Scientific Naturalism and Its Faults

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According to the most common version of naturalism—called "scientific naturalism" or "strict naturalism"—, in matters of ontology and epistemology, natural science always has the last word. In the second half of the twentieth century, two philosophers have given the greatest impetus to this concept: Wilfrid Sellars and W.V.O. Quine.

In "Philosophy and the Scientific Image of Man" (1962), Sellars elaborated a very influential distinction between the "manifest image" (the world as it is understood by ordinary vision) and the scientific image" (the world as it is understood by natural science). Sellars's view is specular to that offered by Edmund Husserl in *The Crisis of European Sciences and Transcendental Phenomenology* (1936); nor is this a coincidence since, when he was a student at Buffalo, Sellars was deeply influenced by Marvin Farber, a heterodox phenomenologist who had been a student of Husserl:

> Marvin Farber introduced me to Husserl. His combination of utter respect for the structure of Husserl's thought with the equally firm conviction that this structure could be given a naturalistic interpretation was undoubtedly a key influence on my own subsequent philosophical strategy. (Sellars, 1975, 283).

Like Husserl, Sellars strives to understand the relationship between the ways of conceiving the world that are characteristic of, respectively, the ordinary worldview and natural science; and, like Husserl, he aims at elaborating a unified conception of the two visions, which he calls "stereoscopic vision". For Sellars, the two images are "pictures of essentially the same order of complexity, each of which purports to be a complete picture of man-in-the-world which, after separate scrutiny, [philosophers] must fuse into one vision" (Sellars, 1962, 4). Moreover, like Husserl, Sellars recognizes that, from a genetic point of view, the scientific image of the world derives from the manifest image and that the normative concepts of the latter image (for example, the concepts of morality) are not reducible to the descriptive concepts that

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characterize the scientific image. From an ontological point of view, however, the unilaterality of Sellars's conception is antithetical to the unilaterality of Husserl's conception (De Caro, 2015). While Husserl is an ordinary realist and an anti-realist concerning science, Sellars adopts the opposite perspective. That is, he is a realist concerning the scientific view and an anti-realist concerning the ordinary worldview: according to this point of view, in the modern age the scientific image justifiably gained a monopoly on ontology, and this showed that the world as conceived by the ordinary view is not the real world. Sellars (1956, 83) expresses this point with a neo-Protagorean dictum:

> Speaking as a philosopher, I am quite prepared to say that the common sense world of physical objects in Space and Time is unreal—that is, that there are no such things. Or, to put it less paradoxically, that in the dimension of describing and explaining the world, science is the measure of all things, of what is that it is, and of what is not that it is not.

Quine's theoretical perspective is similar to Sellars's, but with an important difference: Quine incorporates scientific realism in an influential overall conception that combines the ontological thesis constitutive of scientific realism, with an epistemological thesis and a metaphilosophical thesis. In this form, scientific naturalism has become the main vehicle by which scientific realism has spread in the philosophical world. Its three basic theses are thus as follows:

i. *Ontological thesis*: reality consists only of the entities to which the best explanations of the natural sciences commit us. All other presumed entities, if they are not reducible to scientific entities, are *entia non grata* and therefore should not be accepted in our ontology (Quine, 1960).

ii. *Epistemological thesis*: the natural sciences are our only genuine sources of knowledge. All other supposed forms of knowledge (such as perception, a priori, introspection, or intuition) either can in principle be accommodated into scientific knowledge or are illegitimate (Quine, 1969).

iii. *Metaphilosophical thesis*: philosophy is continuous with science in content, methods, and purposes. According to Quine (1986a, 430–431), we should pursue "philosophy rather as a part of one's system of the world, continuous with the rest of science." And elsewhere, with some irony he states that normative epistemology—the philosophical branch that deals with knowledge, truth, and justification—is "a branch of engineering," that is, it should be understood as an applied natural science (Quine, 1986b, 664).

It is important to emphasize the importance of the latter thesis. With his scientific naturalism, Quine does not simply affirm the correctness of scientific realism and the primacy of natural science from an ontological and epistemological point of view. He also argues that philosophy is, in essence, a still underdeveloped natural science—a thesis that certainly Sellars would not have accepted (nor would the advocates of more liberal forms of naturalism: see De Caro and Macarthur 2004, 2010, 2022 and forthcoming).

Incidentally, it may be noted that some scientific naturalists (including Sellars and Quine), but by no means all, attribute priority among the natural sciences to physics. According to this view (called "physicalism"), the entities and processes that physics deals with are not only the bricks with which the world is built but in principle are

also sufficient to explain everything that exists. In this framework, then, all other sciences of nature are reducible to physics. One of the most influential contemporary physicalists, Jaegwon Kim (1996, 11), has given voice to this idea, writing that "each and every property of a thing is either a physical property or is determined by its physical properties and that there is nothing in the world that is not a physical thing." Another champion of this conception is Alex Rosenberg, who goes so far as to claim for his conception the label of "scientism" (which generally has instead a negative connotation):

> What is the world really like? It's fermions and bosons, and everything that can be made up of them, and nothing that can't be made up of them. All the facts about fermions and bosons determine or "fix" all the other facts about reality and what exists in this universe or any other if, as physics may end up showing, there are other ones. In effect, scientism's metaphysics is, to more than a first approximation, given by what physics tells us about the universe. The reason we trust physics to be scientism's metaphysics is its track record of fantastically powerful explanation, prediction, and technological application. If what physics says about reality doesn't go, that track record would be a totally inexplicable mystery or coincidence. (Rosenberg, 2009).

Other scientific naturalists disagree, however, because they believe that physics is not a privileged natural science. John Searle (2004), for example, believes that biology is irreducible to the sciences that deal with the elementary components of matter, such as physics and chemistry: in his opinion, therefore, the inventory of the world is provided by the natural sciences as a whole. Other defenders of scientific naturalism believe that geology or meteorology are irreducible to the more fundamental sciences (Fodor, 1997) and still others that not even chemistry is reducible to physics (Weisberg et al., 2011). In any case, as far as we are interested here, the distinction within scientific naturalism between those who defend the thesis of the ontological and epistemological primacy of physics and those who deny it is not fundamental. What is important is that, according to all those who adhere to scientific naturalism, there is nothing that in principle cannot be investigated with the methods and concepts of the natural sciences. Reality and knowledge, in short, cannot exceed the scope of these sciences.

In the background of the present fortune of scientific naturalism, there is a powerful inductive argument. Starting from Galileo, modern natural science has explained in a more and more complete way wider and wider phenomenal fields, allowing us to make extremely accurate predictions and dethroning the presumed explanations that had been developed previously. It is therefore rational to infer—this argument proceeds—that natural science can explain, in principle, everything that can be explained, and this even in fields in which it is not yet very developed. From this epistemological assertion follows an ontological conclusion: we must assume the existence only of entities that natural science can in principle account for. And, from this point of view, philosophy—at least in the case in which it aspires to speak about reality and not about fictions—can only align itself completely with natural science.

These theses may sound a bit maximalist. And not surprisingly, the main problem of scientific naturalism is the so-called "placement problem" (Price, 2004). The terms of this problem have been well presented by Searle (2007, 4–5):

> How can we square a conception of ourselves as mindful, meaning-creating, free, rational, etc. agents with a universe that consists entirely of mindless, meaningless, unfree, nonrational, brute physical particles?

The philosopher of science John Earman (1992, 262) expresses a similar idea, emphasizing the difficulty of the task:

> If science succeeds in its attempt to explain our nature, then we lose our specificity as beings able to determine their own destiny; if science fails in this attempt, then we turn out to be very mysterious entities within the universe. It seems that the attempt to locate human agents in nature either fails in a manner that reflects a limitation on what science can tell us about ourselves, or else it succeeds at the expense of undermining our cherished notion that we are free and autonomous agents.

Simon Blackburn (1993, 49), in turn, clearly declines this problem regarding ethics: "The problem is one of finding room for ethics, or placing ethics within the disenchanted, non-ethical order which we inhabit, and of which we are a part."

The problem of placement concerns the phenomena constitutive of the ordinary conception of the world: at least at first glance, it would seem that these phenomena do not conform to the scientific conception—if they do not oppose it altogether. Think of free will, moral properties, normativity, meaning, consciousness, or ontologically elusive phenomena such as financial indebtedness or collective intentionality. The regimentation of these phenomena in the perspective of the natural sciences appears at least arduous: each of them represents, therefore, a particular case of the problem of collocation. Nonetheless, the vast majority of scientific naturalists express no doubt that the problem of collocation is solvable. In this spirit, for example, Alan Lacey (2005, 640), has written that "everything is natural, i.e.… everything there is belongs to the world of nature, and so can be studied by the methods appropriate for studying that world, and the apparent exceptions can be somehow explained away."

Scientific naturalists are presented with three possible strategies for dealing with the problem of collocation. The first strategy is that of reductionism, according to which one must show that the phenomena just mentioned are, yes, ontologically genuine, but only because they are identical, or at least reducible, to scientifically acceptable phenomena. For several decades, reductionism has been an attitude present in many areas of philosophy: from the attempts of the so-called "neuroaesthetics" to reduce aesthetic properties to neurological properties to Penelope Maddy's "naturalized Platonism" concerning mathematical properties up to the attempts to naturalize religious spirituality (Dawkins, 2006; Dennett, 2006).

Let us consider a couple of more detailed examples of the current fortunes of reductionism. First, many philosophers of mind sympathetic to scientific naturalism have attempted to reduce mental property types (beliefs, desires, and so on) to neurological properties, according to the famous "identity of mind-brain types" thesis. According to this theory, each type of mental event (such as the belief that Kabul is the capital of Afghanistan or the desire to eat an apple) is identical to a certain type of physical event (typically, a neural process). Proponents of this theory recognize, of course, that we are not yet able to determine such identities: that is, we are not able to say, for all kinds of mental events, to what kind of physical events they are

identical. Nonetheless, this identity exists and is the only guarantee of the reality of mental events (Gozzano & Hill, 2012; Kim, 2007).

Another attempt at reduction by scientific naturalists concerns moral properties (Jackson, 1998). The idea here is that moral properties are real, independent of our minds, and make ethical judgments objective, but are natural properties of the same kind studied by the sciences. This is the typical reasoning followed in this area by reductionistically oriented scientific naturalists:

1. Moral judgments can be true or false.
2. The truth or falsity of those judgments depends on the existence of specific phenomena: moral properties.
3. There are no non-natural phenomena.
4. All real phenomena are therefore natural phenomena, in the sense that they fall within the purview of the natural sciences.
5. Moral properties fall within the purview of the natural sciences.

Note that premises 3 and 4 in premise 4 of this reasoning are typical of scientific naturalism: the only natural properties are the proper ones studied by the natural sciences. The most interesting premise, however, is premise 5, because the naturalness of moral properties can be conceived in two ways. In a first sense, it can be argued that moral properties are reducible to non-moral natural properties: the property of a given action to be good, for example, could simply mean that that action conforms to a system of instructions—hardwired into our brains by natural selection—that results in a benefit to humanity (FitzPatrick, 2014). In a second sense, however, premise 5 can be interpreted to mean that moral properties can be investigated by the natural sciences, but that is not to say that they are identical to some non-moral property: that is, they are natural properties of a specific kind (Boyd, 1988). Against the latter conception, however, it has been objected that, while we perceive the usual non-moral properties (such as whiteness or sphericity), moral properties such as goodness or generosity cannot be perceived: and this would be an indication of their illusoriness or supernaturalness. To this objection, it has been replied that other properties considered perfectly natural are also not directly perceptible, but are only inferred: for example, the property of being in good health. In order to take as real properties such as being generous or being healthy what matters is their causal power: that is, these properties are considered real because they can cause changes in the world. We certainly cannot argue that the property of being healthy is supernatural because we see its effects, but we do not perceive it directly; rather, we consider it as a natural property of a specific kind that can be investigated with normal scientific instruments (for example, by measuring the homeostasis of an organism). The same, according to this point of view, should be thought regarding moral properties: they are real properties because they have causal power (Martin Luther King's generosity, for example, caused changes in the world), but that does not mean we should consider them supernatural. Moral properties, in short, Richard Boyd (1988) and David Copp (2017) argue, can be studied with ordinary scientific tools. For example, one can investigate empirically how, how much, and in what situations generosity affects the human world; and in this way, one can understand what generosity is.

Other scientific naturalists oppose the reductionist strategy: that is, they do not believe that the problem of collocation can be solved with the idea that the controversial phenomena of the ordinary image of the world are investigable by the natural sciences or that they are reducible to phenomena that can be investigated by these sciences. In reality, these philosophers argue, such phenomena are constitutively incompatible with the natural sciences and for these reasons must be eliminated from our ontology, exactly as in the past happened with phlogiston, with the epicycles of Ptolemaic astronomy, and with the alleged magical properties of witchcraft. This conception is called "eliminationism". To give a few examples: Paul and Patricia Churchland argue that the entire conceptual apparatus of the intentional mind proper to common-sense psychology (with its references to beliefs, desires, intentions, rationality, and so on) is nothing more than a completely flawed para-scientific theory. In their view, mental phenomena, being immaterial, are not reducible to brain processes, and therefore one must conclude that they are not real. In the words of Paul Churchland (1988, 43):

> A false and radically misleading conception of the causes of human behavior and the nature of cognitive activity. On this view, folk psychology is not just an incomplete representation of our inner natures; it is an outright misrepresentation of our internal states and activities.

In a similar spirit, Derk Pereboom (2014) and Gregg Caruso (2013) deny reality to free will and moral responsibility; Daniel Dennett (1991) and Georges Rey (2016) contest the reality of phenomenological properties (the so-called "qualia"); Hartry Field (1980) and Mark Balaguer (2009) defend mathematical fictionalism, and Richard Joyce (2005) defends moral fictionalism, following the steps of John Mackie (1977), who argued that moral properties and values, being constitutively "queer" (strange, bizarre) with respect concerning o the scientific worldview, cannot be included in our ontology. "If there were objective values," writes Mackie (1977, 38), "they would be entities or qualities or relations of a very strange sort, utterly different from anything else in the universe." According to these authors, since values and moral properties do not exist, it follows that the normative judgments of ethics—which claim to be objective and presuppose the reality of values—are always hopelessly false. In general, then, to solve the problem of collocation, all these authors propose a very drastic solution: that of eliminating from our ontological repertoire the properties of the ordinary worldview.

Finally, we must consider another family, smaller but no less resolute, of scientific naturalists. They reject both reductionism and eliminationism, in the name of a conception called mysterianism, initially developed by the famous linguist and philosopher Noam Chomsky. Human beings try to solve two different kinds of questions, Chomsky (1976) argues, "problems" and "mysteries". Problems are questions that we know how to deal with: for example, we generally understand how to investigate to find out if there are still unknown planets in the solar system or to find the cure for diabetes. Moreover, we can also imagine the kind of solution of these questions (respectively, the possible detection of an unknown celestial body of a certain size orbiting exclusively around the Sun and a therapy that cures diabetes patients or makes their condition significantly better). In the case of mysteries, instead, we

don't have, and never will have, the slightest idea of how they could be solved nor of what form their solution could have; and, for this reason, Chomsky argues, mysteries are questions that our species will never solve. And, in this perspective, free will, consciousness, or the mind–body problem are most likely some of these mysteries: we cannot conceptualize the world without these phenomena (and therefore they cannot be eliminated from our ontology), but neither can we reduce them to scientifically explainable phenomena. According to mysterianism, for humans the problem of the location of phenomena seemingly unrelated to the scientific worldview will forever remain a mystery; and this is because, quite simply, our species lacks the conceptual resources to solve it—in the same sense that dogs lack the resources to prove the Pythagorean theorem.

British philosopher Colin McGinn (1993) has presented the most ambitious and detailed version of mysterianism. From a perspective typical of scientific naturalism, McGinn (2002, 207) argues that.

> nature is a system of derived entities, the basic going to construct the less basic; and understanding nature is figuring out how the derivation goes... Find the atoms and laws of combination and evolution, and then derive the myriad of complex objects you find in nature.

This approach is not without philosophical consequences if, in reflecting on the philosophical status of ordinary worldview phenomena (consciousness, ego, free will, meaning, and knowledge), McGinn (2002, 209) himself acknowledges that.

> there are yawning gaps between these phenomena and the more basic phenomena they proceed from, so that we cannot apply the [scientific] format to bring sense to what we observe. The essence of a philosophical problem is the unexplained leap, the step from one thing to another without any conception of the bridge that supports the step.

According to McGinn, our species is not intelligent enough to bring phenomena such as consciousness, ego, free will, meaning, and knowledge to a format that can be handled by the natural sciences. And because of this, McGinn (2002, 207) concludes, philosophy, because it tries to solve insoluble problems, is a "futile" activity. On the other hand, we cannot even think of considering these phenomena as illusory, because they play too important roles in our intellectual lives and practices. Therefore, for us, they represent insoluble mysteries and will always do.

In sum, scientific naturalists face the complex challenge posed by the problem of collocation. This problem concerns phenomena (from freedom to consciousness, from normativity to morality to signification) that for ordinary realism—the kind of realism encompassed in the commonsense image of the world—are, at the same time, indubitable and essential to understanding human reality. Within the framework of scientific naturalism, however, these phenomena appear mysterious because they do not seem treatable by natural science. Scientific naturalists attempt, then, three strategies to account for these phenomena: reductionism, eliminationism, and mysterianism.

Ordinary realism (which is defended, for example, by Husserl and van Fraassen) manifests an intrinsic hegemonic tendency to the extent that it projects onto the

whole of reality—including the areas of relevance to science—the idea that perception (direct or assisted by technological supports) is the only parameter we have to determine what the world is like. In other words, ordinary realists make a very dubious inference: from the very plausible thesis that perception is a legitimate (though obviously not infallible) key to access reality, they conclude that perception is the only key to access reality and that therefore one can deny ontological legitimacy to the unobservable entities postulated by science (De Caro, 2015 and 2019).

Scientific realism, which, as we have seen today, is defended with particular vigor by scientific naturalists, tends to be as hegemonic as ordinary realism, but in a specular way. This conception, in fact, in the name of the reality of scientific ontology, tends to dismiss the realist attitude of the ordinary worldview, based on the idea that the only entities that exist are those contemplated by science. In doing so, however, it encounters a considerable theoretical problem: the problem of collocation. How to account for the entities and properties (secondary properties, free will, consciousness, values, and so on) that are of such importance to the ordinary worldview, but which, at least apparently, do not seem tractable by the natural sciences? The strategies adopted by scientific naturalists, we have seen, are of three kinds: reductionism, eliminationism, and mysterianism. All three, however, present considerable problems: let us see why.

According to the first strategy, reductionism, phenomena accepted by the ordinary worldview are actually identical to more fundamental, scientifically investigable properties in the same sense that water is identical to H_2O (think, for example, of the attempts of some moral realists to reduce moral properties to properties that can be investigated with the tools of the natural sciences). Those attempts at reduction run into a huge problem, however. An essential aspect of moral properties is that they have to do not only with the world of being, which concerns the way things are but also with the world of possibility and obligations—that is, with normativity. The behavior of a given person is moral when in a given situation that person does something morally praiseworthy: that is, something that should be praised, not something that is in fact praised. For example, a generous action by an individual (e.g., when someone welcomes a politically persecuted person into their home) may be criticized by the respective community because that community is clouded by prejudice or fear: in such a case, the community is in error because it should have praised that action, not criticized it. A natural scientist, however, can only investigate how things are, not how they should be. The normative aspect of morality escapes attempts at reduction altogether; and similar criticisms can be made of attempts to reduce other phenomena proper to the ordinary worldview.

Yet attempts at reduction, or as we sometimes say "naturalization," continue to thrive. Thus, some time ago Tyler Burge (1993, 117) described attempts to reduce mental properties to neuroscientific properties:

> The flood of projects... that attempt to fit mental causation or mental ontology into a 'naturalistic picture of the world' strike me as having more in common with political or religious ideology than with a philosophy that maintains perspective on the difference between what is known and what is speculated.

This reductionist "flood of projects" is the result of an ideology that characterizes all versions of scientific naturalism: an ideology that does not, however, come to terms with the articulated ways in which we, as a matter of fact, understand the world. Referring to cognition, and more generally to thought, Putnam (1992, 18), for example, wrote:

> There is no reason why the study of human cognition requires that we try to reduce cognition either to computations or to brain processes. We may very well succeed in discovering theoretical models of the brain which vastly increase our understanding of how the brain works without being of very much help to most areas of psychology, and in discovering better theoretical models in psychology (cognitive and otherwise) which are not of any particular help to brain science. The idea that the only understanding worthy of the name is reductionist understanding is a tired one, but evidently it has not lost its grip on our scientific culture.

It will not be surprising, then, that while reductionist ideology is very common today, there is much less agreement on the value of concrete attempts to reduce the entities of the ordinary worldview, to the point that, as Putnam (2004, 62) ironically notes, "none of these ontological reductions gets believed by anyone except the proponent of the account and one or two of his friends and/or students."

In this regard, however, a remark is necessary. First of all, as far as the empirical investigation conducted by scientists is concerned, the assumption that a given phenomenon can be studied by resorting exclusively to the categories of the natural sciences is obviously legitimate: it is a methodological maxim (not an ontological principle) that has often been very fruitful for research. The history of science, on the other hand, teaches us that the most successful research programs have often involved real leaps in the dark by their proponents: heliocentrism was definitively proven only in the nineteenth century and the theory of relativity was confirmed years after Einstein had proposed it. It could perhaps happen, for example, that one day the mind will be explained as any physical system, without any other tools than those of natural sciences (and not also with intentional psychology and introspection); at the moment, however, we have no elements to conclude that this will happen. Therefore, at least for now, it is at least adventurous to confer ontological dignity on a maxim that is methodological in nature.

In essence, we must distinguish between reductionist ideology and concrete scientific reductions. What is essential for scientific progress are concrete reductions, when they succeed: that is, the reduction of a given range of phenomena to a more fundamental range. When a reduction is accomplished (such as when it was demonstrated that water is H_2O or that light corresponds to a certain portion of the electromagnetic spectrum) our knowledge has taken a great step forward. The "reductionism" instead is an ideology: that is the conception that all phenomena must in principle be reduced and explained from more fundamental phenomena. This is a philosophical thesis, not a scientific one. In their practice, scientists often attempt to make reductions, but in many cases, they proceed by studying phenomena at their particular level: for example, biologists generally do not move to the physical–chemical level for their research. Nor do we have any basis for being certain that reductions are always possible—as reductionist ideology instead assumes.

Returning to the philosophical discussion, we can therefore say that in general reductionism is not a winning strategy. This is why many scientific naturalists take a bolder route: that of eliminating from our ontology the entities and properties belonging to the ordinary worldview. Secondary properties, free will, consciousness, moral properties, normativity, intentionality: no aspect of the ordinary view is spared from the eliminationist pathos of these authors. The aforementioned Alex Rosenberg (2009) gives an excellent example of this trend when he writes:

> Science forces upon us a very disillusioned 'take' on reality. It forces us to say 'No' in response to many questions to which most everyone hopes the answers are 'Yes'. These are the questions about purpose in nature, the meaning of life, the grounds of morality, the significance of consciousness, the character of thought, the freedom of the will, the limits of human self-understanding, and the trajectory of human history.

In this quotation, one notices, moreover, a strange mixture of ideas that no serious thinker today would consider worthy of consideration (the purpose of nature, the trajectory of human history) with others that are essential to both the ordinary worldview and to many philosophical systems as if they were all at the same level of plausibility. In any case, the fundamental question of eliminationism is this: can we seriously conceive of a world without the central ideas of the ordinary worldview and philosophy, such as free will, consciousness, morality, and so on?

Let's consider, as an example, the attempt, by Paul and Patricia Churchland and others, to eliminate from our ontology the mental states proper to common-sense psychology (beliefs, desires, intentions, etc.). As will be recalled, according to the Churchlands, common-sense psychology is a proto-scientific theory that is completely erroneous regarding how the mind works. A first objection that can be made to this idea is that common-sense psychology is not a theory at all (albeit a proto-scientific and erroneous one): understanding the mind does not have at all the structure and function of a scientific explanation. For example, when we interpret the minds of others, or even when we reflect on ourselves, using common sense psychology, we frequently refer to normative notions: "My belief was wrong," "This desire of yours is absurd," "Your intention should be another." And natural science theories cannot adequately deal with normative notions: thus, equating common-sense psychology with a scientific theory, albeit a primordial one, is incorrect. A second objection is that, even if one were to accept the idea that common-sense psychology is a theory, then it should also be said that it is a theory that works quite well, because it helps us to make a large number of correct predictions about other people's behavior and, at least at this stage, it does this much better than any alternative theory (neurological or otherwise): so it is hard to see why we should eliminate it. Finally, one can also object that the Churchlands' eliminationism is self-confirming: if beliefs are not real, it is hard to see how the Churchlands can believe that their theory is better than common sense psychology, nor how they can try to convince others to believe in their theory.

Equally convincing arguments can be developed against attempts to eliminate the other fundamental components of the ordinary worldview. From this perspective, one must therefore conclude that eliminationist ideology as a whole, like reductionist

ideology, does not work. For this reason, as we have seen, some scientific naturalists have espoused a third conception, "mysterianism." According to the proponents of this conception, the phenomena proper to the ordinary image of the world cannot be banished from our ontology, as the eliminativists claim: such phenomena are indispensable for giving meaning to many fundamental aspects of our existence. On the other hand, continue the mysterians, we are not even able to bring back those phenomena, as the reductionists hope, to the explanatory modalities of science, which are the only epistemically legitimate: this, however, does not happen because these phenomena are intrinsically supernatural, but for our insurmountable cognitive limits. We are simply not an intelligent enough species to give a scientific explanation for these phenomena, in the same sense that dogs do not have sufficient cognitive endowment to understand a mathematical demonstration of Pythagoras' theorem.

Mysterians consistently draws the consequences implicit in the ontological premises of scientific naturalism and has the merit of recognizing that attempts at reduction are generally vague and the alleged eliminations unfeasible. However, in doing so, he reaches a conclusion that is very difficult to accept, i.e., that free will, consciousness, knowledge, meaning etc., are "mysteries" because we will never be able to understand them. In reality, however, if it is true that we do not know how to solve problems such as those of free will or consciousness, it is also true that over the centuries we have made considerable progress in clarifying them. Today we know much more about these problems than we did in antiquity, the Middle Ages, or even a few decades ago: conceptions that were thought plausible have been refuted, conceptually more refined ones have been developed, various facets of the problems have been clarified, and so on. Philosophy, in short, progresses conceptually (even if it does not solve its own problems, because a solved problem is ipso facto considered non-philosophical). And if there is conceptual progress, it means that philosophical problems are not unfathomable mysteries as Chomsky thinks and that philosophy is not at all a futile activity, as McGinn thinks. Moreover, it seems intellectually arrogant to set limits to what our species can do cognitively based on what we now think of our epistemic limits: Aristotle (perhaps the greatest genius ever to appear on Earth) could never have conceived of the possibility of sending a human being to the Moon, of formulating Gödel's theorem, of calculating the speed of light or of explaining how sight works (a problem, the latter, which at the time was considered to be the domain of philosophy). But this proves that those questions were not mysteries: they were, rather, very difficult problems, still not formulated at Aristotle's time, but that with the passing of generations have been solved. And this could happen even with some of the problems discussed today by many philosophers—even if, for this reason, they would no longer be considered philosophical problems.

On the other hand, once we assume the perspective of scientific naturalism, we have no idea what form the acceptable explanations concerning consciousness, free will, meaning, etc. might take. In that framework, these phenomena—which within the ordinary view of reality are not considered so mysterious—become completely incomprehensible: there is no way, in short, to talk about them in an intelligible way. However, the fact that scientific naturalism makes the most important phenomena of our existence incomprehensible can also be taken as a reductio ad absurdum of this

conception. In other words, a philosophical conception that is not able to account for some of our fundamental ideas, and cannot reduce or eliminate them, appears radically unsatisfactory and should be abandoned.

So thought also the late Lynne Baker (2013, 73), who wrote that "We should not lend faith to metaphysics that render ordinary but significant phenomena unintelligible." It is hard to see, then, why we should accept a conception such as mysterianism, given that it makes it impossible to think meaningfully about such fundamental issues as freedom, responsibility, consciousness, and meaning.

References

Baker, L. R. (2013). *Naturalism and the first-person perspective.* Oxford University Press.

Balaguer, M. (2009). Fictionalism, theft, and the story of mathematics. *Philosophia Mathematica, 17*(2), 131–162.

Blackburn, S. (1993). *Essays in quasi-realism.* Oxford University Press.

Boyd, R. (1988). How to be a moral realist. In G. Sayre-McCord (Ed.), *Essays on moral realism* (pp. 181–228). Cornell University Press.

Burge, T. (1993). Mind-body causation and explanatory practice. In J. Heil & A. Mele (Eds.), *Mental causation* (pp. 97–120). Clarendon Press.

Caruso, G. (2013). *Free will and consciousness: A determinist account of the illusion of free will.* Lexington Books.

Chomsky, N. (1976). Problems and mysteries in the study of human language. In A. Kasher (Ed.), *Language in focus* (pp. 281–357). Reidel.

Churchland, P. M. (1988). *Matter and consciousness: A contemporary introduction to the philosophy of mind* (rev). MIT Press.

Copp, D. (2017). Normative naturalism and normative nihilism: Parfit's dilemma for naturalism. In S. Kirchin (Ed.), *Reading Parfit* (pp. 28–53). Routledge.

Dawkins, R. (2006). *The God delusion.* New York Books.

De Caro, M. (2015). Realism, common sense, and science. *The Monist, 98*(2), 197–214.

De Caro, M. (2019). The indispensability of the manifest image. *Philosophy and Social Criticism, 46,*, 451–11.

De Caro, M., & David, M. (Eds.). (2004). *Naturalism in question.* Harvard University Press.

De Caro, M., & David, M. (Eds.). (2010). *Normativity and naturalism.* Columbia University Press.

De Caro, M., & David, M. (Eds.). (2022). *Routledge handbook of liberal naturalism.* Routgledge.

De Caro, M., & Macarthur, D. (forthcoming b). *Liberal naturalism*, Harvard University Press.

Dennett, D. (1991). *Consciousness explained*. Backbay Books.

Dennett, D. (2006). *Breaking the spell: Religion as a natural phenomenon.* Viking.

Earman, J. (1992). Determinism in the physical science. In M. H. Salmon, J. Earman, & C. Glymour et al. (Eds.), *Introduction to the philosophy of science.* Prentice Hall, 232–268.

Field, H. (1980). *Science without numbers.* Blackwell.

FitzPatrick, W. J. (2014). Morality and evolutionary biology. In E. N. Zalta (Ed.), *Stanford encyclopedia of philosophy*, https://plato.stanford.edu/entries/morality-biology/.

Fodor, J. (1997). Special sciences: Still autonmous after all these years. *Philosophical Perspectives, 11*, 149–163.

Gozzano, S., & Hill, C. (2012). *New perspectives on type identity: The mental and the physical.* Cambridge University Press.

Husserl, E. (1936). *The crisis of European sciences and transcendental phenomenology* (1970). Norwestern University Press.

Jackson, F. (1998). *From metaphysics to ethics.* Oxford University Press.

Joyce, R. (2005). Moral Fictionalism. In M. E. Kalderon (Ed.), *Fictionalism in metaphysics* (pp. 287–313). Oxford University Press.
Kim, J. (1996). *Philosophy of mind*. Westview Press.
Kim, J. (2007). *Physicalism, or something near enough*. Princeton University Press.
Lacey, H. (2005). Naturalism. In T. Honderich (Ed.), *The Oxford companion to philosophy* (p. 640). Oxford University Press.
Mackie, J. (1977). *Ethics: Inventing right and wrong*. Viking Press.
McGinn, C. (1993). *Problems in philosophy*. Blackwell.
McGinn, C. (2002). *The making of a philosopher*. Scribner.
Pereboom, D. (2014). *Free will, agency, and meaning in life*. Oxford University Press.
Price, H. (2004). *Naturalism without representationalism*. In De Caro & Macarthur (Eds.) (2004), 71–88
Putnam, H. (1992). *Renewing philosophy*. Harvard University Press
Putnam, H. (2004). The content and appeal of "naturalism." In De Caro & Macarthur (Eds.) *Naturalism in question* (pp. 59–70). Harvard University Press.
Quine, W. V. (1960). *Word and object*. MIT Press.
Quine, W. V. O. (1969). Epistemology naturalized. In *Ontological relativity and other essays* (pp. 69–90). Columbia University Press.
Quine, W. V. O. (1986a). Reply to Hilary Putnam. In L. E. Hahn & P. A. Schillp (Eds.), *The philosophy of W.V. Quine*. Open Court, 427–431.
Quine, W. V. O. (1986b). Reply to Morton White. In L. Hahn, & P.A. Schilpp (Eds.), *The Philosophy of W.V. Quine*. Open Court, 663–665.
Rey, G. (2016). Taking consciousness seriously—as an illusion. *Journal of Consciousness Studies, 23*(11–12), 197–214.
Rosemberg, A. (2009). *The disenchanted naturalist's guide to reality*, https://nationalhumanitiescenter.org/on-the-human/2009/11/the-disenchanted-natura-lists-guide-to-reality/.
Searle, J. (2004). *Biological naturalism*, https://web.archive.org/web/20060501002411/http://ist-socrates.berkeley.edu/~jsearle/BiologicalNaturalismOct04.doc
Searle, J. (2007). *Freedom and neurobiology. Reflections on free will, language, and political power*, Columbia University Press.
Sellars (1956). *Empiricism and the philosophy of mind*. Reprinted: Harvard University Press, 1997.
Sellars, W. (1962). Philosophy and the scientific image of man. In R. Colodny (Ed.), *Frontiers of science and philosophy* (pp. 35–78). University of Pittsburgh Press.
Sellars, W. (1975). *Autobiographical reflections*. In H. N. Castaneda (Ed.), *Action, knowledge, and reality: Critical studies in honor of wilfrid sellars*. The Bobbs-Merrill Company, 277–93.
Weisberg, M., Needham, P., & Hendry, R. (2011). *Philosophy of chemistry*. In E.N. Zalta (Ed.), *Stanford encyclopedia of philosophy*, http://plato.stanford.edu/entries/chemistry/.