

FEYERABEND'S IRRATIONALIST APPROACH TOWARDS EXPLAINING SCIENTIFIC PROGRESS¹

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ABSTRACT

The subject of this scientific is Feyerabend's revolutionary model of explanation of the growth of scientific knowledge. Feyerabend criticizes the positivism, forgery and all rationalist attempts for discovering the strict rules of the scientific method. His attitudes are significant because they add a different, avant-garde picture of the scientific development causing interest in the scientific and philosophical circles. The main thesis in this paper is that the Feyerabend's methodological anarchism cannot answer the question of scientific development. There is no clear picture about the direction of the scientific process, and it cannot say whether the science goes forward or backward, whether there is progress or not. It appears that this comes mainly from his anarchist position. The progress of science, according to him, depends on irrational elements, and one can contribute to the progress of the science by counterproductive actions only. He declares that consistency is an unreasonable condition of science and prefers hypotheses which are not consistent with facts, nor with the observational or experimental results. Feyerabend uses the non-existence of "bare / naked" facts and the incommensurability of theories as arguments for making the conclusion that the new scientific theories triumph in a completely irrational way.

Key words: scientific progress, immortality of theories, methodological pluralism, counter-inductance, methodological anarchism.

¹ original scientific paper

INTRODUCTION

Of the many contemporary theories that concern themselves with the problems of the philosophy of science, the ones that propose revolutionary sentiments in regards to the interpretation of methodological and epistemological problems appear to be the most interesting. This contemporary epoch, among other things, has also seen discussions regarding the issues of the rationality of scientific knowledge and the problem of progress in science. One of the most well-known representatives of contemporary philosophy of science, who at the same time concerned himself with these problems, was Paul Feyerabend. He has been a radical critic of almost all traditional positions in science and epistemology, and has attempted to provide a new model of the very process of epistemology, and especially scientific epistemology. His teaching insists on renouncing any pretensions for absolute knowledge, and that our entire epistemology is the result of man who is led by desires, hopes, interests, fears and other irrational elements. Feyerabend thinks that many scientific decisions are not rooted in rationality, and that the selection between competing scientific theories is often irrational. This position would imply that the idea of scientific progress is brought under question, and that we can never ascertain whether science progresses or declines. As Feyerabend would put it, "Regarding science, reason cannot be universal and unreason cannot be excluded" (Feyerabend, 2000, p. 218). Feyerabend is attempting to weaken the position of science; according to him, it is but one of many forms devised by man to deal with the world around him, but not the only one and certainly not the best one. He thinks that there is no knowledge without chaos, and no progress without frequent rejections of reason. The ideas that comprise the basis of science today exist thanks to the prejudices, vanities, passions and other irrational elements that have clashed against reason in the past. According to him, one must employ a clash of ideas, a plurality of methods, logical incompatibilities, intra-theoretical and inter-theoretical inconsistencies and other irrational elements in order to reach new knowledge. The main idea of this paper is that the methodological anarchism of Feyerabend cannot conceive of any idea of scientific progress. The existence of irrational elements in the realization of fundamental scientific change presents the problem of the incommensurability of theories. It means that we cannot establish criteria for the preference of one scientific theory over another, which leads to the impossibility of setting up exact, operative criteria for selection between rival theories.

FAYERABEND'S METHODOLOGICAL ANARCHISM

In his famous work *Against Method*, Feyerabend notes that „science is, in essence, an anarchist endeavor: theoretical anarchism is more human and is

more likely to aid progress than its alternatives of law and order” (Feyerabend, 2000, p. 13). Expressing this sentiment at the very beginning of his work, he highlights that there is no possibility of devising uniform rules that will determine scientific research and guide the development of science. As the subtitle of his book suggests, Feyerabend is espousing an anarchist theory of knowledge. He considers anarchism to be a cure for epistemology and philosophy of science. Human nature is complex and has an unpredictable character; there are no strict rules that can be applied as guidance in life. According to him, history of science isn’t only comprised of facts and conclusions derived from facts, but instead, of ideas, interpretations of facts, problems caused by competing interpretations, errors and so on. Science, he suggests, doesn’t recognize “bare facts”, but the “facts” that enter our knowledge have been already perceived in a certain manner; therefore it follows that facts are mediated by ideas (Feyerabend, 2000, p. 15). It is therefore nonsensical to establish a science that will be governed by immutable rules, expressed by a language of exactness with a unified outlook on the world.

The world which man inhabits is an unknown entity, which necessitates a position of openness for all possibilities and a wariness of a priori limitations. Therefore, Feyerabend considers, all universal standards and rigid traditions need to be rejected, embracing, instead, an absolute freedom of discussion. According to him, we shouldn’t fear that this sort of anarchist methodology and science, which would weaken concerns for law and order in science and society, will bring about chaos. “The nervous system of man is organized too well for that to happen” (Feyerabend, 2000, p. 17). Of course, there may come a time when reason will have to be given a temporary priority, a time when the wise choice would be to uphold reason’s rules to the exemption of everything else, however, according to Feyerabend, we don’t live in such a time today.

On the other hand, this anarchist conception of scientific progress is interesting because it advocates for:

- free thought unburdened by prejudice;
- liberation from given norms and rules;
- valuing science for being able to adequately explain and predict phenomena within the bounds of available experience;
 - awards complete confidence to the scholars and their interests;
 - putting trust in the sciences to be efficiently applied in reaching important practical goals. (Sindelić, 2005)

IS THERE A PLACE FOR SCIENTIFIC PROGRESS IN FEYERABEND'S PHILOSOPHY?

In regards to the meaning of words such as “progress”, “advancement” or “improvement”, he makes a point of saying that “anyone can interpret these terms in their own ways and in accordance to the tradition to which they belong” (Feyerabend, 2000, p. 26). For him, there is only one principle that needs to be upheld, the principle of *anything goes*. Experts and laymen, professionals and dilettantes, truth seekers and liars are all invited to take part in shaping the contents of theories and provide their contribution to the enrichment of our culture. Feyerabend rejects the notion that we can devise rational criteria for scientific progress, and that we can only talk about the advancement of scientific discoveries in the wider context of the historical circumstances in which scientists find themselves. Science advances only when it contributes to the realization of the opportunities intended for the free development of individuals. As was already pointed out, Feyerabend analyzes the progress of science and suggests that the only principle that doesn't stand in its way is *anything goes*, which can be ascertained by inspecting historical episodes and by an abstract analysis of the relation between ideas and actions.

According to him, “there has not been a single rule, regardless of how plausible or how rigidly rooted in epistemology, that hasn't been violated in a point in the past” (Feyerabend, 2000, p. 22). Feyerabend maintains that during the course of scientific discovery, no rule has remained universally valid and that rules need to be broken, since it is exactly the breaking of rules that enables scientific progress. However, he doesn't say that we should proceed without any rules or standards, but strongly suggest that all rules have their limitations and no rule possesses an all-encompassing rationality. To support this assertion, Feyerabend points out to the following examples: the discovery of atomism in ancient times, the Copernican revolution, the rise of modern atomism (kinesthetic theory, quantum theory), the gradual growth of the wave theory of light and other episodes from the history of science, where scholars *decided* not to be limited by certain methodological rules, or *intentionally breached* those rules. This liberal practice, Feyerabend considers, is a fact and absolutely necessary for the growth of knowledge. For each rule, no matter how important or necessary for science, there are situations where it is better not only to ignore it, but to even accept its opposite. Thus, when it comes to science, Feyerabend doesn't completely reject the notion of “progress”, but instead considers the “*anything goes*” principle that excludes the absolute validity of all principles, as the only principle that can secure progress (Novaković, 1984). Therefore, according to Feyerabend, anarchism aids scientific progress in any sense of the meaning.

FEYERABEND'S IRRATIONALISM

There are cases “when the argument loses its orientation to the future and becomes an obstacle to progress” (Feyerabend, 2000, p. 22). What appears to be the result of *reason* (for example the perfection of a certain language, as the advent of a richly articulated perceptive world, its logical ability and the such) owes itself to the process of *growth* that unfolds itself with the power of a natural law to the repetition of arguments instead of their semantic content, Feyerabend states. The constant repetition of arguments brings about their engraving in our thoughts, which makes them appear valid. And so, “theories become lucid and “rational” only after their inconsistent parts have been used for a long time” (Feyerabend, 2000, p. 25).

One can act *counter-inductively* in order to bring about a progress in science. One can also use hypotheses that contradict well-established theories and/or well affirmed experimental results. Feyerabend recommends not to act in accordance with existing facts, or in other words, to act counter-inductively, because counter-induction is always reasonable and has a chance of success (Feyerabend, 2000, p. 23). Instead of drawing conclusions from known facts by way of induction, Feyerabend says, we should approach hypotheses that are not consistent with supported facts. The condition of consistency has been established since the times of Aristotle and plays an important role in Newton's philosophy, finding broad acceptance among the philosophers of science in the 20th century as well. However, according to Feyerabend, “the condition of consistency compels new hypotheses to conform to previously accepted theories, which is irrational; it favors older theories, not better theories” (Feyerabend, 2000, p. 35). This can be seen in numerous examples throughout history, he suggests. For example: Newton's theory was inconsistent with Galileo's law on free fall and Kepler's laws; static thermodynamics is inconsistent with the second law on the phenomenological version of the theory; wave optics is inconsistent with geometric optics, and so on.

The hypotheses which contradict well-supported theories provide observations that cannot be arrived at by any other way. Diversity of opinions is necessary for the growth of knowledge, while the “unanimity of opinions can be fitting for a church, or for a group of the terrified or greedy victims of an (ancient or modern) myth, or perhaps the weak and powerless followers of a tyrant” (Feyerabend, 2000, p. 46). The multiplication of theories is of the benefit of science, while uniformity harms the power of critical thinking. Unity harms the free development of the individual as well, Feyerabend suggests. Progress often occurred by way of adopting ideas from the past, which means that all ideas are significant regardless of how old or absurd they may appear.

Furthermore, Feyerabend states that “there is not a single theory that agrees with all the facts in its specific domain, which is not necessarily the theory’s fault. Facts are often established as the products of past ideologies, which enables us to consider the clash between facts (or observations) and certain theories as a sort of evidence that signifies progress” (Feyerabend, 2000, p. 61). In the context of this, Feyerabend mentions two types of conflicts (divergences) between theory and fact: it is either a numerical incompatibility or a qualitative failure. The cause of the former is usually due to imprecise instruments: it occurs when a theory provides numerical predictions, but the produced values diverge from the prediction. As examples in support of this, he lists the opinions of Copernicus in the time of Galileo, then Bohr’s atomic model, which was introduced despite the accurate and indisputable observations to the contrary, Newton’s theory, which met difficulties of this nature since its inception, as well as the general theory of relativity which failed to account for the movement of the orbits of Venus for 10” and Mars for 5”. All of these difficulties are quantitative and can be resolved by means of further measurements, Feyerabend suggests. However, according to him, it is the second type of divergences between facts and theory, the qualitative ones that are of greater significance, even though they are less known. Qualitative divergences between a theory and the existing facts occur consistently throughout the entire history of science, enabling advancement and expanding horizons. As examples of these types of qualitative divergences, Feyerabend offers Newton’s theory of color, or Parmenides’ theory of the One, envisaging it as something homogenous, immutable, immovable, with no beginning or end, contradicting everything we know or have experienced. Another example is the defense of the heliocentric theory of Copernicus by Galileo Galilei, which, according to Feyerabend, is an example of a qualitative disagreement that nonetheless enables an expansion of the horizons of scientific knowledge. Furthermore, Aristotle and his disciples were against the idea of the movement of the Earth. They thought that the movement of some body as massive as the Earth is not possible to detect, trying to prove this by the so-called Argument of the Tower, according to which a stone that’s being thrown off a tower won’t land behind the tower, as it ought to do if the Earth was indeed moving. Feyerabend considers that Galileo, by making use of propaganda and various psychological tricks, actually introduces a counter-inductive claim that the Earth is moving. He points out that if we were standing on a moving ship, and we fixed our eyes on a point of the ship’s mast, we won’t be able to notice that the ship is moving because we are moving along with it. The same thing happens with a stone that’s thrown off a tower. This, Galileo discovers the natural interpretations that are inconsistent with Copernican theory and replaces them with different ones; in doing so, Galileo transforms the experiences that contradicted the theory of the movement of the

Earth, with experiences that actually affirms the theory. In order to prove his theories, Feyerabend says, Galileo made use of propaganda, appeals to emotion, prejudice, ad hoc hypotheses and other irrational elements. It follows that, as Feyerabend concludes, “Copernicanism and other crucial building blocks of modern science survived exactly because, in the past, reason was frequently silenced” (Feyerabend, 2000, p. 177).

In relation to the previous traditions in history of science, Feyerabend’s approach brings radical consequences, in the sense of the abolition of some of its old, but significant conceptual distinctions: the difference between the context of discovery and the context of justification, as well as the difference between theory and facts. On that note, Feyerabend remarks that “the results that we have received so far suggest that we should abolish the distinction between the context of a certain discovery and the context of its justification, and not take into account the difference in kind between the terminology of observation and the terminology of theory. Neither of those differences plays a role in scientific praxis. Any attempts to implement them by force would have catastrophic consequences” (Feyerabend, 2000, p. 201).

For Feyerabend, there is no real difference between discovery and justification, because “anything goes” on every level. If Popper considered that faith and bias are important for the context of a discovery, Feyerabend considers that they are equally important both for the context of a discovery and its justification (Jokić, 1998). The irrational elements in his conception of science are present in the context of discovery as well as in the context of justification. Or, to put it more precisely, by insisting on the fact that all experiential data is filled with theory, Feyerabend, in a way, dissolves the distinction between discovery – and justification. According to him, discovery and justification occur simultaneously.

Feyerabend rejects the distinction between theory and observations (facts). He underlines that learning is not a process that moves strictly from observation (or in other words, registering facts) towards theory, but that it always includes both elements. Experience arises together with theoretical presuppositions and not before them; experience without theory is as incomprehensible as any theory without experience. If we eliminate a portion of theoretical knowledge from a subject, but we leave their senses intact, we will end up with a human being utterly disoriented and incapable to perform even the simplest tasks. Feyerabend deems that facts can never be clearly distinguished from theory, and even that facts are partially determined by certain theories (which makes it clear why they are not infallible) (Sinđelić, 1997, p. 116). Theory itself always modifies facts in a certain way. For Feyerabend, the same set of observed facts can be compatible with a great number of different and mutually exclusive theories.

INCOMMENSURABILITY OF THEORIES

One of Feyerabend's well-known positions is that rival theories are incommensurable; the same idea is first encountered with Thomas Kuhn in his work *The Structure of Scientific Revolutions* (Kuhn, 2002). Feyerabend outlines several arguments that go in favor of the idea of the incommensurability of theories. The most significant of those are:

- Parallel theoretical terms in different successive theories have radically different meanings, because the meaning of a term is determined by its place within the theory, and the relations it has relative to other terms in the theory;

- Even when using the same terms, successive theories do not talk about the same things;

- Theories which use parallel terms with different meanings, and talk about different things, cannot be compared;

- The consequence of all this is an incommensurability of observational consequences (Sindelić, 1997, p. 119)

Feyerabend himself is inconsistent when he says that the incommensurability and the proliferation of incommensurable theories will lead to scientific progress. The problem lies in that, if we accept that there exists an absolute incommensurability between rivaling theories, any discussion of scientific progress becomes nonsensical. In order for there to be progress, we need to establish in relation to what that progress is; in relation to which aspect or criteria the new theory is bringing progress.

Unlike Feyerabend, Kuhn underlines that the breakdown of communication between theories, in the sense of incommensurability, is important and unavoidable; however, he doesn't believe that it cannot be overcome. Kuhn thinks that the communication between theories can be improved to a certain extent. After all, he holds certain irrational and relativist positions as well, and deems that selecting between theories is neither implicit nor logical, nor can it be done by way of observations (empirically) (Lakatos, Musgrave, 2003, p. 294). Feyerabend's thesis of incommensurability has been challenged in multiple ways. One of the criticisms is that through the changes and the development, there remains, after all, a key core of knowledge that doesn't change thereby ensuring theoretical commensurability. Another criticism is that even though meanings can be changed, the references remain the same, which enables commensurability in a certain manner. It can also be said that at the same time this offers recognition to incommensurability, but leaves room for the comparison of theories in an unusual way (for further criticism of Feyerabend's methodological anarchism see Lakatos and Musgrave, Sindelić, Jokić).

However, Feyerabend doesn't engage in a search for elements in relation to which theoretical commensurability would be possible, which in turn results in the position that Feyerabend doesn't provide us with a clear picture of scientific progress. One cannot discern whether science advances or regresses from his ideas alone.

CONCLUSION

Feyerabend discusses scientific change and the growth of scientific knowledge in a radically new way. He provides criticism of every reductionism that affirms any sort of inter-theoretical continuity, while explaining why such continuity is neither attainable nor desirable. Paul Feyerabend considers that there are no objective or rational standards for establishing progress in science. That has been shown throughout the entire course of history of science, where it can be seen that no rule remained universally valid. Feyerabend maintains that those rules need to be broken, since scientific progress depends on it. However, he doesn't go so far as to propose the elimination of all rules, but merely states that universal rules and standards don't exist. Feyerabend attempts to prove that prior conceptions for scientific progress have had major weaknesses, but it seems that the way in which he conceives of scientific progress is utterly vague and unconvincing. Of course, Feyerabend doesn't want to discuss criteria for progress, negating all rational criteria and keeping to the position that we can only discuss the advancement of scientific knowledge in a broader context of the mental and historical circumstances in which the scholars find themselves (Novaković, 1984, p. 287).

It seems that despite all his effort, Feyerabend has very little to say of how scientific discoveries actually occur, neither proposing a new theory of how that happens. Instead of illustrating how the growth of scientific knowledge takes place, his extensive study of historical episodes serves better to illustrate how scientific growth was actually prevented. Scientific knowledge and scientific progress should be explored through a broad prism that encompasses all relevant actors, while taking care not to outright dismiss the connection between science and the fundamental ontological and epistemological perspectives.

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