



## Historicism and the failure of HPS



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### ABSTRACT

This paper suggests that the failure to integrate history and philosophy of science properly may be explained by incompatible metaphysics implied by these fields. Historians and sociologists tend to be historicists, who assume that all objects of research are variable in principle, while philosophers look for permanent and essential qualities. I analyse, how the historicists and essentialist approaches differ with regard to the research objects of general history, history of science and science itself. The implied historicism makes some radical pronouncements by Latour on ontological variance understandable. I will also consider, whether there could be something like a historicist philosophy of science. The historicisation of the natural world proves most challenging, but both certain traditional disciplines and some recent advances in physical and life sciences indicate compatibility with historicism. One should note that historicism does not alter how 'truth' is understood. Historicism does not question the reality of objects either; only their eternity.

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For decades already it has become common to talk about one unified field of the *history and philosophy of science* (HPS).<sup>1</sup> However, despite some energetic initiatives to properly 'integrate' the two subjects, one may be excused to confuse their unity with disunity. Indeed, in their introduction to the 2011 edition of *Leviathan and the Air-pump*, Schaffer and Shapin provocatively describe the creation of the university departments of the history and philosophy of science a "largely unsuccessful experiment" (2011, xxi).

It seems that the philosophical perspective on science on the one hand and the historical perspective on the other remain stubbornly apart, and they may even be incompatible. One likely explanation for this putative disunity is that historians (and sociologists) are mostly interested in the local and contextual descriptions and explanations of science, while philosophers tend

to approach science with normative ambitions, trying to find general conditions for why and when scientists are right or wrong, on the right or wrong track, rational or irrational, etc. The role of historical studies in philosophical investigations is often taken to be the testing ground of pre-empirically developed conceptions.

This difference in the approaches between philosophy and history is of course well-known. Schaffer and Shapin observe that the University of Pennsylvania changed the name of a department from "history and philosophy of science" to "history and sociology of science," because "the marriage between naturalistically and empirically inclined history and normatively disposed philosophy of science was not going well" (Shapin & Schaffer, 2011, xxxiii). However, there may be another explanation for the failed attempts to marry HPS: namely, the incompatibility of the metaphysical doctrines that underlie philosophical and historical/sociological approaches to science. In order to get an idea of what I have in mind, let us take one example out of many possible. Consider Nick Tosh's reaction in his paper (2007, 203) to Latour's idea that, because bacteria, such as Koch's bacilli, were scientifically discovered only in the end of the 19th century, we

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<sup>1</sup> The studies of HPS often include also sociological or social studies of science. I subsume them initially for practical purposes under the 'history' part of HPS. The principled philosophical reason for subsumption becomes evident later in this essay.

should not explain an antedating event, such as the death of Egyptian pharaoh Rameses II, by reference to such bacteria. Tosh says that Latour's *metaphysics* is bizarre and something that no sensible layperson would accept. Tosh notices that reference to common sense may be a dangerously "lazy way of doing philosophy," but thinks that one is on the safe ground in this issue. He seems to assume that microbiological ontology as emergent reality is simply inconceivable. Perhaps it is, but one needs to ask, inconceivable to whom? The reason why it appears so 'bizarre' for philosophers may, indeed, be different metaphysical assumptions in Latour, which I call *historicism* in this paper and which is likely widely shared among historians and sociologists.

I have two main goals in this paper. One is to explain why philosophical and historical/sociological studies of science do not sit happily together, by reference to incompatible metaphysics, i.e. essentialist versus historicist metaphysics. The other goal is to consider, whether the historicist philosophy of science can be seen as a reasonable philosophy of science in general. In order to accomplish these tasks, I will first define essentialist and historicist metaphysics. After that I discuss in what ways historicism is embedded in historical and sociological studies of science. Finally, I will test the limits of the historicist philosophy of science, asking whether both human and natural sciences, both historical and non-historical, and their research objects could be understood 'historicistically.'

## 1. Essentialism vs. historicism

Why would Latour's idea that Koch's bacilli are not available for a historian to explain why Rameses II died be so absurd? One reason is undoubtedly what might be called implied 'radical constructivism,' which says that the nineteenth century scientists literally created the bacteria through interaction with the natural world and other factors. But there is another related, and even more fundamental, reason. Latour's claim suggests that the natural world was not the same in some relevant sense at the time of the Ancient Egypt as it was after the birth of modern bacteriology, and for this reason, the cause of Rameses' death cannot possibly have been the same. Or let us consider another similar example. One of the most famous, and indeed notorious, statements by Thomas Kuhn concerns 'world change': "when paradigms change, the world itself changes with them" (Kuhn, 1970, 111). Many commentators, ignoring the preceding qualification, "the historian of science may be tempted to exclaim that," took this to imply an indefensible form of linguistic and cultural idealism, i.e. that human activity could change the natural world that science investigates. Both the ideas that human beings could have such causal powers and that the world of natural science were so plastic seemed abhorrent for many philosophers of science. It is the latter thought that I concentrate on in this essay.

Indeed, if there is one philosophical commitment shared by all or almost all philosophers of science, then it must be that the natural world is uniform and invariant. It does not change from day to day and from place to place, but we can be confident that we will find it pretty much the same tomorrow. It seems common sense to assume that alchemists and contemporary scientists, and African and American scientists, etc., were and are responding to the same world. One qualification is, however, needed: no one would deny change as such in the natural world, but most would deny that essential kinds, structures and regularities of nature are variable; that, say, at the time of Aristotle the natural world was *fundamentally* different or that the water that Egypt's pharaohs drank has *essentially* changed since then. In brief, the widely shared intuition

among philosophers of science is that the world is *essentially* invariant.

Consider the meaning change debate initiated by Kuhn and other historical philosophers of science. They suggested that the meaning of a scientific term is defined holistically, by the whole theory. One of the most counterintuitive consequences of this idea was that, if this meaning defining 'theory' has to be true of an entity that a term refers to, then a theory change results in a shift of reference, i.e. a change of the kind of entity that is referred to, i.e. ontological change. The causal theory of reference in the 1970s by Kripke (1980) and Putnam (1975) did not emerge as a response to this kind of meaning-change theorising, but it seemed to constitute a perfect antidote to it. Suppose that a term refers to a natural kind and that the natural kind has some essential property or properties, whether scientists know it or not. This provided, we can assume a stable referential link directly to this natural kind. An essential property is something that an entity cannot lack and be that (kind of) entity. In other words, all entities of that kind in our world (and perhaps in all possible worlds) must have it. If this is so, we can safely assume that ancients were talking about the same water as contemporary scientists, although they may have had many false beliefs about it.

At least some objects are thus assumed to be invariant with respect to their essential features. Or to put it slightly differently, objects are essentially the same now as they were in the past. A lump of gold that an ancient philosopher might have held in his hand has probably altered, eroded, somehow, or perhaps disappeared altogether, but the *kind gold* and its essential properties (such as having the atomic number 79) has not changed. This view has further implications and consequences: It is essential properties, such as the atomic number 79, which guarantee ontological continuity from the time of Antiquity, not the shape and size of the gold lump. Or to apply the Putnam–Kripke view, a lump is gold, even if it were violet (rather than yellow), if its hidden microstructure contains the essential property, the atomic number 79.

Now we could express this form of invariantism simply as essentialism:

*Essentialism*: At least some objects have invariant and permanent, i.e. essential, properties.<sup>2</sup>

Essentialism as a metaphysical statement on the nature of our ontology is often accompanied with an essentialist identity statement: The identity and nature of objects are given by these atemporal essential properties. All other properties are irrelevant for the identity of an object and potentially reducible to or explainable by the essential properties.

It is important to add that *the* essentialism that I am talking about does not only refer to essential *natural* properties. This kind of essentialism is of course best known, for example, in the above mentioned works by Putnam and Kripke. Essentialism here is understood as a commitment that an object and kinds of objects have some type of *permanent quality* or qualities that defines what they are. The qualities themselves could be natural or non-natural. My claim is that essentialism in this sense is widely shared in the philosophy of science.

Historicism implied in Latour above is a denial of essentialism. More specifically, it denies that objects are invariant even with respect to their essential features. Historicism assumes that objects are variable (in principle) in all respects, which is thus to say that

<sup>2</sup> Cf. Robertson, 2008.

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