

# Review of: "In the doing of science, what is the place for naturalistic philosophy? Implications for the teaching of science"

Ismo Koponen<sup>1</sup>

<sup>1</sup> University of Helsinki

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The manuscript "In the doing of science, what is the place for naturalistic philosophy? Implications for the teaching of science", according to its title, promises to address the issue of naturalistic philosophy in doing science and in its subtitle, asks its implications for teaching of (not about) science. The authors suggest that "suggest that scholars should consider the views of eminent scientists who we consider might be taken as examples of doing naturalistic philosophy from within science". They then provide examples from physics (Bohr, Heisenberg and Feynman as examples) as well as from philosophical views by Wittgenstein and Arendt. On that basis, they put forward some notions concerning teaching of science.

I found the combination of topics somewhat unexpected and admittedly, also confusing for reasons I try to explain below.

1. The framing of the topic was somewhat different I was expecting. Given the title, which explicitly mentions naturalistic philosophy, I assumed that the focus would be on philosophical project of naturalism as outlined by for example such philosophers as Joseph Rouse, Wilfrid Sellars and W.V.O Quine. The image the title triggered for me, suggested that discussions focusing on themes to be found for example in chapter "Naturalism and the Scientific Image" in Rouse's book "Articulating the World". However, I then realized that the manuscript may be rather a response to study by Robinson "Naturalism' Maxims and Its Methods" mentioned in Introduction (second paragraph) and views expressed in it. Robinson, to my understanding, focuses on Naturalism and naturalistic philosophy in the form discussed by Papineau (which is explicitly mentioned in Robinson's references). However, the naturalism in form Papineau discusses it and how Robinson takes it as the vantage point, appears to me very differently focusing than e.g. Rouse's work which also certainly addresses naturalism. Perhaps this is due to differences in focus; Rouse deals much with Science (i.e. natural science, Naturwissenschaft) and conceptualizations within it, while Papineau (which I am not familiar) includes sciences and scholarly work more broadly (i.e. Wissenschaft). The connection between these views is not easy to see (e.g. Rouse does not refer to Papineau in his book, Papineau does not refer to Rouse in his Stanford Encyclopedia article about Naturalism). Nevertheless, as I understand, there is much overlap and connection point between these two views. Now, I understand that Robinson's work is closely related to Papineau's views, and the manuscript to be reviewed, is in many ways commentary, response and development of ideas fueled by Robinson's study. I am not sure, if I have here understood the focus of the authors correctly, but the way the theme is opened in the Introduction, in the second paragraph, suggest for me such a reading. If correct, then the current manuscript could be an addition and continuation of

discussions related to Robinson's work, made meaningful given the Papineau's way framing the Naturalism. It would help much if the authors could be more explicit in how their study should be positioned among the different available conceptions and views of Naturalism and naturalized philosophy.

2. According to title, and according to the second paragraph of the Introduction (see above) the manuscript focuses on Naturalistic philosophy. The first paragraph of the Introduction, however, opens with discussion about "natural philosophers" (and thus, natural philosophy). Here, natural philosophy and philosophers is clearly meant to understand as it was understood in Victorian era and before; authors refer to Darwin and his contemporaries, and Whewell's way to understand natural philosophy and how he suggested terms "scientist" and also "physicist" should be used. However, it remains unclear how the authors see a connections between such historical natural philosophy and natural philosophers. Perhaps there is a connection point, but there is no clear argument in supporting such view. After all, Natural philosophy as a form of scholarly studies and investigations, as it preceded "Science" and "Physics" (as they later emerged) and how it (possibly) became intertwined with them or absorbed by them, is a topic of its own. How I am familiar with that topic is from sources like: A. E. McGrath "Natural Philosophy"; A. Blair, "Natural Philosophy" ch 17 in *The Cambridge History of Science*, and many similar available sources. I think authors should elaborate considerably more how they see connection between "natural philosophy" and "naturalized philosophy".

3. Assuming that natural philosophy (as understood in way suggested above) plays a role and should be seen as important part of doing science (as the authors may to suggest, but I may be mistaken), the manuscript misses similarly oriented views. For example, Nicholas Maxwell have made a similar point in his "We Need to Recreate Natural Philosophy", *Philosophies* 2018, 3, 28; doi:10.3390/philosophies3040028 as well as Arran Gare, *Natural Philosophy and the Sciences: Challenging Science's Tunnel Vision*, *Philosophies* 2018, 3, 33; doi:10.3390/philosophies3040033 (both containing useful references). I think that discussions in these studies in in same spirit as authors discussion of examples they pick from physics (Bohr, Heisenberg, Feynman). If this notion is correct, I suggest that authors should pay closer attention on clarifying the role of natural philosophy and its relation to naturalized philosophy in doing science.

4. The examples the authors provide from physics might be useful and illuminating, but in present form of the manuscript, probably due to difficulties I have had to understand its focus (see above, 1-3) I do not see how they actually serve to support the argumentation the authors put forward, and what actually is the point they want to make by discussing the examples. Therefore, they appear to me a somewhat incoherent medley of notions from physics. In addition, the way they are discussed in too superficial and shallow to provide basis for discussions how natural philosophy might be related to those physicist way of doing physics. Moreover, in all cases, much better references/sources can be easily found. In addition, I very much doubt if it makes sense to discuss naturalism (as philosophical view) or naturalized philosophy through such examples in the way as now is done; for Bohr, Heisenberg and Feynman naturalized philosophy did not exist (for Bohr and Heisenberg, even could not). Of course, it would be perfectly correct to discuss how the physics they did appears from vantage point of current philosophical view of naturalized philosophy, but now, I feel that I need to reconstruct that viewpoint and instead, I feel that viewpoint I am offered, is how naturalized philosophy appeared in their work. Perhaps such a misreading is my own confusion, but I think authors should consider clarifying this point.

5. Finally, the connection to teaching of science (or perhaps, teaching about science) remains very shallow indeed, even nonexistent, I would say. If there is nothing more to say about it I suggest dropping the theme (and the subtitle).