Ilya Kasavin

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An Introduction

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Summary

The social philosophy of science adopts a mediatory approach, which is situated at the point where epistemology meets the history of science, sociology, political and cultural studies. It aims at overcoming the inertia of narrow-mindedness inherent in any specialist and inspires active interaction with other disciplines. The social philosophy of science consciously and purposefully addresses the problem of how a philosopher, a humanitarian, or a social scientist in general can act as a mediator in communication with other scientists and with public agents. Science and society are pluralistic and interrelated entities, each existing and evolving in a peculiar manner. Understanding and coping with the *uneven, contradictory and value-laden unity of science in/with society* is originally part of the design of the social philosophy of science. The main idea of the social philosophy of science is to return all the richness of social, cultural, and intellectual life, in which science is de facto immersed. It is to revive all the excessive socio-cultural content from which modern science is trying to largely distract; to remind the public and scientists about means of understanding science at its true value as a global social and ideological problem, like a gift that no one is able to reject.

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Preliminary Considerations

"Social philosophy of science" is a term that I proposed eight years ago within a number of research projects. Now I shall list and briefly comment on the main problems that it aims to cover, as well as the directions of further research. The first problem is whether the new concept of the "social philosophy of science" is sufficiently justified while there are other similar concepts: "social epistemology", "historical epistemology", "sociology of knowledge", "STS", and so on. What particular question does this term answer? In my opinion, this is the answer to the question of what is the proportion of philosophy in the philosophy of science. There are still discussions on this topic. Many researchers believe that the philosophy of science is a special, non-philosophical discipline. A number of my colleagues and I hold another view. In my opinion, in raising the question of the social philosophy of science, we tend to clarify how society can benefit from the philosophical study of science.

Another problem is what philosophy presents in this regard and how the philosophical and interdisciplinary contents of the social philosophy of science correlate to each other. There are philosophical ways of understanding science, there are natural science's self-consciousness, and socio-humanitarian approaches on science. I believe that one hardly needs a demarcation line between these attitudes to science. Rather, philosophy problematizes disciplinary and interdisciplinary interactions, poses certain questions to them, and interdisciplinary research provides a source for updating philosophical research in a related field. For philosophers, inter-disciplinarity represents a genuine internal communicative set, which deserves intensification and inspiration. Creativity is deeply rooted in interaction, and philosophy engages in promoting and critically commenting on it using the whole cultural, historical, and political context.

The third problem: philosophy is a type of basic research; can we talk about the applied value of the social philosophy of science? The first finding here is that this problem is being raised altogether. In fact, science exists, on the one hand, as a cultural value, and this tradition goes back to ancient times. On the other hand, science is the subject of social management, certain policies and itself acts as an intellectual resource for social technologies. How does all that relate to each other? This general problem

includes philosophy and is formulated as the possibility and necessity of the applied use of the social philosophy of science.

The social ontology of science is the fourth problem worth discussing. What's the point? Science, both as a social institution and as a system of knowledge, does not exist as an idea in a vacuum, but is rooted in a somewhat understood reality. What is the angle of this understanding, the angle that is significant for science, technology, and intellectual activity in general? In other words, how does science relate to society? What does it mean "to serve social needs"? Is it a blind or critical service? Here we logically move on to the fifth question about the role of the concept of "context" in the social philosophy of science. And here we also ask about the difference between the concept of "social philosophy of science" and "sociology and history of science", which uses this concept as well. Does context basically limit the understanding of science or enrich it? Does context belong to "the given" or to construed artifacts?

The sixth problem concerns the relationship between the concepts of sociality in/of science and scientific communication with all their similarities and differences. My solution, formulated in the correspondent chapters, suggests distinguishing between three types of sociality of knowledge, some of which coincide with the concept of communication in science. The relationship between utopia and politics in the structure of the social philosophy of science, their cognitive relevance and irreducibility is the seventh problem. In part, it coincides with the question of the social ontology of science, but here we emphasize the difference between ideological and managerial components of this ontology. It is also the question of social and humanitarian technologies as a subject of research and design. It is evidentially related to the question of the applied value of the social philosophy of science.

And last but not least, in this book, I do not intend to single out the problems of the Russian philosophy of science as a special intellectual tradition, although many Russian philosophers are the giants on whose shoulders I stand. It is more correct to consider all these problems from the point of entwining rather than distancing or confronting the Russian and West European intellectual traditions from or with each other. Russian philosophy has always been part of the vast diversity that is called European philosophy.

Elucidating the problems posed, it makes sense to return to the term and concept of the social philosophy of science, to the ratio of it in the classics and the present. The classical philosophy of science went through several stages of development, and within the framework of the latter, the

seeds of new approaches were sown. So, as early as in the 1930s, if we take the works of Ludwick Fleck [Fleck 1935/1979], and of course, since 1962, when the famous book by Thomas Kuhn was published, we can talk about gradual turning to the social philosophy of science, although Kuhn himself hardly guessed it.

Moreover, the classical philosophy of science was never a single paradigm, which was then replaced by another. With phase shifts, various currents in the philosophy of science constantly arose, existing simultaneously, sometimes intersecting, sometimes contradicting each other, or practically disregarding each other completely. In the end, as we are witnessing today, all this gave rise to a variety of areas in the philosophy of science, including divergent and orthogonal ones. It would be wrong to say that today there is no longer a classical philosophy of science. In fact, it continues to exist in some variants coming from Jürgen Mittelstraß, for example, who follows the tradition of logicism in the philosophy of science in line with the Vienna Circle's school of thought. The tradition of scientific realism, which is especially popular today in the United States, also needs to be mentioned.

At the same time, alternative options are being developed and initiated, among other things, by the works of Boris Hessen [Hessen 1931/2009], Michael Polanyi, Gerald Holton, and Paul Feyerabend. In this sense, the social philosophy of science is not something that suddenly fell from the sky; it grew out of previous trends but was not articulated using these terms. For the traditional philosophy of science, it was essential to distinguish between scientific knowledge and science, as it exists in society, either as an institution, or as a certain ideological, cultural program. Members of the Vienna Circle argue that science exists as knowledge and at the same time as a cultural project. They distinguished between these concepts and assumed that there were people who might well be satisfied with the logical picture of scientific knowledge, who develop this concept expressing indifference to all social aspects of the existence of science (Rudolf Carnap). And there were people who could not tolerate this and wanted to develop science in the Enlightenment spirit, as a means of transforming society, since scientific knowledge has priority truth over all other types of knowledge and allows us to fight obscurantism, idols of reason, false worldviews, and religion (Otto Neurath).

When the era of dominance of the classical philosophy of science ended, the confrontation between these two spheres lost its former relevance. This was preceded by a stage when both of these spheres were studied equally thoroughly, but practically without reference to each other (logical

empiricism, on the one hand, and the history and sociology of scientific knowledge, on the other). The sociology of science and the sociology of scientific knowledge paid attention to what the philosophy of science refused to study. There were, on the one hand, institutes, and on the other hand, intellectual manifestations of science, which did not fall into focus when science was viewed either as the implementation of formal logic or as a set of protocol sentences. Such concepts arose as implicit knowledge, a picture of the world, a style of thinking, a paradigm, a theme, a tradition. First of all, attention had focused on social representations in science: David Bloor's book was entitled "Knowledge and Social Imagery" [Bloor 1976].

What did the sociology of scientific knowledge begin to do? It studied the relationship between scientific knowledge in the traditional sense and cognitive elements that have not traditionally been included in science but exist in society. Quite a long period of their separation is very well recorded in the works of many scholars, whose books are permeated with the idea of separating the socio-cultural sphere from the sphere of scientific knowledge. This fixes the very stage in the development of the philosophy of science when these areas oppose each other. Gradually, intellectuals began to understand that there was no confrontation here, that scientific knowledge could not exist in any other way than in social and cultural forms and images. It is a different matter how attentive the view of a researcher of science is, how deeply she penetrates into the content of scientific knowledge, not in understanding the scientific truth itself, but in order to see behind this scientific truth: that it is produced by men and in their communication with each other, that all this is done in a society which carries specific historical, epochal traits without any chance of leaving the scene.

There are many examples of this. Just recently, I discussed with my colleagues a book written by a nineteenth-century historian of science that touched upon the controversial topic of whether Galileo was actually tortured or not [Wohlwill 1877]. In it, the author presents and interprets a large set of literature on the subject in order to unequivocally prove why and how this was and might be important. It is well-known that Galileo, under the Inquisition's pressure, abandoned his thesis that the Earth revolves and abandoned the whole concept of heliocentrism. What kind of pressure was it? If he was not tortured, then he was persuaded in a rational or other way that the concept was false. If he were tortured, he would highly probably have renounced anything.

So, the activities of scientists do not differ from the activities of other people in the sense that they all live in society, they all experience the oppression of social needs, the prospects of social illusions, and the impact of ideals and norms that exist in society and intervene in science. At the same time, science, becoming a fairly influential social institution, itself transmits something into society. And here it is already highly difficult to draw a rigid distinction between scientific knowledge, as it exists independently of everything else, and scientific knowledge, as it is woven, completely imperceptibly to the vast majority of people, into our daily lives. Here arises the figure of a researcher who proposes to study all this by means of natural science and to reduce scientific knowledge either to some activity of the brain or to the activity of the human body, or to reduce it to the data of the social sciences and humanities, which intends to explain scientific knowledge on the basis that a person or group are cultural entities. A philosopher has to work together with scholars and scientists, inspiring and contributing to their efforts, illuminating the dead-ends, warning about contradictions and limitations, and criticizing concepts and arguments. Last but not least, a social philosopher of science recognizes making this interdisciplinary discourse a matter of public relevance and attention in terms of the current social and cultural controversies as her professional and vocational duty.

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Part 1 Between Classical and Non-Classical Epistemology

Chapter 1 The Problem of Epistemological Realism

Social epistemology assumes justification as a realist philosophy in both dealing with cognitive and ontological matters, and in providing a profound and refined picture of knowledge and reality. Compared to scientific realism, social epistemology's advantage consists of grasping the variety of conditions and circumstances influencing the cognitive process. Social epistemology also provides limitations for naturalism by offering a genuine philosophical vision of knowledge and reality. From a social epistemological perspective, extreme forms of defending scientific realism are considered especially relevant as such arguments reveal the ideological ladenness of objectivist argumentation.

1. Realism: political connotations

Philosophical realism is not a unified doctrine. The "radical realism" of Guillaume de Champeaux (1068–1121) has almost nothing in common with the "sophisticated realism" of Donald Davidson (who, as far as I know, never used the term "realism" in his written works) or with the scientific realism of Paul Boghossian. The differing varieties of realism have been well-known since, at least, Rom Harré (1986). While one cannot reasonably provide an overview of realism as a whole in a brief argument, it would be naïve to radically reduce realism to (1) an assumption about the human- and mind-independent existence of the material world, or (2) an epistemological statement of knowledge as possessing propositional content essentially correlated with an independently existing material object. Realism so reduced appears practically incommensurable with an understanding of reality found in social and cultural artifacts. To conceive of such reality, another type of realism is needed—realism based upon

an interdisciplinary dialogue from the social and human sciences that provides a picture of social reality [Collin 1997].

The necessity of an independent justification for science and technology manifested itself in Modern times in the criticism of epistemological "idols" of the tribe, cave, marketplace and theater (as Francis Bacon put it). Liberation of knowledge from "external" influence—political, religious, metaphysical, and common-sense errors—was seen as a prerequisite and the purpose of the new science capable of providing an objective—devoid of any human, mind or agent dependence—picture of the world. Interestingly, this particular version of philosophical realism currently contends for the highest status among epistemological trends. Its representatives privatized the crown of expert power occupying the most prestigious positions "within the mainstream of analytic philosophy departments within the English-speaking world", according to Paul Boghossian [Boghossian 2006, 7]. So conceived, this type of realism is usually associated with the cult of experience, trust in common sense, political loyalty, and moral responsibility. There are many reasons to agree with Boghossian that realism locates itself closer to the academic establishment than other philosophical discourses (post-modernism, feminism, Marxism, social epistemology). Its social legitimation stems from strong objectivist claims that are used readily by any power circle wishing to justify its policies. Trying to save and strengthen power, realists quite often level severe critique at their opponents, diminishing their theoretical significance and questioning their social reliability. Boghossian's home institution, New York University (NYU), is one of the most influential philosophical centers in the world. Not surprisingly, the behavior and mentality of NYU professors is mimicked by academics of the same social status in other countries. For instance, many philosophy professors at the Higher School of Economics in Moscow, Russian Federation (a university with very strong governmental affiliations and support) are oriented towards NYU and scientific objectivism, in particular.

The reader may well ask why it is worth confronting Boghossian while Putnam or Sellars would lend more valuable examples of scientific realism. First, Boghossian earned his B.S. in physics at Trent University in 1978—he has a good idea of what science is. Second, I was astonished that some of my students intended to take Boghossian's ideas as the core of their dissertations. Third, thanks to Boghossian's unyielding form of realism, Martin Kusch—having been rewarded with a research grant on the social/epistemological analysis of relativism by the European Research

Council (2013)—invited Boghossian to join the program as a critical reference.

In order to be understood correctly, I should clarify that the weight given to Boghossian in this chapter is not due to the particular theoretical strength of his arguments. On the contrary, Boghossian's influence relies on his ideological role as a person who states, in a highly confrontational form, a view that is widely, though tacitly, held by the analytic philosophical community. Thus, we reveal the ideological content of his realism—a regular practice of social epistemology. In addition, we shall try to give answers to the following questions: Is realism necessarily limited to the particular version of scientific materialism or naturalism presented by Boghossian (among others)? Is realism incommensurable with social constructivism or feminist epistemology? Why could the qualification of social epistemology as "anti-realism" be misguided?

2. A social basis for realism

The naïve realism that emphasizes the negative role of sociality in the cognitive process identifies objectivity with mind- and human-independence. Even if objective knowledge is no less urgent nowadays than in the New Times, there exists a broad consensus among many philosophers that the impact of sociality could hardly be exhausted with errors and delusions.

Positively conceived, sociality consists of cultural and intellectual resources, political needs, and technical stimuli that form the basic structure of the knowing agent and, thus, are essential for the acquisition and legitimation of knowledge. The knowing agent is taken as a person, or group, equipped with cultivated cognitive abilities and competence—curiosity, creativity, discursive abilities, skills and habits, common knowledge and various experiences, common views, and patterns of activity and interaction.

The rise of modern science, which itself promoted the ideal of objectivity, cannot be conceived as a sterile movement in a realm of pure reason. A closer look at the development of classical mechanics has revealed its dependence on a number of technological and political conditions as well as on the philosophical, religious and mystical ideas of these times [Thorndike 1923]; [Hessen 1934]; [Koyre 1957, 1965]; [Yates 1964].

The empirical necessity of social/cultural resources and circumstances for the cognitive process confirms their ontological relevance. They appear as non-mental manifestations of knowledge that exist outside individual

brains. Therefore, social/cultural artifacts (tools and technologies, money and markets, artistic performances and religious practices, hospitals and jails, libraries and universities, behavior patterns and speech acts etc.) have been rediscovered as subject matter in the social sciences and humanities and as "objective facts" *sui generis*. These forms of sociality constitute a genuine ontology of the human mind that is more comprehensive than neuroscience might provide. Scholars like Wittgenstein, Malinovsky, Foucault, and Quine consider sociality to be an objective representation of mental states. Putnam, tending to undermine internalism about reference, justifies the same idea—the social nature of the mind: "Meanings just ain't in the head" [Putnam 1975, 227]. All this characterizes social ontology as a complex reality. It comprises the *results* of social activity and communication fixed in material and institutional forms. Being incorporated and used in *vivid, ongoing processes* of human communication and action, these forms appear as semiotic entities (contexts, intentions, and meanings) and serve to restructure given material and institutional structures. So, accepting the existence of tools, money, and markets complements externalism about meaning. Every human knowing agent represents itself in terms of either results or processes of activity and communication.

Social ontology is exactly what knowledge is about.

3. Is a social ontology of science possible?

The discovery of the social nature of knowledge has been interpreted by the proponents of classical epistemology as a kind of contingent "dependence" of knowledge upon social settings. Take, for instance, its reconstruction and criticism by Boghossian [Boghossian 2006, 6]: "…Whether a belief is knowledge necessarily depends at least in part on the contingent social and material setting in which that belief is produced (or maintained). I shall call a conception of knowledge which incorporates this core conviction a social dependence conception of knowledge." Boghossian seemingly asserts that the cognitive and the social belong to separate realms that can be more or less arbitrary combined. The cognitive refers apparently to natural reality as it is, while the social apparently refers to social reality (the latter is rather of a secondary character being mind-and-human dependent). But this position goes hand in hand with the tacit presupposition that the mind and human beings are in some sense unnatural or unreal: "The classical conception holds that many facts about the world are independent of us, and hence independent of our social values

and interests. For example, according to the classical conception, the fact (assuming it to be a fact for the moment) that dinosaurs once roamed the earth is not dependent on us but is, rather, just a natural fact that obtains without any help from us." [Boghossian 2006, 20]. Referring to sociality, human and mind-dependent realms (the unnatural) can hardly give any truth-reliability, as was typical of the classical theory of knowledge. What follows is the correspondent label of relativism performing the role of the major tool of realist epistemologists in debates with their opponents. We shall address this "dinosaur case" below in order to show that "the real" and "the natural" are much more subtle matters than Boghossian presupposes. Social epistemologists should take this issue as a serious challenge. The situation requires clarification of what relativism really is, and what alternative understandings of realism can be suggested. This ambitious task in fact requires elaborating a special ontological vision for social epistemology.

Remember that the *ontological turn* in science and technology studies is becoming more and more popular though the term deserves a detailed analysis [Pedersen 2013]. Two basic questions are especially urgent: whether anything possesses "absolute" ontological validity; and whether anything provides "external" significance for ontological pictures.

Many social epistemologists, as well other researchers [Latour 2005], [Knorr-Cetina 1999], can hardly release the words "absolute" and "external" from quotation marks— paying attention to the numerous situations where the "absolute" and the "external" are both taken as *relative*. Everything that becomes the subject matter of social epistemology loses its "absolute" status (whether ontological or epistemological); for absolutist lenses hardly allow any concrete view of the genesis and growth of knowledge. If we take free falling bodies within classical mechanics, for example, as something existing absolutely beyond the influence of the human mind and social activity, we have only two options. We have to consider these bodies as mathematic abstractions devoid of any actually perceived properties, for their mass and velocity will never correspond to the strict results of measurement. Then we have the *construction of reason*. Otherwise, empirically seen, these bodies might require some gaseous or liquid medium and correspondent friction etc., in other words, the conditions of their existence. Remember that classical mechanics arose on the basis of celestial mechanics, without any account of friction and media. Initially, classical mechanics developed in opposition to Aristotelian accounts, which made essential sense of the real conditions of moving bodies in terrestrial reality. As soon as Galileo destroyed the boundary between these two realms,

Newton had to adjust his mechanics to terrestrial matters—applying his theory to diverse human activities (machine design including guns, mills, clocks, pumps as well as the design of dams, channels, bridges, and ships). Determining conditions and purposes means that an idealized object—a "body moving uniformly forward in vacuum in a straight line", "mathematical point" or "ideal gas"—is included in a certain practical context that demands these conditions are relevant and essential, hence making abstract entities *dependent upon human activity*.

The same is true with the notion of "external". A thorough analysis of any phenomenon reveals its cognitive relevance and dependence. Take, for instance, mountains, the existence of which seemingly gives us an external foundation for the mind- and human independent ontology—mountains existed long before humans. Still, the issue remains much more complex. Scientifically seen, mountains should be the subject matter at least of geology, mining engineering, geography, archeology, and astronomy. Physical geography describes mountains as referring to plateaus, highlands, uplands, peaks, tops, and rocks on the surface of the Earth. The definitions used remain vague and contingent. Geology explains mountain formation from the point of view of tectonic, or other, theories, which retain only relative value. For some future imaginary extraterrestrial astronomy, there will be a problem regarding how to make a difference between mountains and artifacts like the Empire State Building or the Cheops pyramid. Here, archeology can be of assistance in determining that a certain hill is hand-made and represents a kind of ancient tomb. A mining engineer can recognize it as a spoil bank. And so on. Even earthquakes, which form mountains and change the Earth's surface, can be a kind of technogenic catastrophe that is an outcome of human activity. These examples point out not a fact of division of cognitive labor in science, rather the inevitability of theoretical pluralism, which, in turn, is neither a sign of fatal fallibilism nor representative of reality as such.

We never know for certain the extent to which an object is "purely natural". "The natural" is not an absolute attribute of an underlying substance, or the thing in itself; it is, rather, a gradual feature that corresponds to a level of human knowledge and practice. Different theories conceive the genesis and structure of a different "natural object" in their own way. Ontologies come and go; myth gives way to logos and vice versa. As soon as humans discover (construe? construct?) new phenomena, they *begin to exist* within their world. Of course, many phenomena *are* beyond our access and knowledge, even prior to us. But all this needs justification and further discoveries, which will or will not take place.

Boghossian's utterance "there are at least some phenomena that exist prior to the humans", means approximately the same as the utterance "there is always something that remains unknown". "It's a truism about most of the objects and facts that we talk about—electrons, mountains, dinosaurs, giraffes, rivers and lakes—that their existence *antedates* ours" [Boghossian 2006, 38]. Boghossian offers this truism as if it is enough to reject the arguments of Goodman and Putnam against metaphysical realism. If we take philosophy as being based on truisms, then philosophy becomes superfluous. However, what Boghossian takes as truisms are indeed not— they are metaphysically absolutized empirical facts, the meaning of which is theory-laden and in which "natural" prototypes are (sometimes, often or always) laboratory or practical artifacts. So, in order to refute metaphysical realism, we need not reproduce its critique by Putnam, Dummett, and Goodmen [Stoutland 1982]; [Rockmore 2004]. Rather, our purpose is to give a more detailed interpretation of seemingly "evident objective facts" that reveals their pragmatic implicatures—tacit presuppositions, cultural allusions, and social metaphors.

The rethinking of such terms as the "absolute" and the "external" touches upon the famously infinite discussion of *natural kinds*—a cornerstone of realist ontology. Natural kinds are supposed to exist due to their own intrinsic nature, whereas the existence of secondary kinds is determined by something else. Issues in biological taxonomy, for example, have succeeded in enriching the discussion. Natural kinds are close to losing their absolutist and even theological character [Dupré 1981].

This issue recalls another significant dichotomy—between the natural and the artificial. If scientific realists trust current scientific practice, they have to accept that the difference between "natural" and "artificial" classifications is essentially relative. Moreover, all classifications are artificial in the sense that they refer neither to any natural essences nor to any linguistic primitives—otherwise their changes would be impossible to justify. And the natural outcome of this exchange is a question: Do natural kinds exist at all?

4. *Contradictions within the realist view*

The opposition of the terrestrial and celestial realms typical of the medieval theological worldview has ceased since Bruno and Galileo proclaimed the new astronomical picture of the world. As a result, the objectivity of the heavens lost *a priori* form and had to be confirmed in regard to

any astronomical or cosmological statement. How can we say, for instance, that Pluto is a planet? How can we share one's belief that Jupiter has 15, 30 or over 30 moons? We do so by referring basically to the correspondent astronomical observations and mathematical calculations confirmed by certain decisions of the scientific community. Should we then persuade ourselves that "planet" is a natural kind and that "Jupiter has X number of moons" is an objective empirical fact regardless of any circumstances? How can we assert that there is an objective reality beyond our knowledge, but underlying our competitive theories and observations by giving a crucial rationale (which, again, is a kind of knowledge) neither for nor against any of the latter? And what kind of metaphysical assertion is this objectivist idea—common sense, mystical, Platonist, Kantian?

While most "scientific realists" [Boghossian 2006, 10–13] believe in this metaphysical reality, many social epistemologists believe human knowledge and practice provide the only objective representation of reality. The example of Pluto demonstrates how the ontological status (in short, the reality) of a planet can change due to new theories, observations, interpretations, and decisions (in short, the activity of the scientific community).

First, Pluto, in 2006, lost its status as a normal planet due to a decision by the astronomical community [International Astronomical Union, Circular No 8737]. Second, every objective fact must fix the empirical, qualitative, and quantitative characteristics of an object within definite spatial/temporal coordinates, which are universally valid for all possible worlds. We cannot assert that the statement "Jupiter has 16 moons" is false although the claim that "Jupiter has over 30 moons" is true forever. As well, the statement "Jupiter has over 30 moons" fails to be an "objective fact" due, at least, to the possibility that any small moon can be rediscovered (recognized, accepted) as a different kind of heavenly body according to the future decision of the astronomical community. The heavens are no longer sacred and safe to be a justification of naïve metaphysical objectivism. In part, as a consequence, Boghossian's arguments in favor of realism, and against constructivism and relativism, are too abstract (always using terms like "over", "once", "at least" instead of providing "more precise" spatial-temporal coordinates) and fail to satisfy the genuine realist criteria of factual, concrete, objective analysis. In fact, new scientific knowledge proclaims and represents (constructs rather than opens) new reality and new levels of reality; otherwise, the value of science would be diminished—producing theories and facts would be identified with temporary illusions. Thus, naïve scientific realism, by tacitly accepting a dualist picture of the world, fails to deal with the concept of truth. True

knowledge appears unattainable because knowledge never acquires the same ontological status as reality does. For the social epistemologist, the truth of human knowledge is justified due to its pragmatic implementation—in working artifacts, fruitful activity, meaningful communication, and an explanatory and projective picture of reality.

One more example of metaphysical, though more refined, realism is given by Lynne Baker who considers "basic ontology to be an inventory of what must be mentioned in a complete account of reality…" [Baker 2011, 55]. Interestingly, she includes artifacts in this inventory as well. But the approach still remains tacitly oriented by concepts like "substance" and "essence". According to Baker, a "cat" or a "human being" are supposed to be natural kinds unlike a "student", who is secondary kind. A "cat" is taken as a material thing that is absolutely mind- and human-independent. But a closer look reveals that a "cat" is an abstract notion and not a material thing. Neither the noun "cat", nor its mode of existence as an animal means anything more than being included in a certain biological taxonomy. Being a cat is very much like performing a social role. There are no "cats" in mind-independent nature but only uncertain objects which we can assign a name to, and which behave according to rules prescribed to them (producing certain sounds, enjoying fish, hunting mice, etc.).

As Baker recognizes, something is a bird or an insect by virtue of its relational properties—its genealogical lineage. She also states that social institutions and conventions are necessary conditions for the existence of many kinds of artifacts. Does this conditional and contingent type of a cat's existence differ ontologically from being a student as a social function? Or do they both belong to a secondary kind?

Baker assumes that artifacts have, in some sense, an equal ontological status with mountains. While taking artifacts as purely material (mind-independent) things due to their solid corporal structure, Baker singles out their peculiarity—they fulfill a certain function designed for them by an intentional agent, an author. So, artifacts are both composed of natural elements and depend on mental activity. This state of affairs allegedly makes the "nature–culture" distinction (and the deeper distinction between mind-independence and mind-dependence) irrelevant. Baker refers to innovative artifacts like "robo-rats"—rats with implanted electrodes that direct their movements. But is there any difference between social functions and social roles? Baker's answer is "yes".

So, a natural "cat" and an artificial "robo-rat" are both material things; hence, they belong to natural kinds. Yet being a student does not (as yet) depend on implanted electrodes that direct behavior; this social role is

pure (mind-dependent, imaginary) and could be eliminated without damage to a person. I wonder how French students in 1968 might have reacted to this thesis. Their revolutionary uprising was due exactly to a similar belief held by the French government, which decided to reduce access to this social role. And what about contemporary electronic communication? Is there not a transhuman symbiosis between a person and an iPhone or an iPod?

Trying to justify the existence of artifacts, Baker disregards the floating boundary between the natural and the artificial, and the natural and the human. As elements of the world picture, they exist equally within a conceptual framework, losing beyond it any qualitative or quantitative certainty. In contrast to this view, a *philosophical ontology of social epistemology is the life world of acting and communicating, experiencing, and thinking agents. It is not just "being as such".* We cannot deal with any existing objects avoiding classifications and categorizations with respect to their cognoscibility and involvement in the human world. This circumstance is not a shortcoming of our knowledge but rather a basic feature of the human condition; hence, a genuine foundation for a refined version of realism as an understanding of man in the world and the world around man. For the latter, reality is not something that exists absolutely independently of the knowing, acting, and communicating agent. It is rather a life world interpenetrated by, and construed in terms of, speech acts, practical skills, tools, social interactions, local social surroundings, and the history of culture. It is a life world of cultural artifacts that tacitly contain knowledge and can be deconstructed in the course of integrated historical, social, and epistemological study.

At the same time, knowledge does not "reflect" reality as it is. This reality cannot be grasped within any discourse. Moreover, the criteria for "grasping" are provided not by reality, rather by the knowing agent. Cognition, then, is to be understood as a process of permanent practical interaction between the life world and its creators, resulting in constructing tentative pictures and models, forms of adaptation and orientation, signs and symbols. All these things have been historically designed in order to satisfy various human needs and interests (primary and secondary, material and spiritual). The cognitive quest appears as a type of interest that obtained autonomy at a certain historical moment, and the idea of reality as it is appears exactly as an outcome of this mature autonomy of the cognitive agent.

Thus, a well-furnished room for a human being, who appears lost in the basements of realist ontology, can be booked only on the social epistemology's second floor.

5. *Classical realism. Realism and objectivism*

A realist ontology is an obvious outcome of realist epistemology, which defines "at least some of" its objects as mind-and human-independent. Boghossian argues for the realist epistemology that is based, paradoxically, on the "standard, widely accepted Platonic definition of knowledge" [Boghossian 2006, 15]—as if "realism" is conceived here as a concept of Saint Anselmo de Canterbury in terms of the debates on universalia. (However, after four pages, Boghossian forgets this and ascribes the classical picture of knowledge to the "broad consensus among philosophers, from Aristotle to the present day". We shall see below that the history of philosophy is hardly one of the strongest aspects of his professional competence.) According to this definition, a thinker S knows that P if and only if:

1. S believes that P;
2. S is justified in believing that P;
3. P is true.

Boghossian likely appeals (though without any reference) to Plato's *Theaetetus*, where three main definitions of knowledge are analyzed and criticized. Yet, almost anyone who has read through this dialogue knows that it ends without any definite answer to the question of what knowledge is. Plato rejects the three definitions of knowledge—as perception, as true belief, and as true belief with account. The only thing discovered is what knowledge is not [Plato 199, 210c].

Boghossian's appeal is basically misguiding—his definition of knowledge has nothing in common with the Platonic one. In fact, Plato points out, especially against the correspondence theory of truth, that the concept of true knowledge as correlated with objective reality faces *circulus in definiendo*—objective reality itself requires an independent definition. This critique arose given that Plato identified a genuine knowledge with eternal and immutable ideas opposed to any individual opinion, belief, perception, and the material world. In his view, "knowledge is conceived as a high-level cognitive condition, one that goes beyond mere true belief" [Fine 2003, 3]. This means that knowledge requires an ontological or

causal explanation of why things are so. In order to provide this explanation, Plato presents his allegory of the cave [Plato 1892, 514a-520a].

Though Plato was devoted to the upper realm of *eidoses*, he seems to be much closer to the understanding of a proper cognitive role of culture and sociality than metaphysical realist epistemologists are. Plato was highly critical towards the understanding of knowledge as a solely individual enterprise. Reducing knowledge to beliefs as mental events means being caught by Plato's "idols of the cave"—there is no way to achieve the universal and objective content of knowledge.

The process of justification, according to Boghossian, is again reducible to mental events and their combinations given individual cognitive abilities. Though Boghossian agrees that beliefs and justifications can differ from one person to another, and from one stage of science to another one, the concept of truth seems, to him, to be a solution to all these problems. One can be wrong in believing or justifying this or that knowledge, but if the latter is true, nothing can prevent us from accepting it as knowledge.

How can we reach this desirable truth with certainty? Since "truth" is a result of comparison of belief with objective reality, it requires the concepts of reality and objectivity, which can be hardly deduced from individual mental events (this conundrum is "Hume's guillotine"). So, this evident question, as well as many others, remains unanswered [Zimmerman 2007. But we can try to reconstruct an answer considering the "classical picture of knowledge" as well as the three arguments in its favor proposed by Boghossian, who "insists on the independence of knowledge from contingent social circumstance" [Boghossian 2006, 20]. His first thesis is called "Objectivism about facts". Let us have a closer look at Boghossian's main arguments.

Three cornerstones of objectivism

A. Objectivism about facts

Many facts about the world seem to be independent of us. "Dinosaurs once roamed the Earth" is an objective fact, which is not socially constructed, according to Boghossian [Boghossian 2006, 19].

Yet this statement represents a common-sense opinion about dinosaurs rather than an objective fact. How does this fact obtain objectivity? The latter appears to be a function of purposes, means, and values of the scientific community. In particular, there is: 1) a scientific definition of dinosaurs (a controversy for paleontological taxonomy as we shall see

below), 2) an exact period of their "once roaming the Earth" (between 237–66 million years ago—a hard problem of precise temporal location, which makes our "scientific beliefs" about dinosaurs approximate), and 3) their habitat and ecological niche (incorrectly dubbed as "everywhere", for they never existed in the water, only sometimes in the air as well as in the subterranean area).

In trying to justify the objectivity of a fact, the social epistemologist is obliged to reconstruct the broad palette of discussions and conventions that is the underlying social interactions. This approach implies that an objective fact is a small segment of the entire world picture in which mind and matter, life and death, humans and non-humans interact producing various forms of complexity. Science is knowledge in flux that evolves through contradictions, ambiguity, and negotiations. And there is absolutely no sense in speaking in this context about immutable "nature in itself", unless one would like to appear naive.

B. Objectivism about justification

Boghossian argues that the fossil records we have discovered constitute evidence of the existence of dinosaurs. What is the epistemological status of this statement? Is it an ordinary opinion or an empirically verifiable implication from a scientific theory? The first one is more relevant for the sociological study of mass consciousness than for epistemology. So, it should be a consequence of a theory.

Remember that the first fossil records have been interpreted for centuries as remnants of mythical giants or of heroes from the battle of Troy. And a controversy remains about the scientific definition of dinosaurs given the plurality of biological taxonomies representing group interests within the scientific community. It would be more correct to say that the fossil records give evidence of (or, perhaps, arguments for) the "existence" of—rather, current theories or social conventions about—dinosaurs. Here we need to go into some details discussing the epistemological status of taxa: are they natural or artificial?

Elementary school teachers should bear no responsibility for the popular belief that many prehistoric animal groups—such as ichthyosaurs, plesiosaurs, pterosaurs—are conceived simply as dinosaurs. In developing the scientific taxonomy, *the true* dinosaurs were to be described as archosaurs with limbs held erect beneath the body. Today, a majority of paleontologists reject the traditional style of classification in favor of the classical