

HELMUT HEIT

POPPER AND FEYERABEND ON THE PRE-SOCRATICS

"It was in Ionia that the first really rational attempts to describe the nature of the world took place."
(Kirk/Raven/Schofield, 1983: 75)

This paper discusses Karl Popper's and Paul Feyerabend's adoption and interpretation of early Greek philosophy. Popper and the early Feyerabend regard Pre-Socratic philosophy as the origin of a critical tradition and a continuously improving understanding of reality. The later Feyerabend becomes a critic of this position and understands the transition of thought in Ancient Greece as a change between incommensurable world-views and early Greek science as a certain way to conquer the abundance of life. An examination of the commensuration of these contradicting approaches to the Ancient sources sheds light on our understanding of antiquity as well as of philosophy of science.¹

1. Two approaches to demystify the "Greek Miracle"

It is a widely held view that Ancient Greek philosophy is an important historical origin of modern Western science. This idea is found in scholarly work on early Greek thought like the seminal study by Kirk, Raven and Schofield quoted above, as well as in literature far beyond the realm of classical studies. A typical witness for the unquestioned promulgation of this view is Thomas S. Kuhn's side-note "only the civilizations that descend from Hellenic Greece have possessed more than the most rudimentary science" (Kuhn, 1962/69: 168). Scholars in the history and philosophy of science disagree on the question as to what extend modern science is derived from antiquity and what exactly the Greek inheritance is. But many of them share the conviction that an un-

derstanding of Ancient Greek thought can shed some light on the understanding of modern science and vice versa. G. E. R. Lloyd asserted that a main area where

"recent contributions have far-reaching implications for the understanding of the early development of science is the philosophy and sociology of science itself, where the work of Popper, Kuhn, Feyerabend and Lakatos on the demarcation between scientific and other forms of knowledge and on the growth of science has been especially influential" (Lloyd, 1979: 3).

This is especially important because the idea of Greek origins of science relies on a justified distinction between science and other, earlier, and generally understood as inferior modes of thought. If someone wants to defend the claim that the early Greeks invented "science" in a somewhat modern meaning of that term, she or he might want to relate this claim to modern debates about science.

However, only few classicists followed Lloyd's invitation and, consequently, there is not much literature on this topic. On the other hand, two of the most influential philosophers of science of the last century, Popper and Feyerabend, continued to be interested in Ancient Greek philosophy throughout their life. Both wrote early articles on Greek philosophy and both dedicated important parts of their last works to Ancient thought: Popper's *The World of Parmenides* (1998) and Feyerabend's *Conquest of Abundance* (1999). Popper as well as Feyerabend regarded early Greek thought as an important source for illuminating the nature of Western science, but they offered competing and partly contradicting readings of Pre-Socratic thought and of Western science. In spite of the fact that the early Feyerabend shared most of Popper's ideas concerning Ancient thought, the later Feyerabend arrived at interpretations that explicitly contradict Poppers views. Popper saw early Greek philosophy mainly as a first and important step forward in the growth of scientific knowledge. The late Feyerabend described it as a certain way of conquering the abundance of nature. Popper regarded the transition from Homeric myth to pre-Socratic philosophy as the ideal offspring of a critical tradition and as a significant advance in our search for a better understanding of reality. Feyerabend described it as a change of incommensurable world-views and asserted that the search for reality "has also a strong negative component" (Feyerabend, 1999: 5). The exa-

¹ I worked on this paper while I was a visiting scholar at the *University of California, San Diego (UCSD)*. Georgios Anagnostopoulos was my host and I benefitted substantially from our discussions and his generous hospitality. The *German Academic Exchange Service (DAAD)* supported my stay.

mination of these conflicting accounts must confront both of them with the Ancient sources. But the main differences result from their different philosophies of science and from their reasonable trust or distrust in the capacity of science. Therefore these different approaches to early Greek thought are connected to fundamental problems in the philosophy of science.

2. Popper on early Greek thought

The impact of Popper and Feyerabend on professional classicists differs significantly. Especially Poppers *Back to the Pre-Socratics* has been taken serious. First published 1959 in the *Proceedings of the Aristotelian Society*, it was reprinted in Furley/Allen (1970). Geoffrey S. Kirk objected to Popper's views and defended a more inductive-empirical understanding of science and therefore of Pre-Socratic philosophy. In his critique on Popper, he argues that "Popper disguises the fact that science ultimately does start from observation - and thus, though he himself denies this, that it *is* in part inductive" (Kirk, 1960: 157). Kirk asserts, that Thales idea of the earth floating on water was influenced by Near East mythology but «based on experience» and derived by inductive reasoning (Kirk, 1960: 164). On the Popper-Kirk debate see Lloyd (1967), who disagrees with Kirks empiricist approach. Following Lloyd, there were some but very few and basic elements of empirical research in ancient medicine (Lloyd, 1979: 169), which did not influence the Greek philosophers and even "Ptolemy at least shows more confidence in the mathematics of his theory than in its empirical support" (Lloyd, 1979: 200). Even forty years after the first publication of Popper's essay, Keimpe Algra holds it important to refer to this debate, though he gives a balanced summary: the "'Popperian' picture of early Greek cosmology is as hard to defend as its Baconian counterpart" (Algra, 1999: 62).

Popper's rejection of any inductivist understanding of science is not derived from his readings of the Pre-Socratics, but applied to the Ancient sources. As is well known, Popper has more universal reasons to reject the "Baconian myth that all science starts from observation and then slowly and cautiously proceeds to theories" (Popper, 1958: 137). The problem of induction, as David Hume has explicated it, excludes any naïve mode of deriving theories from data by means of inductive

reasoning. Therefore, Popper concludes, we cannot verify but only falsify theories. In his view, science starts with a critical attitude that is open to bold questions and conjectures as well as to rigorous and severe tests and refutations. Following Popper, this is the "one method of all rational discussion, and therefore of the natural sciences as well as of philosophy" (Popper, 1959: 16). Rational or critical discussion serves as the systematic starting-point of scientific discovery as well as its historical beginning in Ancient Greece. Science, as well as philosophy, begins with bold conjectures, and quite often counter-intuitive and counter-observational ones, and proceeds in attempts to refute them. Thales concept of *arche*, or his statement that the earth floats on water like a log, "is in no sense based on observation" (Popper, 1958: 138), though it might be inspired by empirical analogy (which lead to its deficiency). But what is more "important about a theory is its explanatory power, and whether it stands up to criticism and to tests" (Popper, 1958: 140). Popper believes the Ionian cosmologies to do so, therefore he feels justified to speak about early Greek beginnings of "a position, which I propose to call 'critical rationalism': It is a view, an attitude, and a tradition, which we owe to the Greeks" (Popper, 1960: 26).

For Popper, critical rationalism is not merely an intellectual attitude, but a socio-cultural tradition as well. Consequently, he places the Greek achievement into a political framework as well: "The Greeks started for us the great revolution which, it seems, is still in its beginning - the transition from the closed to the open society" (Popper, 1945: 175). The cultural and political transition is an essential element of the intellectual evolution, which apparently took place in antiquity, because, following Popper, a critical or rational tradition is a social feature much more than a personal one. Critical rationalism is a practical relation between theories and not an attitude of individuals.² It must be socially accepted if not expected to challenge established ideas in order to establish critical rationalism.

The philosophic schools of Miletus are held to be the first in history to install a tradition of critical debate and the evidence seems to

² There are many anecdotes circulating which show Karl Popper himself as a person who could not deal with severe criticisms of his ideas very good, but this fact does not refute his theory.

support Popper: After Thales proposed his material principle, water, Anaximander, probably a student of Thales, said, not water but the boundless (*apeiron*) is the substance, because the *arche* has to be immaterial. His follower, Anaximenes, added an account of change and said that the primary substance is air. Therefore, Popper's position is shared by scholars like Lloyd (1970: 10), Kahn (1991: 1), or Jordan, who claims: "Thales' views served as a point of departure for his immediate successors, and helped to inaugurate a critical tradition. And that is why we now see these three Milesians as the first philosophers" (Jordan, 1992: 19). Given this success of his ideas, Popper never fundamentally changed his interpretation of early Greek philosophy, in spite of some minor issues, "perhaps most importantly (regarding) the relation between the two halves of Parmenides's poem" (Waterfield, 1999: 367). Even his late essays on Ancient thought "try to show the greatness of early Greek philosophers, who gave Europe its philosophy, its science, and its humanism" (Popper, 1998: viii). Popper saw the genius of the Greek in their recognition of the falsehood and the dogmatic, closed character of the traditional customs and thoughts, together with the realization of the possibility of science.

This would be a great achievement, indeed, but it is noteworthy that we do not have to take Poppers idea of the first origin of a critical debate in Ancient Ionia for granted. Firstly, we do not know if the Milesians really interacted like open-minded critical rationalists. Plato had a different impression; with respect to Pre-Socratic ontological theses the stranger in the Platonic *Sophistes* complains: "That they paid too little attention and consideration to the mass of people like ourselves. For they go on to the end, each in his own way, without caring whether their arguments carry us along with them, or whether we are left behind" (Plato, *Soph.* 243a – b). This ignorance regarding the control of others within an open debate does not fit Poppers finding of a critical attitude among the Pre-Socratics for the first time in history. Secondly, one might challenge the alleged historical originality in comparison to earlier sources. At least the debate between Odysseus and Achill in the *Iliad*, book IX, appears to be quite reasonable, which makes it hard to defend the claim of a new and unprecedented origin of such a critical tradition. Be this as it may. But even if we explore a new and original tradition of criticism among Greek philosophers, Poppers description of them as critical ratio-

nalists still bears an essential problem.

Being open to criticism is not only a socially established attitude of people, but first of all it must be a property of the propositions at stake. None of the bold Ionian cosmological conjectures is open to refutation, they fail to address Popper's most fundamental requirements for a theory: "its explanatory power, and whether it stands up to criticism and to tests" (Popper, 1958: 140). Whether the essential material principle of everything is either water or the unbounded can impossibly be decided by means of severe tests. Moreover, the explanatory power can impossibly overweight the all-explaining myth, except one takes naturalism for granted. Popper's "splendid story" (1958: 149) of conjectures and refutations does not necessarily appear as a critical debate, it could also be a sequence of ad hoc hypothesis's to defend the metaphysical dogma of an everlasting material unity. Did the Ionians really inaugurate a tradition of critical debate or did they offer a sequence of non-testable metaphysical beliefs? What is the relation between observation and experience, and bold conjectures and critical debate in Ancient Greek thought? These and similar questions could be addressed more precisely through a comparison with Feyerabend's views.

3. Feyerabend on early Greek thought

As opposed to his earlier teacher Popper, Paul Feyerabend provoked almost no reactions among classicists. As far as I know, only Helmut Spinner (1977) tried to enhance his views. Christian Schäfer casually refers to Feyerabend in his constitutional study on Xenophanes (cf. Schäfer, 1996: 91, 172), but – as he told me – he is not aware of any serious adoption of Feyerabend among classicists. A couple of papers dealt with Feyerabend's relation to Ancient, namely Pyrrhonian Scepticism (Bailey, 1990; Maja Neto, 1991; Athanasopoulos, 1994), but none of them systematically investigates Feyerabend's views on the Pre-Socratics. One reason might be that Feyerabend – in spite of a few papers on Xenophanes – did not dedicate complete books or articles to early Greek philosophy but discussed it in many varying contexts. Moreover, as opposed to Popper, he did not publish his ideas at pertinent places like the *Proceedings of the Aristotelian Society*. But a recently edited posthumous book of Feyerabend, his *Naturphilosophie* (2009), which

he wrote in the early 1970s, might change this, since it dedicates four full chapters on the Ancient transition from Homer to the Pre-Socratics. But Feyerabend's understanding of the Pre-Socratics could be extracted from his earlier published work as well.

Feyerabend's attitude towards Pre-Socratic philosophy underwent one significant change at a quite early stage of his career. The earlier Feyerabend was obviously influenced by Popper. In *Knowledge without Foundations* (1961) he discussed a universal measure invented by the "very bold and optimistic" (Feyerabend, 1961: 7) Ionian philosophers of nature. The Pre-Socratics brought forward their scientific knowledge "by a process of rational criticism which relentlessly investigates every aspect of the theory and changes it in case it is found to be unsatisfactory. The attitude towards a generally accepted point of view such as a cosmological theory or a social system will therefore be an *attitude of criticism*" (Feyerabend, 1961: 48). These ideas basically repeat Poppers *Back to the Presocratics*.

But in the early seventies, during his work on *Against Method* (1975) and on the *Naturphilosophie* (posthumously published in 2009), Feyerabend changed his mind and became a critique of some of Popper's views.³ When Feyerabend summarizes his arguments against methods in the revised German edition of *Science in a Free Society*, he mentions three examples for incommensurability, which he has discussed in *Against Method*. The first are the cases of Galilei and Einstein.

"The third example was the transition from the aggregate universe of Homer to the substance universe of the pre-Socratics. This example does not belong to the history of science, but it explains features, which play a role in this history. The explanation of incommensurability which follows, exactly fits transitions, such as the transition from Aristotelian Physics to Classic Mechanics as well as the transition from Classic Mechanics to the Theory of Relativity and/or Quantum-theory." (Feyerabend, 1980: 33 – my translation)

In *Against Method* Feyerabend defended the conviction that the Homeric mythical cosmology and the new cosmology that arose in the 7th to 5th centuries BC are incommensurable. Both cosmologies are

³ The development of the relation between Popper and Feyerabend has been discussed recently in Preston (1997), Farrell (2000; 2003) and Oberheim (2006).

entire universes of thought, speech and perception. The earlier world-view was dissolved due to the rise of a new understanding of reality; constructive principles of archaic myth were suspended. Therefore, he concluded, the relation between the aggregate universe of the archaic myth and the pre-Socratic substance universe "cannot be examined [...] by a method of conjectures and refutations" (Feyerabend 1975: 206). Feyerabend illustrates the incommensurable relation between the Homeric and the Pre-Socratic world-view via Xenophanes's criticism of the common religion. Xenophanes is taken to be a paradigm of the Pre-Socratic genius because he criticizes the anthropomorphism of traditional Greek religion: "The Ethiopians say that their gods are snub-nosed and black, the Thracians that theirs have light blue eyes and red hair" (DK, 21B 16). This assumption was understood as the brilliant insight that different races credit the gods with their own particular characteristics and that therefore these conceptions of gods are false. To Popper, Xenophanes "anticipated and strongly represented all the main ideas of the European Enlightenment"¹ (Popper, 1998: 35). Similarly Jonathan Barnes believes that Xenophanes "unflinching devotion to the gods of reason make him a paradigm of the Presocratic genius" (1982: 82). The reason for such enthusiasm is:

"Xenophanes brilliantly perceives, first that different races credit the gods with their own particular characteristics (...); second, as a *reductio ad absurdum*, that animals would do the same. The conclusion is that such assessments are subjective and without value, and that the established picture in Homer (...) of gods as men and women must be abandoned." (Kirk/Raven/Schofield, 1983: 169)

In this reconstruction it looks like Xenophanes has given a precise and irrefutable logical rejection of a traditional, but wrong belief. Feyerabend is not convinced and he points out that Xenophanes only mocks the traditional gods because of their anthropomorphic features, but he does not give us valid arguments against them. The ethnological knowledge of different religious beliefs was a commonplace among the Greek tradesmen, sailors and colonists – something Kirk, Raven and Schofield very well know, but it does not prevent them from calling it Xenophanes' brilliant perception. The broad majority of Ancient Greeks did not conclude the vanity of their faith from the plain fact of religious

pluralism. Xenophanes at least gave them no reason to do so, since his supposed conclusion is not valid. To prove the absurdity of a proposition it must be shown to be either empirically inappropriate or conceptually inconsistent. But we do not have any empirical knowledge about "gods" and their features, and the word "gods" only becomes conceptually inconsistent with its actual Homeric usage, if you reject the traditional understanding of the gods essentially anthropomorphic character at the first place. As Feyerabend points out, Xenophanes rejection only expresses his denial of the religious diversity and variety of Ancient life. Moreover, Xenophanes probably aims for universal truth, but his divine dogmas are also anthropomorphic. Feyerabend points out that Xenophanes god "is indeed inhuman, not in the sense that anthropomorphism has been left behind but in the entirely different sense that certain *human* properties, such as thought, or vision, or hearing, or planning, are monstrously increased while other, balancing features such as tolerance, or sympathy, or pain have been removed" (Feyerabend, 1987: 95). Xenophanes' god is as anthropomorphic as the Homeric ones were. The differences emerge from different metaphysical beliefs: "If the world is an aggregate of relatively independent regions, then any assumption of universal laws is *false* and a demand for universal norms is *tyrannical*" (Feyerabend, 1987: 99).

Following these thoughts, a preference for Xenophanes is justified only if we have good reasons to accept or prefer his concept of the nature of the world. Feyerabend denies the legitimacy of such a preference. In his posthumous *Conquest of Abundance*, Feyerabend spells out this non- or anti-realistic approach towards early Greek philosophy. He ascribes to Xenophanes the "creation of a new domain over and above experience and tradition, a domain that is now being called reality" (Feyerabend, 1999: 58). As Feyerabend points out, the decision of almost all historians of science to follow Xenophanes rather than Homer relies on methodological and metaphysical assumptions. The methodological assumption is that critical rationalism is the best method to investigate nature and that a critical attitude can be found in Xenophanes. The metaphysical assumption is the realist belief that the real world consists of structures that are captured in scientific terms better than in others. Feyerabend denies the immediate validity of such methodological and metaphysical assumptions.

Conclusion

A comparison of Popper's and Feyerabend's competing views on the early Greek sources points to some, probably inevitable, anachronisms in both approaches. These anachronisms do mainly result from the misleading ambition to relate the Ancient materials to contemporary modes of scientific and cultural self-understanding. If you think of our scientific culture as a great history of achievements by means of critical rationalism, you might be inclined to find such an attitude among the Pre-Socratics. If you think of our scientific culture as an arrogant mode of conquering the abundance of our phenomenal world, you might blame the Pre-Socratics for introducing such a view. Though I am inclined to agree with Feyerabend, because his views are closer to the sources than Popper's, both approaches point to difficulties. Understanding early Greek thought is one thing, understanding the modern scientific culture is another. I am far from saying that these two are not related, but the examination of Popper and Feyerabend indicates a recommendation: Better keep things apart.

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Helmut Heit
Department for Philosophy
Technische Universität Berlin