

Reeves's Against Methodology in Science and Religion

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SCIENCE AND OTHER COMMON NOUNS: FURTHER IMPLICATIONS OF ANTI-ESSENTIALISM

by J. B. Stump

Abstract. The term "science" is a common noun that is used to designate a whole range of activities. If Reeves is right—and I think he is—that there is no essence to these activities that allows them to be objectively identified and demarcated from non-science, then what qualifies as science is determined by communities. It becomes much more difficult on this antiessentialism position to identify and dismiss pseudo-science. I suggest we might find a way forward, though, by engaging a philosophical tradition that has largely been neglected in English-speaking science and religion studies, and by articulating a theory of consensus along the lines of Oreskes (2019).

Keywords: essentialism; evolution; history; language; pseudo-science; scientific method; truth

It would be very difficult for us to use language if we couldn't use common nouns. These terms allow us to group together similar individuals and refer to them as a whole. If all we had were the names of individual things, think how long it would take to say, "I'm going out to rake the leaves!" But lumping together individuals and calling them one thing has its own problems. How do we determine which individuals are properly described by a given common noun? Which of the differences among the individuals are OK to ignore as nonessential?

Friedrich Nietzsche was particularly concerned about the latter question and had this to say about leaves: "Every concept arises from the equation

J. B. Stump is Vice President at BioLogos, Grand Rapids, MI, USA; e-mail: james.stump@biologos.org.

of unequal things. Just as it is certain that one leaf is never totally the same as another, so it is certain that the concept ‘leaf’ is formed by arbitrarily discarding these individual differences and by forgetting the distinguishing aspects” (1990, 83).

It seems to me that Nietzsche overstates things (not a surprise) in saying we “arbitrarily” discard the differences among individuals when we lump them under a certain concept and use a common noun to refer to them. If our groupings were completely arbitrary, it would be remarkable that there is so much overlap in how different languages and cultures have grouped individuals and named those groups.

That is one line of reasoning that has led to some philosophers to affirm that there are “natural kinds.” That is to say, there is an objectivity to our grouping together of certain individuals because there is a structure to the natural world to which our groups correspond—at least when we have grouped them correctly. Science itself is often thought to reveal natural kinds through its classifications, and the success of science shows that the way it has divided up the world, say, into the chemical elements on the periodic table, reveals the actual structure of the world.

There are arguments made against that kind of scientific realism by the likes of Bas van Fraassen (1980) on empirical grounds and Bruno Latour (Latour and Woolgar 1986) on social constructivist grounds. That’s not my argument here, though. I’m interested instead with the common noun “science” itself, and (to a lesser extent for this paper) its concomitant for our discipline, “religion.” Do these words pick out natural kinds? I don’t know anyone who would say they do. Science isn’t the kind of thing that grows on trees whether or not anyone is watching. But there seem to be people who assume that there is an essence to science. That would allow an objective identification of particular activities to be grouped together and labeled with the common noun “science.” And it might allow us to distill from those activities some guidelines for being rational in the rest of our endeavors. But if Josh Reeves is correct, that is a pipe dream.

Reeves is to be commended for writing a book that takes seriously the fact that science and religion are not somehow reflections of the structure of reality. There are no enduring essences to science or to religion that allow us to definitely group together various activities under these terms. Reeves takes this anti-essentialism to undermine the “credibility strategy” (Reeves 2019, 122) for showing the respectability of theological inquiry by comparing it in some relevant way to how science works. In my short paper here, I want to reflect a bit on the role of philosophy in all this, and then push further and suggest ways that anti-essentialism complicates our judgments of good science versus pseudoscience within our society today.

FAREWELL TO PHILOSOPHY?

In *Against Methodology*, Reeves gives a careful reading of the attempts by Nancey Murphy, Alister McGrath, and Wentzel van Huyssteen to use science to show that religious belief is rational. Each of their attempts founders, according to Reeves, because they have assumed that there is some enduring essence to science. Reeves takes these thinkers to be exemplars of how the academic study of science and religion has focused too heavily on the philosophy of science, and not enough on the history of science, for if they had paid more attention to history, they would have seen that it is impossible to characterize the actual practice of science across the ages and in various contexts as one thing. He says at the beginning of his book, “[P]hilosophers tend to be interested in evaluating the rationality of key scientific ideas, usually through the close analysis of central texts, whereas historians attempt to supplement textual analysis with the sociohistorical context of the ideas” (Reeves 2019, 3).

Reeves hasn’t let up on philosophers by the end of the book. He writes, “While philosophers were busy trying to reconstruct theories so that scientific knowledge would be securely anchored in sense experience, it became a discipline so technical that it was intelligible only to a small group of insiders. The insularity from actual scientific practice allowed traditional philosophy of science to lose track of its supposed object, leading to accounts of science that bear little resemblance to how science is done” (Reeves 2019, 124).

To be fair, Reeves nuances such sweeping statements with more recent philosophical work. So, I can’t quite pin him down as saying something like, “there is an essence to philosophy and it is bad!” And it is not so much that Reeves is beating up philosophy *per se*, but rather he is beating up on the science and religion scholars who only recognize a certain kind of philosophy and allow their work to be framed by the concerns and assumptions of that brand of philosophy which has not provided much illumination on the actual practice of science.

The work of analytic philosophy (to use another common noun that defies clear lines of demarcation) has emphasized conceptual clarification, often by trying to produce sets of necessary and sufficient conditions for a concept so everyone knows what they’re talking about. Ludwig Wittgenstein, who may or may not be claimed as an analytic philosopher depending on which of his books you’re reading, argued persuasively to my mind that this often doesn’t really work because of what he called “family resemblances” between concepts. Here is the famous passage about that from his *Philosophical Investigations*:

Consider for example the proceedings that we call “games.” I mean board-games, card-games, ball-games, Olympic games, and so on. What is common to them all? —Don’t say: “There *must* be something common, or they would

not be called ‘games’ — but *look and see* whether there is anything common to all. —For if you look at them you will not see something that is common to *all*, but similarities, relationships, and a whole series of them at that. (Wittgenstein 1953, §66)

Instead of all the individual activities we group together as games having the same set of “essential” characteristics, they are related in more complex ways. And the answer to why we call them all “games” could only come from historical explanation rather than the conceptual analysis of the philosophers.

So for science (and religion), Reeves’s contention is that when historians like Peter Harrison (2015) actually “look and see” whether there is any enduring essence to the various activities we call “science,” they don’t find anything conceptually that binds them together. We might make the claim that there is a family resemblance that holds between those various activities over time. For of course some of them have similar methods, some have similar subjects, some have similar goals, and so on. But there isn’t anything that all of them have, or at least anything that would uniquely define them as “science” or qualify as the essence of scientific inquiry. To understand why we call them all “science” takes a different kind of activity than conceptual analysis.

Here is a minor pushback against Reeves: there are other traditions of philosophy that have had a helpful engagement with science besides the analytic philosophy of science that emerged from positivism in the twentieth century. He notes that “in recent decades” (Reeves 2019, 124), there has been some rethinking of this traditional philosophy of science. And I suspect he is right that the science and religion scholars he critiques have drawn mostly from that more traditional philosophy of science. So, this is not to say Reeves is wrong in what he has written, so much as to suggest some other fruitful ways forward.

In contrast to the analytic tradition of philosophy, there is what is usually called the “Continental” tradition. It has largely eschewed the conceptual analysis of the former, and concentrated instead on understanding ideas in their historical contexts—not as pure historians, but as philosophers. For example, Nietzsche himself gives an “archeology” or “genealogy” of morals as a (controversial, to be sure) way of understanding how we arrived at and use ethical concepts today. I’m suggesting that the academic study of science and religion today might do well to reengage philosophy through thinkers from the Continental tradition like Wilhelm Dilthey (1833-1911) who wrote insightfully on the differences between the natural sciences and the human sciences, or Ernst Cassirer (1874-1945) whose work on symbolic forms helps us understand the explanatory systems our minds have become enveloped by. Or more recently, Hans-Georg Gadamer and Jürgen Habermas have devoted considerable attention to science. These are not easy reads for people trained in analytic philosophy (like I was), but

there is a depth and subtlety to them that may be just what the too-easy analytic conceptual analysis in the academic study of science and religion has been missing.

SPECIES AND TRUTH

Essences don't just cause problems for philosophers trying to give precise definitions. Richard Dawkins (an uneasy ally of mine, to be sure) claimed, "The discovery of evolution was held back by the dead hand of Plato" (Dawkins 2009, 21). Specifically, the charge is that Plato inserted essences into our ontology, and these unchanging Forms prohibited us from seeing the change over time that evolution posits. Just like with natural kinds and essences, the conceptual overlap of species and essences might not be absolute, but for the points I'm making here, they are close enough.

The central point for biology might be described by saying that the relation, "same species as" is not a transitive relation, which is very counterintuitive to our Platonically formed minds. That is to say, just because A is the same species as B, and B is the same species as C, that doesn't mean that A is the same species as C—at least if there are enough intervening individuals between A and C. This is because no two individuals are exactly alike, so any lumping together of multiple individuals under one concept, or common noun, or species is going to involve "the equation of unequal things" as Nietzsche said in the quote I began with.

Defining a species is notoriously problematic. The author of one study concludes, "There are multiple, inconsistent ways to divide biodiversity into species on the basis of multiple, conflicting species concepts, without any obvious way of resolving the conflict" (Richards 2010, 5). But being able to produce viable offspring is usually taken as a good indication that you're dealing with members of the same species. The nontransitive nature of the species relation can then be seen in the phenomenon of ring species.¹

When a species disperses around an uninhabitable barrier, like the central valley in California is for the *Ensatina* salamander, it develops slight differences. It can continue to mate successfully with the populations on either side of it. But by the time (millions of years later) those populations meet each other again on the far side of the barrier, completing the "ring," the two contiguous populations there can't successfully breed with each other. So in this case, using the heuristic that two individuals are the same species if they can produce viable offspring, we get this result: species A is the same as species B, and B is the same as C, and C is the same as D, and D is the same as E; but A is not the same species as E.

We can do the same thing along one biological lineage across time. You just can't nonarbitrarily say where one species stops and another starts on an ancestral line. It doesn't make any sense to say that offspring are a different species than their parents. But if you go back through enough generations of parents and offspring, you do get a different species.

I'm aware that there are arguments over this sort of thing, but I'm sympathetic to the position that species are useful fictions, social realities that are agreed upon by most concerned parties. There isn't a concrete thing somewhere that corresponds to "species." So, for example, when a species goes extinct, there isn't anything that ceases to exist over and above the fact that some closely related individuals died with no offspring. It is our Platonic conditioning that makes us think there is something more. (That doesn't mean that extinctions aren't regrettable in some respects—e.g., there are real ecological consequences to extinctions.)

In discussing these biological issues with species, I'm working toward making a point about the truth of propositions in which terms referring to social realities play a significant role. Consider a lively debate about a borderline case: A couple of years ago, there were some hominin fossils discovered in Morocco and dated to about 300kya; are these *Homo sapiens* or not? Some experts say yes, others say no. How do you know who is right? What would it even mean for one group to be right in this? Is there some external fact that determines this? No. If you persuade enough of your peers to see things your way, your view carries the day. In cases like this—cases where we're talking about social realities—I think Richard Rorty's definition of truth actually works pretty well. He said, "Truth is what your contemporaries let you get away with saying" (Rorty 1979, 176).

Is Pluto really a planet? The answer to that question is settled by what our contemporaries let us get away with saying. There may be an official body of some sort that makes a ruling and says "here's how we're going to use the word 'planet' from now on, and Pluto no longer qualifies." But that only works if you recognize that official body (and even then, it only happens because enough people within the organization decided—they convinced enough of their peers, so there was a consensus). There isn't an essence to planets or leaves or games or species. These are common nouns that we use to group together individuals. They are concepts that we use to organize our experience of the world. If the future is anything like the past, these will change over time.

So here's the point: if there is no essence to science, if it is not a natural kind, if it is a socially constructed concept that has been applied differently over time, then the claims we make about science are going to have to be evaluated according to Rorty's definition of truth. Claims about science (note, not the scientific claims themselves) will be accepted as true or false, depending not on some external, objective fact. Rather, they are social realities and will be accepted or not based on what communities think about them—what our contemporaries let us get away with saying and publishing.

For Reeves, this means the credibility strategy of showing theology to be just as rational as science, doesn't work in some objective, universal sense. I agree, and I'd like to push his point further, as I believe it has other

implications about how we might understand and interact with groups today who do not accept the consensus findings of science. Some of my own history and context might helpfully inform this point.

SEPARATING THE GOOD FROM THE BAD?

For the last seven years, I have worked for BioLogos,² a small nonprofit organization that has attempted to help more conservative Christians come to terms with contemporary science—particularly the origins sciences that conclude the universe is 13.8 billion years old and that the life on Earth is related by common ancestry through the process of evolution. That work takes me into regular contact with people who, from the supposedly detached and objective academic standpoint, are the epitome of irrationality. Some of them are convinced that Earth and the universe are very young, comparatively speaking—perhaps only six to ten thousand years old. Many more are convinced that species (or kinds) were created individually rather than being related through common ancestry.

We might be tempted to summarily dismiss and discount these groups because they are so far outside the realm of credible and responsible belief systems. Getting to know them personally, however, gives you a different perspective.

Just before the AAR event where this panel on Reeves's book occurred, BioLogos had a joint public event with some of our friends from Reasons to Believe.³ That is an evangelistic organization that promotes Old Earth Creationism, which means they accept the current conclusions of physics and geology about the age of the Earth and the universe, but not the current conclusions of biology and genetics about common ancestry. To us enlightened scholars at the AAR, that position makes us scratch our heads and wonder what sort of crazy cultural conditions must have led these poor people to deny reality. We might know about such people as statistics, and are utterly flabbergasted that they don't look at the same data and come to our obviously correct conclusions. But I have found that when you get to know them as people and spend time in their worlds, they seem less crazy. These are not stupid people. And there is an internal coherence to their belief systems that can start to make us wonder whether we too have isolated ourselves from relevant information. How do we show that our beliefs are better, more rational, more likely to be true?

It is tempting to summarily dismiss such groups claiming they are pseudoscience. But is there some external fact that determines pseudoscience and what is genuine science? No. When we deny there is an essence to scientific inquiry, like, say, it adheres to methodological naturalism (which it obviously hasn't always done over the centuries), then the question of whether something is science or not is settled by what our contemporaries let us get away with saying.

There is no official governing body determining what counts as science and what doesn't. There are membership organizations like AAAS, and peer reviewed journals like *Science* and *Nature*. But there are other membership organizations like The Creation Research Society and other peer reviewed journals like the Creation Research Society Quarterly.

Whether a group or methodology or position qualifies as properly scientific is determined by communities. But now, there are at least two complications to this. First, there is not just one community for these sorts of things. Every year before AAR, I work the BioLogos booth in the exhibit hall at ETS—the Evangelical Theological Society. Right down the aisle from us is the Answers in Genesis booth. There is a substantial community in which the “scientific” disagreements we have with these Young Earth Creationists are live and unresolved questions. And for many of them, our science is suspect because it is believed to be infected by ideological bias. In another example, recently, my newsfeed had a number of mentions of a new scientific paper claiming there could have been a bottleneck of two people 100kya from whom we are all descended (Hössjer and Gauger 2019). This scientific paper was published in a “peer reviewed” journal. It just so happens that the peers in this case are a rather select group of people and the journal was established by Intelligent Design advocates in order to advance a particular view. But the journals *Nature* and *Science* also have pretty strict limitations on who can serve as peer reviewers, right? So, determining whether a particular system or research program, in the words of Lakatos, is legitimately scientific is determined by communities, and there will be different judgments on this if we look historically, and different judgments if we look across communities that exist today.

But now the second complication, and one that might give us more hope, is that even fringe belief systems are made up of specific claims, and for at least some of these their truth is not decided by what your contemporaries let you get away with saying. Not everything is a social construct. Recognizing this is what keeps us from sliding into the morass of relativism. There is a difference between the truth of certain propositions, which does not change between communities and over time, and the rationality of those statements or the people who hold them, which is relative to the time and place of their articulation. For all human communities across time, it has been true that the Earth rotates on its axis and orbits the sun; it has not always been rational to believe that.

The difficulty, though, is that Duhem and Quine and Kuhn showed that even the objectively true or false propositions are embedded in larger networks or webs of belief, and so not subject to the easy falsification of Popper. We can always adjust some of our other beliefs to accommodate a recalcitrant piece of data. So, we get dangerously close again to evaluating the truth of even scientific claims according to Rorty's criterion: what our contemporaries will let us get away with saying.

I think one of the services the Reeves's book provides is to show just how difficult it is to resolve the tension between a modernist, foundationalist, naïve realism on the one hand, which in a show of positivist deduction merely purports to crank out the answer from first principles for who is right; and on the other hand, a subjective, constructionist, anything-goes postmodernism that denies there is any truth to the matter of which rival groups are correct. Reeves takes on three sophisticated interlocutors (Murphy, McGrath, and van Huyssteen) who have attempted to chart a *via media* between modernism and postmodernism, and he has had a keen eye to spot the shortcomings in their proposals.

So, what are we left with? Is there any way to evaluate scientific proposals that provides any hope for resolving conflicts between competing communities once we've denied there is an essence to science against which we could weigh the relative merits of competing practices? I suggest that the historian of science (yes, we're back to history!) Naomi Oreskes has given the best advice for a way forward. In her recent book *Why Trust Science?* (Oreskes 2019), she looks at how people have answered that question throughout the history of modern science. It began with trusting the character of the scientists themselves as "worthy men" who would produce reliable results. But it turned out that a noble character is not always a good guide to producing scientific knowledge, and by the end of the nineteenth century, the trustworthiness of science was to be found instead in a particular method (influenced particularly by Auguste Comte). But as I've nodded to already, methods change and are not universal. So, Oreskes argues, the best answer we have now to why science is reliable and to which competing scientific claims we should trust is consensus. That is not to say that the most votes determines what is true. But there are truth-conducive social practices that help science in its engagement with physical reality. Specifically, "[t]he greater the diversity and openness of a community and the stronger its protocols for supporting free and open debate, the greater the degree of objectivity it may be able to achieve as individual biases and background assumptions are 'outed,' as it were, by the community" (Oreskes 2019, 53).

This is no guarantee that science will always get it right, and it is not an easy fix to determining which of competing scientific claims should be adopted. But it should give us some confidence that when communities are open to diverse points of view, they have a better chance of self-correcting over the long term than the other options. Will some future historian look back on our times and write about how we have understood these issues only partially and perspectively? I expect so. We find ourselves at a particular point in the great flow of history—a particular context that imposes constraints. In the New Testament, it was reported about the flawed hero long after the fact, perhaps in a bit of hagiography, that "David, after he served the purpose of God in his own generation, died"

(Acts 13:36). What more can we aspire to than that?! I propose that Josh Reeves has served his generation of science and religion scholars well through writing his insightful and provocative book. Those adjectives properly modify the common noun to which his work belongs.

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NOTES

1. Jerry Coyne (2014) says that there are no documented cases of ring species developing without at least some isolation of the subspecies. That interesting point does not affect the point I’m making about the nontransitivity of the species relationship.
2. BioLogos was founded by Francis Collins in the wake of his best-selling book, *The Language of God: A Scientist Presents Evidence for Belief* (Collins 2006). Today its website (biologos.org) has hundreds of pages of articles, videos, and a podcast.
3. Find them online at <https://reasons.org>.

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