, he rejected the exclusive idea of demarcation, the rules of rationality to which everybody must comply, and demanded that science be left to the scientific community. Lakatos' dialectically competing research programs, which are evaluated by their progressive character, with other elements of his philosophy, sound quite familiar to Marxists, though they would disapprove his rejection of any commitment and extra-scientific factors. These and of course many other features of these philosophies may well be related to the difference between the authors' experience. It could be a matter of discussion which one of them was more radical. But this and the other features could only be analyzed in a more detailed study.

---

## Notes

1. I. Lakatos, E.G. Zahar, 'Why did Copernicus's Programme supersede Ptolemy's', in: J. Worrall, G. Currie (eds), *The Methodology of Scientific Research Programmes. Philosophical Papers of Imre Lakatos* Volume 1. (Cambridge, London, New York, Melbourne: Cambridge University Press 1978) pp. 168-192.

2. Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (London: Routledge and Kegan 1958)
  3. Lakatos, 'History of science and its rational reconstructions', *Op. cit.* edition. pp. 130.
  4. Michael Polanyi, *Science, Faith and Society* (Oxford: Oxford University Press) and Lakatos, 'Science and pseudoscience', *op. cit* volume, pp. 1-7.
  5. Michael Polanyi, 'The republic of science: its political and economic theory', *Minerva*, 1961:1, pp. 54-73.
  6. Michael Polányi, 'The growth of thought in society', *Economica*, 1941:8 p. 428-456.
- 

**Polanyiana** Volume 6, Number 2, 1997  
<http://www.kfki.hu/chemonet/polanyi/>  
<http://www.ch.bme.hu/chemonet/polanyi/>

---

[Back to Contents](#)