Abstract: This chapter will argue that Paul K. Feyerabend is the most valuable philosopher of the twentieth century. Given the extraordinary importance of science in the twentieth century, the most valuable philosopher of the century should be someone who has given us the most significant understanding of the nature of science and its impact on the rest of the human experience — Feyerabend did precisely that. I will contrast his accomplishments with those of other important philosophers such as Kuhn, Popper, Wittgenstein, Heidegger, Rawls, Carnap, Quine, Russell, and Dewey. Of critical importance in this regard will be Feyerabend’s case for theoretical pluralism, which overturned key ideas from analytical philosophy by demonstrating that all scientific rules, no matter how sound and empirically fruitful, must allow for exceptions. Science as we know it could not have progressed without scientists breaking well-established methodological norms. He argues, with Galileo, that observation assumes theory. As Feyerabend tells us, “We need a dream-world in order to discover the features of the real world we think we inhabit (and which may actually be just another dream-world”).

Keywords: Against Method; incommensurability; scientific revolution; scientific rationality; theoretical pluralism; theoretical assumptions in observation

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I consider Paul Feyerabend to be the most valuable philosopher of the twentieth century. This judgment is, of course, highly subjective and strongly influenced by my own philosophical inclinations. Nonetheless, it is a judgment that can be supported with some very good reasons, which I will present immediately after certain biographical comments.

Feyerabend was born in Vienna in 1924. During World War II, three Russian bullets left him permanently disabled. He managed to recover enough to study physics and astronomy at the University of Vienna. At that time, Vienna was still a city of geniuses. Feyerabend had a remarkable voice and even sang at the Vienna Opera House. At one point, Bertolt Brecht asked him to be his assistant. He also met Konrad Lorenz, who also requested his assistance. Although it was evident that he had many talents, he ended up writing his doctoral thesis in philosophy under Viktor Kraft. After meeting Ludwig Wittgenstein, he made arrangements to work with him in Cambridge, but Wittgenstein’s death compelled him to become Karl Popper’s assistant instead. All these Viennese figures influenced the young Feyerabend significantly, and ultimately this influence played a crucial role in the intellectual revolution he forged with Thomas Kuhn in the 1960s and 1970s.

I met him in Berkeley in 1972, during my second year of doctoral studies, three years before the publication of his extraordinary book Against Method propelled him to worldwide fame. \(^1\) I attended his seminar, initially intending to be just an observer, as many students were intimidated by his critical mind. As soon as he entered and took his seat, he asked me, “What will be the topic of your presentation?” I replied, “I’m just sitting in”, “If you want to stay, you’ll have to give a presentation”, he insisted. “But all my ideas are bizarre”, I told him. “Par for the course”, he replied, taking out his notebook. “When will you present them?”.

During my presentation, I experienced firsthand the disconcerting nature of his criticism — a feeling I would not have wished upon my worst enemy, or even upon myself if I had truly believed back then that criticism is the main source of progress. Feyerabend questioned everything; he would discuss and sometimes mock even the most seemingly obvious assertions. In a conversation with him, no idea could be taken for granted. That day, I criticized him as much as he criticized me, but I left thinking that I had come across as a fool. However, immediately after my presentation, Feyerabend spoke highly of it, was very friendly, and invited me

to lunch at the Golden Bear restaurant. That would be the first of many meals where his insightful remarks would jump from philosophy and science to music, art, or theater, only to circle back to philosophy again. It was the first of many conversations in which we would talk about women or mock each other. He was as captivating in conversation as in lectures. It was difficult, then, to notice his crutches or the constant pain and poor health he had to overcome throughout his adult years. Even prior to his great fame, he was clearly an intellectual giant. I remember his animated face, his contagious laughter, and that extraordinarily sharp mind that delighted his students, colleagues, and friends — a mind worthy of the greatest admiration.

Two physicists once wrote in the famous journal *Nature* that Feyerabend was the worst enemy of science. But on the contrary, what Feyerabend actually did was demonstrate how complex and human science can and should be. Among his many contributions, perhaps the most significant is the recognition that there is no method or rule that can fully capture what science is. Even the most insightful idea regarding the practice of science must allow for exceptions. When we examine the history of science, we discover not only that great scientists violated empiricist methods, but that they had to violate them; otherwise, they would not have achieved the great successes for which we know them today.

Until the publication of the works of Feyerabend and Thomas Kuhn, it had been assumed that scientific rationality consisted in behaving according to certain methodological rules. Epistemology, in general, aimed to discover the rules of thought, and since science was traditionally considered the epitome of rationality, a philosophy like Feyerabend’s that questioned such rationality would have profound repercussions throughout the field. However, Feyerabend’s work goes far beyond skepticism. Until 1962, the main problem in the epistemology of science was that although we “knew” that the scientific method produced knowledge, we couldn’t prove it. Karl Popper, another great philosopher of the twentieth century, told us that such a problem was misconceived because the method that created the problem — the method of induction — was not actually the method of science. We simply had to realize that science operated through trial and error, testing our
theories. However, Feyerabend’s analysis of the history of science demonstrated that the supposed method of science, in all its varieties proposed by empiricists from Francis Bacon to Rudolf Carnap and Karl Popper, would hinder scientific progress. In other words, for science to advance, it occasionally needs to go against the method.

The reason is quite simple. All varieties of empiricism share something in common: sensory experience determines which of our scientific ideas are worthwhile. This dictum is justified on the grounds that through experience, scientists immediately learn what is written in the book of nature. For instance, if all observers see a stone falling vertically, the stone’s vertical motion is a truth immediately given by observation, an immediate truth that our “deeper” hypotheses about the world must remain consistent with. If a hypothesis tells us that the stone does not fall vertically, our observations, our experience, refute it. Unfortunately for empiricism, as Feyerabend reminds us, the Copernican hypothesis — that the Earth moves around the Sun and rotates on its own axis to give us the cycle of day and night — is clearly refuted by such experience.

That was one of the main objections contemplated by Galileo when he defended Copernicus in 1632. If we drop a stone from a tall tower, we see it fall vertically, parallel to the tower, and we see it hit the ground near the tower. Now, let’s suppose that the Earth is rotating. In that case, at the moment the stone begins to fall, the tower continues moving with the Earth, and consequently (if we choose the direction appropriately), the tower will have moved a considerable distance before the stone hits the ground. The only way for the stone to fall next to the tower is by moving in a parabolic trajectory, but we all see it fall vertically. It is clear, then, that the Earth cannot be rotating. What did Galileo say in the face of such a direct refutation of Copernicus’ theory? He refused to accept the verdict of experience. If the Earth is not moving, of course, the stone falls vertically. But if the Earth is rotating, then the stone must fall in a parabolic path. The reason we

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4 See, for example, his: Karl R. Popper, *Objective Knowledge: An Evolutionary Approach*, Oxford University Press, Oxford 1972. Although for Popper observational sentences are interpreted by low-level theoretical generalizations, which causes a paradox in his philosophy, his viewpoint is very different from Feyerabend’s or Galileo’s, as we will see later. For a critique of the analogy Popper draws between natural selection and his trial-and-error method, the reader can refer to my article “Karl Popper’s Evolutionary Epistemology”, in: Andrés Rivadulla (ed.), *Hypothesis and Truth in Science: Essays on the Philosophy of Karl R. Popper*, Editorial Complutense, Madrid 2004, pp. 49–66.
see it fall vertically is that the stone’s motion has two components: one shared with the Earth, the tower, and the observer, and the other directed towards the center of the Earth. However, the observer does not perceive the shared motions. (Today, for example, we do not “see” the other passengers on our airplane flying while seated at nine hundred kilometers per hour). That is why it appears to the observer that the stone falls vertically.

Galileo tells us that the motion we choose — or, rather, the facts we choose, pertaining to vertical motion or to parabolic motion — will depend on the theory we favor. Insisting that the stone falls vertically assumes beforehand that the Earth does not move. In other words, opponents of Copernicus assume the truth of what is in question — whether the Earth moves or not — when they declare their experience (i.e. that the stone falls vertically) as true. Their empiricist argument is nothing more than an instance of petitio principii.  

Feyerabend notes that the observer sees a phenomenon (the motion of the stone) and interprets it in a way that appears natural: the stone falls vertically. It is this “natural” interpretation of the phenomenon — rather than the phenomenon itself — that contradicts the Copernican theory. Galileo resolves the contradiction by offering us a different way to interpret the phenomenon. He thus provides us with a new empirical foundation, consisting in an interpretive theory that aligns with Copernican ideas.

These considerations do not imply that scientific hypotheses or theories always overturn the verdict of experience. However, they do imply that they can do so. And this result, in turn, implies that all empirical methodological rules must have exceptions. The reason is that such rules require the primacy of experience. We have seen, however, that the great Scientific Revolution would not have taken place if Galileo had not violated them. Similar results can be expected from many critical episodes in the history of science, as Feyerabend demonstrates in his work. It is worth emphasizing that it was not just that thanks to a couple of hunches, Galileo was led to take a shortcut which allowed him to obtain results that patient use of the method would eventually have provided. Not at all. If the method had insisted on the primacy of sensory experience, it would have forever closed off the path to a viewpoint that could not have been established without

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overturning previously accepted experience. If, in pursuing a theory refuted by experience, Galileo committed a grievous sin against philosophy and science, then we must not only love the sinner, but also the sin.

Feyerabend also notes that often we cannot even uncover significant evidence against our favored theories unless we seriously consider alternative ones that make sense of such evidence, as was the case with the Copernican theory and the composite motion of bodies. Our science, therefore, has greater opportunities for progress if we embrace theoretical pluralism. This is Feyerabend’s second important historical contribution to philosophy. No matter how confident we are about the truth of our most favored theory, the scientist who does not accept it and develops a different one is doing a favor to science. As Feyerabend tells us, “We need a dream-world in order to discover the features of the real world we think we inhabit (and which may actually be just another dream-world).”

This second philosophical contribution by Feyerabend goes not only against Newton but also against the important tradition of Plato and Descartes, whose obsession was with discovering the correct path for arriving at a single truth. Throughout the centuries, generation after generation of skeptics cast doubt on the paths to truth suggested by the great philosophers, but Mill was the first significant philosopher to rebel against the goal itself. In his essay “On Liberty”, he argued that society should not compel its members to accept the official point of view, no matter how true it may seem. By allowing the development of different viewpoints, society benefits, because if the official perspective turns out to be false, we replace falsehood with at least partial truth. And if the official viewpoint proves to be true in the end, the comparison with other viewpoints enables us to understand it better. Feyerabend’s achievement lies in extending Mill’s philosophy so that it applies also to science. The latter also benefits by allowing the development of different viewpoints that are not “in agreement with the facts”. One of the best examples of how science benefits is precisely the case of Galileo and his defense of the Copernican Revolution.

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Feyerabend’s sense of irony, so rare in academic writing today, led him to proclaim anarchy in the philosophy of science and suggest that “anything goes”. However, he never actually offered up anarchy as a kind of anti-method. Anarchy is the description that a traditional rationalist would give of Feyerabend’s conception of science, particularly as it pertains to theoretical pluralism. To such a traditional rationalist, it seems obvious that rationality consists in one’s abiding by the rules of the empiricist method. Therefore, for such a rationalist, the notion of “anything goes” in Feyerabendian science appears like the horror of all horrors. 8

Just as an idea that was discredited for two thousand years can revolutionize science — the idea that the Earth moves — ideas from other cultures can also contribute to the progress of science. This implies that we must treat non-Western cultures with respect, not only despite our admiration for Western advances made possible by science, but precisely because such respect helps to maintain a climate of pluralism that is vital for the progress of our much-celebrated science. From this realization comes a third contribution on the part of Feyerabend.

The lack of respect for the traditions of ordinary people — “the vulgar” as philosophers used to say — and, especially, the unfounded lack of respect based on an empiricist conception of science, wreaks havoc. And when empiricist methods are blindly applied, this lack of respect can lead to intellectual arrogance that causes even greater damage. Let us consider for a moment that until relatively recently, a person could end up in jail for practicing acupuncture (which was considered a medical fraud), that in the name of “development”, millions of women in the Third World were advised to stop breastfeeding their children, and a significant amount of money and effort was spent to provide them with powdered milk (which, of course, they mixed with contaminated water on more than one occasion). In the most advanced country in the world, meanwhile, a high percentage of people suffer from obesity and diabetes, due to a “scientific” diet, supported by the State, which forbade eating eggs (even though the human body is well-adapted for consuming these) and fervently emphasized eating refined carbohydrates.

(to which the human body is not adapted, causing various physiological problems, including the above). 9

Feyerabend detected this intellectual arrogance in the disdain that many intellectuals feel towards ordinary people, their beliefs, and their traditional customs. That is why he ridiculed intellectuals, pulled apart their “reason”, and called them “fanatics” and “criminals” who, by imposing their abstract “truths” on others, create pain and misery in the world. This reaction may seem exaggerated, but it must be understood in its proper context. Firstly, if a tradition has served a group of people well and allowed them to adapt effectively to their environment, we have no right to impose our truth upon them, no matter how scientifically established and well-confirmed it may appear to be. Secondly, many of the abstractions of intellectuals, even if they are labeled as “truth” or “justice”, are the result of flawed reasoning (as Feyerabend demonstrated with numerous examples), while those that are valuable are only so within a limited practical context. In his final book, The Conquest of Abundance, published posthumously, he explains how scientific abstraction is often necessary to understand the world. The problem arises when philosophers and scientists decide that “reality” corresponds to the impoverished environment resulting from abstraction, while ignoring particular aspects of experience, many of which enrich and give value to our lives. As Feyerabend says, despite the intellectual and practical merits of various abstractions, “details continue to exist, just as people don’t cease to have a nose when they step on a scale”. 10

The Platonic thesis that reality is abstract cannot be justified on the basis of the practical outcomes stemming from the most successful abstractions, or from experience or reason. Among the many reasons Feyerabend invokes to counter these rhetorical possibilities, I will choose three: one for each possibility. (1) The scientific theories that have achieved the most outstanding practical results —

9 Although I do not recall Feyerabend referring to this specific example, it was in one of his seminars at Berkeley that a doctoral epidemiology student explained to us why the nutritional science of that time (the later so-called “food pyramid”) had made serious mistakes in concluding that dietary cholesterol, including amongst other foods eggs, caused heart problems. It took thirty years before the trend changed.

quantum physics in our time, and Ptolemaic astronomy in ancient and medieval
times — have been, in their official versions, anti-realistic. (2) It is incoherent to
expect that experience supports the thesis that the real is abstract, because how
can what is real and unmanifest be discovered or proven by what is manifest and
unreal? (3) The preferred reasoning of philosophers uses deductive arguments —
"proofs" — but proofs require stable and unambiguous concepts. Yet experience
and tradition do not furnish such concepts, and, therefore, when intellectuals at-
tack tradition, the "rigor" of their reasoning is likely nothing more than a fallacy of
equivocation.

We may, for example, consider the famous argument of Xenophanes, which
supposedly established that God is one and eternal, etc., in contrast to the multi-
tude of gods of his time, which closely resembled their worshippers (so that if
horses were to depict their gods, they would draw horses, while cows would
provide us with paintings and statues of cows). 11

Let us suppose that God began to exist (He is not eternal). Then He came from
something like Himself or from something unlike Himself. If He came from some-
thing like Himself, then He already existed. If He came from something unlike
Himself, then He came from something more powerful or something less power-
ful. If He came from something less powerful, then the extra power comes from
nothing — but nothing can come from nothing. If He came from something more
powerful, then He is not God. Therefore, God did not have a beginning.

However, the last premise here — stating that if He came from something
more powerful, then He is not God — assumes that being divine implies having
supreme power. Yet this notion of divinity was not accepted by the cultures that
Xenophanes argued against, including Greek culture. Xenophanes' argument
changes the meaning of key concepts in the debate. Therefore, it is a fallacious
one.

At some point, the desire to defend the traditions of ordinary people led Feye-
rabend to embrace a form of radical relativism in both politics and epistemology.
In his book Science in a Free Society, he outlined his belief that science was just

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11 For a more detailed review of Xenophanes and Presocratic Ancient Greek philosophy, see
Richard D. McKirahan, "Xenophanes of Colophon", in: Richard D. McKirahan (ed.), Philosophy before
Socrates: An Introduction with Texts and Commentary, Hackett Publishing Company, Indiana
another ideology or tradition, and that, therefore, in a free society it should not have more rights than other ideologies or traditions when it comes to influencing institutions such as medicine or education. In a free society, there should be a clear separation between the State and ideology. This thesis is a generalization of the separation between the State and religion expected of any society that wants to call itself “free”, but it is also a generalization of the principle that all citizens have equal rights before the State, giving each ideological grouping a status comparable to that of the individual citizen.

In the long run, Feyerabend abandoned this sensational relativism in response to objections from philosophers such as Margherita von Brentano and the present author. Von Brentano reminded Feyerabend that some ideologies have as one of their main purposes the destruction of other ideologies and traditions. Nazism, for example, was based on hatred towards human beings of different races. The problem with Feyerabend’s relativism was that it did not allow the rest of the world to interfere with the perfidy of the Nazis, a consequence he could not endorse. On the other hand, my objection reminded Feyerabend that he had only shown that no idea was inherently superior to all others, whereas he himself had argued (like Mill) that in certain historical situations some ideas were more useful than others. In that vein, where education is concerned, astronomy will function better than astrology, and the study of electricity and magnetism will be much more useful than black magic.

It is possible that Feyerabend would have abandoned his extreme relativism once he had discovered his main arguments against the reification of abstraction. He emphasized the fact that the meanings of words used by both ordinary people and scientists are quite flexible. This creates the possibility that, given human nature, any culture can evolve. In principle, any culture can become any other. He thought that this principle defeats relativism, because relativism (in the sense of something’s being relative to theory, culture, ideology, or tradition) requires that the meanings of words be determined by the conceptual framework of a culture, or something similar. It seems to me, though, that there are forms of relativism that are not affected by Feyerabend’s argument. Even so, such a discussion is not

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essential, given the purposes of this article. Two additional points, however, are relevant. The first is that the arguments against the arrogance of intellectuals towards ordinary people still stand. All human beings and the traditions they practice in good faith deserve respect.

The second point, meanwhile, is an important corollary for the interpretation of the famous problem of the incommensurability of theories, which was created by Feyerabend himself with his accomplice Kuhn in 1962. In his famous article “Explanation, Reduction and Empiricism”, Feyerabend toppled the logical approach in the philosophy of science when he showed that scientific explanations cannot be logical derivations, at least in the most interesting cases presented by philosophy and science: namely, those where one scientific theory is replaced by another (e.g., Newtonian mechanics by Einstein’s Theory of Special Relativity). Explanation was supposed to be a form of logical reduction: the old theory was derived from the new theory as a special case of the new theory. The problem, Feyerabend told us, is that the meanings of various crucial terms often change when there is a change of theory. In Newtonian mechanics, the value of mass does not depend on the velocity between the object and the observer; in Einstein’s theory, it does. In Newtonian mechanics, time is absolute; in Einstein’s, it is relative to the frame of reference. What happens, according to Feyerabend, is that by introducing Einsteinian concepts, the use of Newtonian concepts is excluded. However, and here the problem becomes more acute, a derivation is not valid if the meaning of a term in the premises (the new theory) is different from the meaning of that term in the conclusion (the old theory). That is to say, either science explains nothing or the logical approach is useless.

What Feyerabend tells us in his books is that this problem of the incommensurability of theories generally does not exist for scientists, as they use language in a flexible way that allows them to move from one theory to another. It does exist, however, for “rigorous” philosophers who believe that the “clarity” and “rigidity” of the terms they use are the philosophical tools par excellence.


15 This was his favorite example in the various editions of Against Method.
In 1962, it was rhetorically prudent to express oneself as Feyerabend did because, at that time, "serious" philosophy (analytic philosophy) was completely dominated by logical and linguistic approaches. However, we may note that the problem of incommensurability has little to do with semantics. Let us go back to Galileo. He replaced one set of "facts" (the vertical fall of objects) with another (the parabolic motion of objects). If one starts by accepting that the Earth does not move, then the first set of facts will be preferred. Conversely, if one accepts that the Earth moves, the second will be. In other words, there is no set of facts that can decide between the two theories. This result means that there is no common measure that allows us to assign more points to one theory than to the other. To say that two theories do not have a common measure is simply to say that they are incommensurable.

This fourth contribution of Feyerabend greatly contributed to the shipwreck of analytic philosophy. The reaction of analytic philosophers has been very severe, of course. Feyerabend is often accused of using reason to attack reason (or using logic to attack logic, or argument to attack argument, etc.). Such objections have no merit. As Feyerabend states, he does not have to believe in reason to undermine it. He simply accepts his opponent's premises and methods in order to arrive at an absurd conclusion: one that appears absurd to the opponent, even though they do not know how to refute it.  

I do not want to suggest that Feyerabend has already said everything, nor that I agree with everything he said. My own approach to philosophy is quite different from his, but it definitely recognizes the profound change that he brought about in philosophy. What I do want to assert is that these four contributions from him that I have briefly discussed, among many others that I have not even had time to mention, are so important, so revolutionary, so brilliant, that they clearly make him the most valuable philosopher of the twentieth century.

That century gave us other important philosophers, no doubt, but I do not believe that they reached the same heights as him. Some because they contributed little or nothing to the elucidation of science, a definitive aspect of the human experience for the last four centuries, which dominated the thinking of many great philosophers during the first three of those centuries. (I am referring to thinkers like Descartes, Berkeley, Hume and Kant). In the twentieth century, science played

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16 I address this topic in more detail in my Munévar, "A Rehabilitation of...".
an especially important role. The paramount philosopher of the twentieth century must necessarily be someone who has given us a very significant revelation about the nature of science and its impact on the rest of human experience. Feyerabend did that. In contrast, Wittgenstein sought to exclude science from philosophy, and Heidegger had very little to say about it. Therefore, I exclude them both, although I believe they also made great contributions to philosophy. And for similar reasons, I exclude Rawls, the leading thinker of the twentieth century in the field of moral and social philosophy. Carnap and Quine simply made too many mistakes. Russell and Dewey never participated in the most critical debates. Of the three great philosophers who did, Popper is the most popular philosopher among scientists, but we have already seen that his method does not withstand the criticism of Feyerabend and Kuhn. As for the revolutionary Kuhn, although I find him highly admirable, I believe that his emphasis on the dogmatism of science falls short in the face of Feyerabend’s arguments in favor of theoretical pluralism and all that it implies.

I conclude where I began: Paul Feyerabend was the most valuable philosopher of the twentieth century. I must add, however, that Feyerabend would have been greatly annoyed with me for defending him in such a manner. Such an honor would have seemed intolerable to him — an instance of academic pomposity that would have driven him crazy. In that sense, he was not like others. In many ways he was not. When Russian doctors told him that he would never walk again, he immediately delighted in imagining himself rolling around in a wheelchair through a huge library. I can still picture him, animated, engaged in discussion, as a mischievous philosophical idea is born in his eyes and mischievously springs from his lips. Despite illness and tragedy in his life, he lived life to enjoy it. 17

Gonzalo Munévar

References


