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Popper's Nightmare

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Abstract

Epistemological relativism and authoritarianism are compressing political and intellectual freedoms by replacing facts with interpretations, as Karl Popper predicted several decades ago. Some suggestions to cope with this situation in science are provided.

Keywords: Karl Popper, post-academic science, epistemological relativism, epistemological authoritarianism, CUDOS, PLACE

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1. "Ideas Are Dangerous and Powerful Things" (Popper 1967)

"Science" is an ambiguous word. It can have several meanings. Among them, it indicates a method, a set of known facts, a community of persons, or a set of explanations. However, all of these meanings share knowledge as a general objective. The issue of determining what we exactly mean with "knowledge" is the long-standing branch of epistemology, which, in the Modern era, is inextricably intertwined with the so-called philosophy of science. Most scientists do not like to think about scientific knowledge itself; they like to think about the natural phenomena they are investigating. This is why the theoretical reflections about the scientific method and the scientific community are generally carried out by philosophers and sociologists. During the 20th century, the most famous epistemologist was Karl Popper, whose work provided a conceptual framework, albeit ideal, to the pattern of the modern scientific method of knowledge. The work of Popper faces the issue of determining whether a theory, a scientific explanation, can be considered true or false. Popper is also seen as a strong supporter of freedom,

democracy and open society, a position that is commonly considered a consequence of his epistemological pattern. Instead, the concern about freedom is not the end, but the starting point of his thought (Popper 1962). In the core of his epistemological framework we find the problem about what can be called "truth" and how it can be determined. In the introduction of his "Conjectures and Refutations" he writes

"I believe that Russell is right when he attributes to epistemology practical consequences for science, for ethics, and even for politics." (Ibid.)

Popper recognised that this issue was correlated both to experiences of fascist and communist dictatorships and to ordering of democratic western societies that emerged after the World War II. While Popper was building up his model of scientific method, from the 40s to the 70s, the actual structuring of communities of scientists was studied and systematized by the sociologist R. K. Merton (Merton 1942, Kellogg 2006). He identified the guiding principles of the scientific community, the so-called *academic science* policy, which he summarized in five terms, i.e. *Mertonian norms*. These, in the formulation

of J.M. Ziman, state that scientific research should be: *communalist, universal, disinterested, original, skeptical* (for a specific description of their meaning see Ziman 2000); their acronym reads CUDOS, a word correlated to Ancient Greek κῦδος, meaning “glory”, “honour”, “good name”. As pointed out by the title of his original essay, the first concern of Merton was the issue of democracy, just like his contemporary Popper (Merton 1942). Therefore, Popper and Merton, maybe the most important academics on scientific knowledge and principles, share the vision of a scientific structure as entangled in, rather foundational of, our democratic societies. Since the time of Popper and Merton, many changes have occurred both in science and society. Nowadays, our civil societies are challenged by issues where the scientific community plays a key role. Never as now, interplay between science and society has become important: actually, it affects difficult choices on present and future of people. So, it is worth trying to briefly examine the current historical circumstances from the point of view of Popper and Merton.

2. Truth and Freedom

Affirming the existence of a reality whose truth can be perfectly known through human means, as positivists did, is a viewpoint that can become dangerous. This was the opinion of Popper after the experience of the World War II and with the Cold War still in progress. Of course, such a viewpoint had opened the door to authorities claiming to possess the Truth, as he had said in fascisms and Marxism. Notably, Popper also recognized a danger in the opposite claim, i.e. that a knowable truth does not exist; actually, if so, what is socially considered “true” has no correlations with objective data, so it can be arbitrarily established by the temporary rulers.

“epistemological relativism, or the idea that there is no such thing as objective truth, and epistemological pragmatism, or the idea that truth is the same as usefulness, are closely linked with authoritarian and totalitarian ideas.” (Popper, 1962)

Given that the risks correlated with the absolutism of dictatorships were evident, Popper recognised in relativism a subtler risk for the future of our democratic societies.

“The belief of a liberal—the belief in the possibility of a rule of law, of equal justice, of fundamental rights, and a free society—can easily survive the recognition that judges are not omniscient and may make mistakes about facts [...]. But this belief [...] can hardly survive the acceptance of an epistemology which teaches that there are no objective facts; not merely in this particular case, but in any other case; and that the judge cannot have made a factual mistake because he can no more be wrong about the facts than he can be right.” (Ibid.)

Everyone recognizes that during past decades, especially since the beginning of 21st century, in western societies the relativistic approach has spread both among general public and among academics, namely scientists and researchers. In the current historical moment, we are at a turning point: what about Popper’s concerns? In the last 30 years the development of scientific knowledge has suffered from several diseases (Kellogg 2006). Namely, some researchers demonstrated the possibility of publishing gibberish papers. Even worse, some authors pointed out that the most part of research findings are not trustworthy because they are strongly biased by previous interpretations, scientific community, competing interests, financial interests, public expectations, so demonstrating that such claimed discoveries can be considered false (Ioannidis 2005). In the same period, the issue of scientific frauds arose in all fields of scientific research: among others, Schoen’s scandal erupted as a warning signal at the begin of this century (Reich 2009). A journalistic inquiry of Science subsequent to this event revealed that 10% of the interviewed researchers were aware of major scientific misconducts in their fields, while just 0.01% were misconduct documented cases, with the largest portion in medical and life-sciences (Marshall 2000). All this made effective the idea that evidences, phenomena, trustworthy facts, namely the truth, do not exist everywhere, even in science. Scientific truth would coincide with agreement among experts (framework of T. Kuhn) or, even worse, by those who are able to prevail (framework of P. Feyerabend). One of Popper’s fears came true: the dominance of epistemological relativism, and it can be seen as the triumph of Popper’s above-mentioned foes. But, as he said, the problem of truth is not just a matter of academics: what we know and what we do not strongly involve decisions for citizenry. If scientific methods and scientific community

do not seem to be able to provide feasible knowledges, somebody will assume power to arbitrarily decide which results should be considered. This power is assumed by backers, by stakeholders, by corporations, and by politics, especially when personal interests are involved. Actually, in these conditions, when politics and decision makers (such as managers and executives) establish to embrace a given scientific interpretation, they operate a “misleading oversimplification”: we know that scientific method requires that no theory be embraced and, for today’s scientific major issues, the work of the –scientific community is almost always still in progress (Abbasi 2020). Nonetheless, rules of politic and economic powers walk into the careful scientific research process with their strong not scientific interests, so that one speaks about “suppression of science” (Ibid.). Actually, scientists expressing scientific doubts about political choices on hottest topics, say e.g. global warming or COVID-19 pandemic, are most often delegitimized, even though they raise reasonable and valid issues:

“The same tools used to discredit disingenuous expressions of doubt can be used against those who express well-supported doubt. Those with particular political views may declare some doubt to be unreasonable, even if it is actually quite reasonable.” (Allison *et al.* 2018)

In this situation, the usual scientific debate becomes biased, so intellectual and research freedom among academics is heavily restricted. The arising of the COVID-19 emergency found this situation causing, as a catalyst, a strong “politicisation” of science.

“Science [...] rarely applies to every setting or every population. It doesn’t make sense to slavishly follow science or evidence. A better approach is for politicians, the publicly appointed decision makers, to be informed and guided by science when they decide policy for their public. But even that approach retains public and professional trust only if science is available for scrutiny and free of political interference, and if the system is transparent and not compromised by conflicts of interest.” (Abbasi 2020)

This intrusiveness of power is the second fear expressed by Popper come true: a central authority that rules, by its own force, what is the “scientific truth” to be followed, that delegitimizes doubts and suppresses scientific debate. This means that, in our present times, the epistemological relativism has resulted

in epistemological absolutism: joining of these two opposites has contributed to compress (sometimes even suppress) political and intellectual freedom. Let us remember the political concerns behind Popper’s thinking: *Popper’s nightmare* has become true.

3. Scientists Exist, “Science” Does Not

How has this occurred? In the above-mentioned distorted mechanism of intellectual and political control, decision makers usually say “Science states that...” to substantiate their decisions, but we know that “Science is rarely absolute” (Ibid.), especially when facing new and complex issues. Politics and decision makers want certainties, they need parading certainties; genuine scientific research does not claim to provide certainties, it provides correct results within an estimated confidence level. As a matter of fact, science is an abstract idea, that actually does not exist; phenomena, data, methods, theories, and scientists exist. Scientists make up a community of people that uses methods, observes phenomena, records data, builds theories to increase knowledge. Scientists are the pivot of the entire process, so their correct conduct in their investigation is the only guarantee for achieving a real increase in knowledge. Actually, ideal principles to be followed in practical scientific activities were identified by R. Merton as specific features of democratic societies (Merton 1942). Nevertheless, for several decades numerous people have talked about “Collapse of Mertonian norms”, by which the scientific community has passed from the principles of CUDOS to the principles of PLACE, i.e. scientific activity has become *proprietary, local, authoritarian, commissioned, and expert* (Kellogg 2006, Ziman 2000). Again, the meaning of this new acronym is not accidental, indicating the usual goal of several scientists within the scientific community. PLACE can be seen as the *post-academic science* policy (for a specific description of their meaning see Kellogg 2006 and Ziman 2000). Of course, both CUDOS and PLACE are just models, real things are much more complex, though these models well highlight the passage from the old to the new paradigm reflecting the passage from the *academic* to the *industrial (post-academic) science* (Kellogg 2006). As all structural changes, this transformation entails both opportunities and risks. The paradigm of industrial science, e.g., increases number of researchers, total amount of knowledge,

overall resources, collaborations, interdisciplinarity. Nevertheless, PLACE is a system with many drawbacks which contribute to science degradation. Among them, over-proliferation of publications (summarized in “Publish or perish” motto) and the spreading of frauds have decreased reliability and trust in scientific knowledge, feeding *epistemological relativism* (Marshall 2000, Karachalios 2008). On the other hand, the vast majority of research funding has passed to be provided through grants on specific calls: this has exposed researchers to a strong centralized control. Which topic will be supported it's decided by private and public funding holders, almost always without following scientific criteria. Both public and private controls have meant that, within this paradigm, investigations are no more moved by curiosity and aimed at knowledge, but they are commissioned tasks to solve specific issues. Put simply, science has become authoritarian (*epistemological absolutism*). We are then distinguishing that the structural change to PLACE has paved the way to the realization of *Popper's nightmare*. Following this line of reasoning, the shift from CUDOS to PLACE seems to have been an effective instrument allowing the reduction of political and intellectual freedom we are experiencing. Is the PLACE pattern inherently unsuitable to give support to free democratic societies? If the interpretation of Merton is correct (Merton 1942), we should also ask: do free democratic societies generate Mertonian principles or do Mertonian principles belong to fundamental pillars of free democratic societies? Of course, answers to these questions would be long, need large, specific analyses and most likely would not be univocal. We can here just stress some factual evidences.

1. Merton's original analysis demonstrated that CUDOS principles are found in the scientific practice within free democratic countries; conversely, Nazi and Soviet sciences (in his days) were following almost the opposite principles, being commissioned, authoritarian, centralized, highly controlled. These features are analogous to features of PLACE paradigm.

2. However, the CUDOS paradigm is merely an ideal paradigm, which has never, also in the past, exactly matched the real situation of scientific practise; on the other hand, the arising of PLACE paradigm is a consolidated phenomenon, whose rejection by some nostalgic would be meaningless (and not viable).

3. No paradigm can be separated from proper behaviour of scientists: if they do not refer to phenomena, data, methods, theories and to tried and tested good practices, the increase of knowledge, i.e., the final objective of scientific research, will be missed. Scientists should communicate through the standard instruments of scientific community (e.g. peer-reviewed publications); if they do not, they open the way to be exploited for non-scientific goals. Summarizing, scientists bear a major responsibility both as regards to the advancement of knowledge and towards the general public, and they cannot exclude themselves.

Conclusions: Bringing Truth Back

Summarizing, *Popper's nightmare* is the joining of relativism in knowledge and authoritarianism in research, bringing to a compression of political and intellectual freedoms. We come to the conclusion that when politics walks with arrogance into a scientific practice weakened by relativism, the strong interference from non-scientific criteria makes facts “cease to exist”; they are “replaced” by (political) interpretations. These interpretations are then imposed as facts: scientific practice is crushed by a form of authoritarianism. In agreement with Popper and Merton, we are seeing that this dynamic is a great threat to knowledge and to the general public. We can sketch some suggestions for trying to respond to this cul-de-sac.

From a practical point of view, the CUDOS principles should be explicitly known and taught by all academics, provided they are an ideal reference model and not a rule list. Activity spaces where CUDOS norms can be easily followed, reasonably and explicitly free from the constraints of PLACE, should be provided and maintained for present day and future science. Put simply, in every country a hard core of “academic science”, of scientific activities free from non-scientific interests, should be carefully maintained. In this, the role played by states in funding without profit is crucial.

From an epistemological point of view, impacts on societal freedom pointed out by Popper require the concept of truth to be brought back. Not trusting an existing truth of things, a truth of phenomena which can be (approximatively) achieved by mankind, all this stuns. Trusting that mankind has power to decide on the truth, to establish and arbitrarily manipulate

natural phenomena, all this stuns. Stunning makes us fall asleep; Popper and Merton showed that in this sleep, political and intellectual independence risks to be curtailed. We have to wake up soon. If we want to exit from *Popper's nightmare*.

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