ISSN 2299-0356

Filozoficzne Aspekty Genezy — **2023, t. 20, nr 2**

Philosophical Aspects of Origin s. 187–201

https://doi.org/10.53763/fag.2023.20.2.206

ARTYKUŁ ORYGINALNY / ORIGINAL ARTICLE

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Paul Feyerabend's Contribution: The Anarchic Sunset of the Philosophy of Science *

Received: November12, 2023. Accepted: December 4, 2023. Published online: March 8, 2024.

Abstract: The author places Feyerabend's contribution within a line of thought on science that ideally opens with the Wienerkreis, and which in some way ends with Feyerabend. This trend has always been based on a series of demarcations, ranging from the opposition between meaningful and meaningless statements (the Vienna Circle), or between scientific and non-scientific statements (Popper), or between normal and extraordinary science (Kuhn), to the demarcation between progressive and regressive research programs (Lakatos) — up until Feyerabend, the former student of Popper, who puts an end to the perspicuity of every demarcation. The conclusion that "anything goes" when it comes to doing rigorous science marks the clearly unsuccessful conclusion of this large-scale historical trend. Philosophical attention thus shifts from descriptions of the scientific method to an analysis of the concrete historical production of scientific ideas and discoveries, in a movement that rehabilitates a Hegelian, historical approach in the empirical sciences.

The author outlines the contemporary approach that no longer sees the whole of knowledge and scientific practice as a series of methodologies aimed at faithfully mirroring nature, construing it instead as a thought-constituted organism subject to Darwinian criteria of selection and mutation. The biological metaphor of the organism that survives by adapting to external reality replaces the

Keywords:

darwinian epistemology;
Karl Popper;
Paul K. Feyerabend;
philosophical pluralism;
science as art;
scientific method;
Thomas S. Kuhn;
Vienna Circle;

* I would like to thank Stefano Gattei for his comments on this article.

claim to foundational scientific validity on the basis of a priori paradigms.

1. Introduction

Most scientists do not think highly of Feyerabend. An elite group of somewhat eccentric scientists, on the other hand, holds him in high regard. Among them is the palaeontologist S.J. Gould: he confided to Feyerabend that **Against Method** had inspired him to construct, together with Niles Eldredge, his innovative theory of 'punctuated equilibrium' in biological evolution. Feyerabend often quoted this acknowledgement proudly. [1]

The rejection of Feyerabend's thinking is due to the fact that so many scientists today have been trained to think that all that matters in science is its method. Instead, what Feyerabend liked about science, even though he was a pupil of Popper, was its discoveries. When he held a seminar at the University of Trento in 1992, which I attended, a tenured professor of theoretical physics was also present. In an informal discussion among the participants, at one point the latter said that ultimately physics amounts to very little, that its only merit is that it has a certain method... An embarrassed silence fell over the room.

The importance of Feyerabend does not lie in having opened up a new horizon in the philosophy of science, but rather in having brought to a close, perhaps definitively, the most flourishing current of modern epistemological thought — namely, the Austro-Anglo-American line that, starting with Mach and passing through the Vienna Circle, Popper, Quine, Kuhn and Lakatos, spanned an entire century. The biography of Feyerabend — an Austrian transplanted to England and then California — almost epitomizes the spatiotemporal movement of this current. He brought the latter to an end, much as Ockham nominalistically did with regard to the scholastic era, or as Hume did through his scepticism where the period of British empiricism is concerned. This glorious line of thought has always been beleaguered by the need for *demarcation*. With Feyerabend, this need is relinquished: anything goes.

[1] See Niles Eldredge and Stephen J. Gould, "Punctuated Equilibria: an Alternative to Phyletic Gradualism", in: Thomas J. M. Schopf (ed.), **Models in Paleobiology**, Freeman, San Francisco 1972, pp. 82–115; Paul K. Feyerabend, **Against Method: Outline of an Anarchistic Theory of Knowledge**, preface by Ian Hacking, 4th edition, Verso, London 2010.

2. The Demarcation Problem

The demarcation that interested the Vienna Circle was that between *signifying* and *non-signifying utterances*. For the logical positivists, an utterance signifies only and exclusively if it is verifiable: hence, the signified of a proposition is the method of its empirical verification. From this perspective, all metaphysical propositions are not false but non-signifying. All our knowledge is inductive, and as for logico-mathematical propositions, they are necessarily true insofar as they are tautologies along the lines of "a = a". The trouble, however, is that not only is the bathwater of metaphysics thrown out into this sea of non-signification, but also all those beautiful babies such as ethical, aesthetic and expressive statements...

For Karl Popper, on the other hand, the demarcation that matters is not between signifying and non-signifying utterances, but between *scientific* and *non-scientific theoretical utterances*. That is, everything that is metaphysics, aesthetics, ethics, philosophy, etc., is signifying but unscientific. Indeed, metaphysics constitutes the "breeding ground" for science: certain theories arise as metaphysical, i.e. non-falsifiable and therefore non-scientific, and become scientific with time (the most famous case being atomism, from Democritus to Planck). For Popper, a proposition is scientific insofar as it can be falsified with precision; in short, science moves forward by trial and error. The propositions of psychoanalysis — a doctrine that Popper targets in particular — are very significant, but they are not scientific because it is impossible to refute them. That is to say, the "empirical content" of psychoanalysis is very poor because it has very few basic assertions that can potentially be refuted. In short, scientific knowledge is not built by induction, as the neo-positivists think, but by *selection* thanks to falsifying experimentation. This means that a scientific proposition — what Popper calls a conjecture — can never be definitively verified, it can only be *corroborated*. The most established scientific theories are those that have been most corroborated — that is, that have withstood the most ingenious attempts to falsify them *so far*. This is now in many countries the official philosophical vulgate on science, the one that is taught in high schools.

While the question in relation to Popper is that of discriminating between theories — the scientific and the non-scientific — the unproblematic continuity

between experience and theory is broken, and what is asserted is that drawing on experience is of value as part of a *debate between theories*. Experience ceases to be the origin and guarantee of scientific theories; it always comes *after* theory and performs a filtering function in a divergence. For Popper, "scientific research begins and ends with problems".

3. Historical Approach to Knowledge

Hegel (by which we mean, in effect, an essentially historical approach to thought), thrown out of the door of rationality by both neo-positivism and Popper's critical rationalism, re-enters through the back door mainly thanks to Thomas S. Kuhn. Significantly, the latter was a follower of Alexandre Koyré, a Hegel scholar. After Kuhn, philosophers of science would increasingly abandon *a priori* arguments and refer more and more to the concrete history of the European sciences. So, falsificationism has been historically falsified. And the demarcation that therefore becomes important is the one between *normal science* and *extraordinary science*.

Kuhn notes that the critical spirit, which Popper considered essential in the "game" of science, is not in fact indispensable to the sciences, sometimes it is also dangerous. This is because even the most powerful and established theories are widely refuted by a myriad of embarrassing facts and observations. If falsificationism were adhered to seriously in scientific work, no theory, especially at its beginnings, would be accepted, because each would in fact be falsified by a more or less extensive number of facts. In the stages that Kuhn calls normal science — where this typifies the vast majority of the work of scientists — scientific work consists of trying to solve scientific puzzles: that is, attempting to reconcile seemingly deviant facts with the accepted theory, which in turn falls into a given scientific paradigm. Here we have what really is the most successful invention of modern philosophy of science: the notion of *paradigm*, which we now all, even non philosophers, use. The history of science becomes a discontinuous process of leaps from one paradigm to another, and the reassuring image of knowledge progressing continuously through a patient accumulation of knowledge is broken. *Scientia facit saltus*.

Every new theory, by virtue of being new and not having had time to normalize through extended debate, emerges in a sea of phenomena that refute it. Thus, the ant-like labour of "normal scientists" — those who uncritically accept a given scientific paradigm — reinforces that paradigm. And it is reinforced because the "normal scientists" develop a series of buttressing sub-theories, discovering or emphasising new facts to confirm the paradigm. The work of solving puzzles — i.e. irregularities that, if they persist, can refute the theory — strengthens a given scientific paradigm because its proponents *do not surrender* to the refutation that certain facts inflict on it. As Feyerabend would later say, the proponent of a theory, especially in its infancy, needs *to be tenacious,* and tenacity is the opposite of a critical spirit. Apart from those periods that Kuhn characterizes as being of "extraordinary science", of explicit conflict between scientific paradigms as such — and of questioning what is scientific and what is not among scientists themselves — most researchers accept that they will be operating within the dominant paradigm in their field. The criterion is that *it's always better to have a false theory than no theory at all*. This is the conservative face of science, but the one that makes the advancement of knowledge possible.

4. Science and Non-Science

We will not be able to delve here into the decisive contributions made by Duhem, Poincaré, Michael Polanyi, Quine and Lakatos. Instead, we will limit ourselves to summarizing the image of scientific activity that emerges from the epistemological debate in the twentieth century.

Breaking more and more with the *representational* idea of knowledge as a system of *Bilden*, of ever more faithful *images* of the world (the "mirror of nature" of which Rorty speaks), [2] an image of scientific theories as *signifying organisms* that behave in a manner analogous to animal species is establishing itself. The speculative and contemplative metaphor has been replaced by the biological metaphor — something that has also happened in other fields of culture (take biopolitics, for example). This success on the part of the biological reference — knowing is only

[2] See Richard Rorty, **Philosophy and the Mirror of Nature,** Princeton University Press, Princeton 1979.

a part of living — would produce, among other things, Dawkins's *meme* theory, an approach to cultural processes similar to a biological approach. [3] *Meme* (from *mimesis*), the spiritual equivalent of gene, is now another commonly used term. Theories and paradigms, like genotypes, evolve by mutation and selection. Mutations do not come from some new experience but from the emergence of a new idea, which in a sense falls from the sky, and first of all exerts a seductive attraction on scientific minds. New ideas, Deleuze said, are the inaugural *party of* scientific research. But theories and paradigms become established if they have the ability to overcome the various challenging trials set by the environment, which in science are the empirical data that every theory needs to take into account. Theories, just like living organisms, are therefore conservative, where this does not prevent them from being supplanted by other theories that reproduce themselves more prolifically – i.e. ones that reproduce themselves more prolifically in the minds of scientists, which in turn constitute the environment of ideas.

Max Planck said that a new theory seldom prevails by convincing scientists through arguments alone, as scientists can invariably discover counterexamples: older scientists simply die or retire and younger ones, trained in the new theory, take their place. [4] There is a demography of scientific truth. Now, all this goes hand in hand with the most influential philosophy of the twentieth century, pragmatism, which more or less descends from Vico's *verum factum est.* Science is never disembodied, it forms a body with the very human processes of rhetorical persuasion, propagation, reproduction and hegemony. In short, to know the world is to dominate it and survive in it. From an image of theory as representation of the world, we move to an instrumentalist, action-centred image of theory.

Therefore, the inverse can also be said: that life is itself a form of progressive self-knowledge of the world.

All the theories shared by the scientific community today are falsified, they are all imperfect, so it is not so much a question of choosing between true and false theories, but between theories that are more or less imperfect. After all, even animal species are all of them imperfect, [5] and yet certain variants still predominate over others as less maladaptive.

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[3] See Richard Dawkins, **The Selfish Gene**, Oxford University Press, Oxford 1976.

[4] See Max K. Planck, **Scientific Autobiography and Other Papers**, Philosophical Library, New York 1950.

Let's also add that for any theory-paradigm to assert itself, it needs two qualities that don't always align: *seductive power* and *explanatory power*. These two correspond to the dual fitness of biological organisms: on the one hand the ability to seduce the opposite sex more effectively (where reproduction is sexual), and on the other to evade predators and capture prey. For example, biologists have been unable to find an explanation for the antlers of male deer: the larger and more intricate they are, the more they seduce females, even if they are a handicap for the animal. Antlers, apart from this erotic potency, have no other adaptive sense. Species appear to be diverted from their purely reproductive function and entrenched in a purely erotic logic.

Even the strongest theories — such as relativity or quantum mechanics — have established themselves thanks to their intellectual seductiveness. The great scientific theories are *beautiful*. And they need to be seductive — this is Feyerabend's famous analysis of Galileo's "propaganda" for his theories. Scientists confess that certain hypotheses, which may well be plausible, are immediately discarded because they say to themselves: "God can't be so vulgar!" Nature has to have an elegance of its own that theorization needs to capture. Obviously, if the intellectual seductiveness of a theory overwhelmingly prevails over its explanatory power, then the theory loses its scientific persuasiveness. This is what is said today about Marxism and psychoanalysis, for example — theories that are intellectually highly seductive ("brilliant", even), but not very explanatory and hence unscientific. In cosmology, string theory, which describes the universe as a kind of musical harmony, held great fascination for decades, until most realised that its explanatory power was very low. Conversely, a theory that is only explanatory but lacks intellectual or aesthetic appeal will tend to be ignored. For example, Galileo's reluctance to accept Kepler's orbital ellipses can only be explained by the fact that ellipses appeared less "beautiful" to him than circles. [6] Today, certain sociobiological theories about genetic differences among humans are not taken into account, because they often lead to racist conclusions, and racism is an ugly thing.

There is therefore no authentic clear-cut boundary between scientific and non-scientific theories. It is a matter of degree: the more seductive and the less ex-

[5] For a view that contrasts with the conventional image of life forms as always perfectly adapted to the environment, see Telmo Pievani, **Imperfection: A Natural History**, The MIT Press, Boston 2022.

[6] See Erwin Panofsky, **Galileo as a Critic of the Arts**, Springer, New York 1954.

planatory a theory is, the farther removed it is from scientific respectability. And yet, in return, it can acquire considerable philosophical respectability, for instance. This is the case, for example, with Freud, who is no longer a subject of study in Psychology or Psychiatry courses, but is studied in Philosophy and Comparative Literature.

5. Permanent Revolution

If the survival of a theory-paradigm, its preservation, is an integral part of the process of knowledge, then everything that appears to be the mere garbage of knowledge — the academic structure of scientific communities, the funding strategies for research projects, the political needs of governments, the environmental pressure from the circulating ideologies, the stubborn tenacity we mentioned earlier — all becomes an integral part of the formation of knowledge. And that is exactly what Feyerabend wanted to tell us. He does not say, as many believe, that science is political, but that scientific policies exist that more or less collude or collide with the social and political environment in which science develops. Hence his political agenda of separating state and science, just as church and state have been separated — a separation, however, that I think has already taken place, given that so much research funding today comes from private enterprises.

Feyerabend rejects Kuhn's concept of normal science because he has a quite aristocratic idea of scientific work. Science progresses not by perfecting a paradigm, but by leaping over and breaking the assumptions of dominant paradigms. I find it strange that Feyerabend has been described as anti-science: on the contrary, he gives us a heroic image of science, which he believes "progresses" just like the arts.[7] What interests him is scientific creativity, not the routine work to which scientific research is often reduced today. Science is now a mass profession, involving millions of workers. We are a long way from the great scientific revolutions of the last century, which were the work of a small elite of brilliant devotees.

In short, Feyerabend does believe in scientific progress, but observes that it advances by inventing new methods time after time. Methods are like the tools

[7] See Paul K. Feyerabend, **Wissenschaft als Kunst**, Suhrkamp, Berlin 1984.

a sculptor uses to produce a statue — but what matters, in the end, is the statue. The fact that Newton assumed a mysterious long-distance attractive force between the sun and the planets did not stop the Newtonians from prevailing over Cartesian physics, which apparently explained things more effectively. The fact that many phenomena in quantum physics assume that knowledge of a phenomenon modifies or determines it (as in the paradox of Schrödinger's cat) goes as far as breaking the principle of realism in science. The fact that Einstein did not fail to point out this enormous infringement has not prevented quantum theory from prevailing as the fundamental physics of our time. The important thing about a theory is, then, its ability to *predict*, not so much its ability to adequately explain — even though, in science, we always find a tension between predictive power and explanatory intelligibility. It so happens that a theory such as Darwinism has no predictive power (no one knows what new organisms will turn up) but is very powerful as a model that makes the history of life intelligible. By contrast, quantum theory, as we have said, has many explanatory gaps but an extraordinary predictive power.

I cannot help also noticing in the human sciences what Feyerabend decried as methodological bias. Attending many congresses of social psychologists or sociologists will leave you dismayed: what really matters for most of them is to show the refined method they have followed to carry out a certain investigation, but applied to absolutely irrelevant topics. What we aim to understand no longer counts, only the methodology matters… Yet this is like using the most advanced cannons to kill a fly. In the humanities, too, therefore, the method should serve the intelligibility of the object of research. The important thing is to understand the world, and different tools can be used depending on the occasion.

But in that case, why do so many scientists — including their caricatures, i.e. certain types of social scientists — believe that what really matters is the method employed? In my opinion, because true discoveries are rare, and what most scientists produce will turn out to be negligible, not everyone has enough luck or enough genius. What determines the academic prestige of most scientists is therefore not the fact that they have produced new theories or discoveries, but the fact that they have always followed *the correct method*. Putting methodology first serves to protect one's mediocrity — something which sometimes then functions as a challenge to the creativity of other "incorrect" colleagues.

So, Feyerabend does not entertain the Kuhnian image of science as consisting of legions of "normal" scientists trying to solve puzzles within a paradigm, but rather the revolutionary image of scientists not caring about "good forms": an ideal of science in permanent revolution, but also a revolution made by creative scientists.

We should, moreover, read Feyerabend with the irony typical of Feyerabend himself.

6. Radical Pluralism

All the positive statements made by Feyerabend, a person with a great sense of humour and a taste for paradox, should be taken as impertinent *negations* of rationalist assertions. In short, the sense of his statements is almost always deconstructive. For instance, his "anything goes", as he said himself, is to be taken as the conclusive exclamation of a rationalist once he has taken a closer look at the history of science. This suggests that, after all, it is not true that anything goes, even though Feyerabend never says what should be considered wrong. His basic idea is that philosophy's claim to tell us what is right (science, truth) and what is wrong (myths, religions, metaphysics) is illusory: it is history, i.e. life, that selects. In essence, his anarchism is a *reductio ad absurdum* of rationalism, a little like Zeno's paradoxes.

Something similar should be said about his idea that scientific theories are largely *incommensurable*. This idea of incommensurability brings Feyerabend very close to Foucault. (Is Feyerabend the Foucault of science?) And, indeed, there was mutual respect between the two, despite their very different cultural backgrounds.

Prejudices thrive on the subject of incommensurability, too. To say that two theories are incommensurable by no means amounts to saying that there is an incommunicability between their proponents, that it is not possible to compare them. [8] When, in geometry, we say that the diagonal of a square is incommensurable with the length of the sides of a square, we don't mean that we can't apply the

[8] See Sergio Benvenuto, "Incommensurability and Relativism. A Discussion about Paul Feyerabend's Thought", (F)luxury 2016, https://tiny.pl/cs1l7 [12.10.2023].

same units of measurement to the two quantities! We only mean that it is impossible to find a segment small enough to fit a whole number of times into both lengths. In short, it is not possible to completely translate two incommensurable quantities into each other: there will always be a remainder, a plus or a minus that makes it impossible to reduce the two quantities to multiples of certain invariant concepts. This remainder that cannot be evacuated is at the root of deep misunderstandings in discussions between scientists, too: we may use the same words, but in fact the meaning we give to these words is not superimposable, which is why an agreement will never be reached. In short, in a dispute, the meaning of the words we use is not fixed once and for all, but is negotiated and shifts constantly. As we can see, this cripples any philosophy of universal dialogue and communication. Our debates, including our philosophical ones, are always exposed to the different implications that our concepts have for each of us. Communication between humans takes place not in spite of misunderstanding, but because of it.

We should also say that scientific theories and paradigms are incommensurable from a realist point of view. If realism is abandoned, incommensurability falls.

Hence the idea of a radical *pluralism*. This is what interests Feyerabend: a polyphonic vision not only of science, but of culture in general. And hence of Being in general. That recursive non-coincidence that ensures incommensurability is the lifeblood of cultural progress.

This is the end of a *single key* to interpreting history, and that is even so in the case of the evolutionary sciences. Although Darwinism remains the main biological theory of the history of life, many tend towards a *weak Darwinism*, or even refuting Darwinism, on the basis of evidence to the effect that not everything in life is adaptive — as we saw in the case of deer antlers. [9] In other words, *there is no single principle that governs the history of life*, not even the Darwinian principle of mutation and selection. And so, in human history too, there is no single impulse that explains it: neither class struggle (Marxism), nor the craving for freedom (liberalism), nor adaptation to environments, nor the will to power (Foucault), etc. History, as it pertains both to life and to cultures, is chaotic; it does not express a

[9] See Jerry Fodor and Massimo Piattelli-Palmarini, **What Darwin Got Wrong**, Picador, London 2011.

single principle. Furthermore, the result is the fundamental unpredictability of the world of life — and hence of scientific life too.

In essence, Feyerabend decries the rationalist *fury* that tends to oversimplify the world, because for him Being is abundance, unlimited wealth. [10] Against a supposed a "single thought" — in science as in politics — he opposes his "principle of proliferation": It is better to have as many theories as possible, even if some are bizarre. Democratic pluralism must be accompanied by epistemic pluralism. [11] After all, pluralism is already inherent in the diverse variety of thinkers to whom he claims to be indebted: Aristotle, Hegel, Marx, Kierkegaard, Mill and Wittgenstein. The Whole is Feyerabend's favourite target: his world is made up of parts that do not add up to a whole. The irreducible plurality of theories and paradigms points to a plurality of Being itself, to a multiplicity of worlds.

This pluralism leads to a refutation of the idea of 'unity of knowledge', which is why many philosophers speak not of Science but of *the sciences* in the plural. In the wake of this, the so-called "Stanford School of Philosophy of Science" and Ian Hacking also begin from this plurality: to ontologically affirm a plurality of worlds and thus challenge the substantial reductionism that still permeates most scientists' view of scientific knowledge. [12]

Hence Feyerabend's criterion, also provocative, of "unscrupulous opportunism". That is, when scientists feel that something is true, they can resort to the most suitable arguments and persuasions, bordering on lying. I wonder if Feyerabend was struck by Orson Welles's film *Touch of Evil* (1958): the hellish police captain Quinlan might have served as a model for his *opportunism of truth*.

After all, today's physicists are all opportunists in the Feyerabendian sense, since they refer to two mutually incongruent theories, relativity and quantum mechanics. Some try in vain to find a synthesis between the two, but in fact both are used in physics. Indeed, anything goes, as long as it works.

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[10] See Feyerabend Paul K., **Conquest of Abundance: A Tale of Abstraction Versus the Richness of Being**, Bert Terpstra (ed.), University of Chicago Press, Chicago 1999.

[11] See Sergio Benvenuto, "Paul K. Feyerabend (1924–1994) — Search for Abundance", *Télos* 1995, Vol. 107, Winter 1995, pp. 107–114, https://doi.org/10.3817/1295102107.

[12] See Ian Hacking, **Why Does Language Matter to Philosophy?**, Cambridge University Press, Cambridge 1975; Ian Hacking (ed.), **Scientific Revolutions**, *Oxford Readings in Philosophy*, Oxford University Press, Oxford 1981.

His ontological image of the world is one of irreducible chaos. Where knowledge is concerned, Homo sapiens continually tends to simplify the extreme complexity of the world in order to try and survive inside it; but in this way knowledge distances us from the real. Hence the contradictory double vocation of knowledge: on the one hand to render perceptible *the excessive abundance of* entities (approaching the real), on the other hand to reduce this abundance (favouring survival). Our need to survive is certainly the spur for knowledge, but also the source of our will to ignorance.

Feyerabend writes: "»Is it not possible«, asks Kierkegaard, »that my activity as an objective [or critico-rational] observer of nature will weaken my strength as a human being?« I suspect the answer to many of these questions is affirmative". [13] For Feyerabend, this *strength* is more important than objectivity, even though the *effort* to be objective is human too.

This helps us understand the reason for certain provocative proposals Feyerabend made, which have led us to think that he was posing just to shock us (*épater*) — such as when he recommends diverting funds from research into elementary particles in order to bestow them on astrology, homeopathy, theology, etc. What appears to be a quixotic challenge to the huge scientific establishment is actually a corollary of its own pluralism: science has produced so much because research programmes have proliferated. In other words, Feyerabend would like to apply to science the same criterion of diversification that has become common in ecological policies: the great diversity of animal and plant species, as well as the great diversity of languages, cultures, beliefs and techniques is a value in itself. Difference is wealth. A standardized world kills both biological and cultural creativity. This is why western countries today are careful not to destroy archaic crops, traditional forms of life, cultural fossils, etc. — in line with the principle that the more culturally and biologically diverse a nation is, the more it can adapt to new situations and the more creative it will be. The very excellence of the USA over the last two centuries can be explained by its being a composite country, made up of many waves of migration and many religions. Thus, in a natural or nuclear catastrophe, certain archaic forms of life could prove extremely useful for humanity to survive.

[13] Paul K. Feyerabend, **Against Method. Third Editon**, Verso, London — New York 1993, p. 154.

It is strange that Feyerabend is still seen as a sort of terrorist in philosophy of science, considering that, after all, the pluralism he proposes increasingly infuses the most economically and culturally advanced societies. Our world is becoming more and more Feyerabendian, without us realising it.

Finally, I come to my personal path of reflection on science. I think that Feyerabend, by bringing to a close the long tradition of philosophies of method stretching from Descartes to Popper, has contributed to overcoming two ever-opposing visions: one that hinges on the contemplative objectivity of knowledge and the other that, from Nietzsche onwards, makes knowledge a very human instrument for power, domination and survival. I am inclined to regard both approaches as capturing something of the truth. My view is that today's scientific knowledge is not a mirror of being, but rather the result of all the *questions that* human beings have asked Nature over the centuries, and to which It has responded. Knowledge is the result of a game with Nature. This game is based on *allowing Nature to speak*, albeit through a priori prepared protocols. Science puts Nature on parole, it "coerces" it, but it gives it sufficient freedom to answer as it wishes or turn us down. (And we know full well that Nature often turns us down. For example, it has never answered the question "Does light consist of waves or particles?") The advantage of scientific knowledge, compared to all other discourses that question being, is this allowing of Nature, at some point, to speak. Many other "games" continue to seek truth, alongside science. But science, by letting Nature answer certain "referendum" questions, is the game closest to today's pluralist and liberal democracy.

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