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## Peirce as a philosopher of science

T. L. Short: *Charles Peirce and modern science*. Cambridge: Cambridge University Press, 2022, 300 pp, \$99.99 HB

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Let me begin with a personal remark about *my* reason for reading this book. I find it interesting, and disappointing, that Peirce did not become a canonical figure in mainstream philosophy of science and hence in the history of philosophy of science. Unlike Pierre Duhem, Ernst Mach, Henri Poincaré, and the Vienna Circle members, Peirce is not a figure about whom scholars of the history of philosophy of science read and hear a lot. But it was not always like that. In the early years of the logical empiricist movement in the United States, Peirce's philosophy received a warm reception from prominent representatives, proponents, and sympathizers of this movement, such as Charles Morris, an editor of the *International Encyclopedia of Unified Science*, Ernst Nagel, and Philipp Frank. In 1934, for instance, Morris talks about American pragmatism and logical empiricism, whose "more immediate founders" are "Peirce and Mach," as two movements that most vigorously express the contemporary "empiricist temper." He declares that "the time is appropriate for more direct contact and cooperation between the movements" (Morris 1936a, 130–31). Quite interestingly, in 1936, these are not *two* movements anymore. There is *one* movement:

the most vigorous and the most promising contemporary movement in the logic of science and scientific philosophy ... draws together within itself the types of interest represented in the historical forms of empiricism, the more critical form of pragmatism, and the newer mathematical logic. It is therefore a logico-pragmatico-empiricism that has taken on a genuine international character. Similar tendencies ... had sprung up in a number of countries, with Mach, Peirce, Poincaré, and Russell playing decisive roles. (Morris 1936b, 127)

But this reception was short-lived. In the course of the development of twentieth-century philosophy of science, Peirce became a marginal figure in the mainstream philosophy of science while logical empiricism turned into a formidable movement.

It goes beyond the scope of this review to account for the marginalization of Peirce. What is hard to deny is that Peirce's works are not easy to read and understand. He frequently

changed his philosophical positions, and it is not hard to find contradictions and lacunas in his works. These have puzzled his interpreters and have resulted in strikingly different interpretations. For instance, one can find at least three significantly different interpretations of Peirce's theory of abduction (McKaughan 2008; Campos 2009; Mohammadian 2019)—and this is one the most well-studied topics in his philosophy.

I read T.L. Short's *Charles Peirce and Modern Science* hoping that it takes a step towards reintroducing Peirce as a philosopher of science. It did not disappoint. This is an impressive book not only about Peirce's philosophy but also about how to read and interpret it. Short's exegetical principle, so to speak, is quite simple:

Peirce wrote philosophy as a scientist, not as a philosopher in any of the usual senses. He made conjectures, extraordinarily bold, and developed them in some technical detail, first in one way and then in another not consistent with the first, and then again in third and fourth ways — all for the sake of trying them out, of pushing them as far as they can go, so as to find what works. (x)

This exegetical principle has two important functions in Short's interpretation of Peirce. First, it offers a new way of thinking about the contradictions and lacunas in Peirce's writings. They are not signs of his weakness in creating a coherent philosophical system but a feature of Peirce's approach to philosophizing, a crucial and admirable one no less. Second, through this principle, Short brings to the foreground the centrality of science in Peirce's philosophy, not only in shaping his philosophical positions but also in how he thinks philosophy should be done: just like a science.

One might object that modern science is an ever-growing comprehensive system of knowledge in which methodological norms such as consistency and coherence are greatly valued. If Peirce is to do philosophy scientifically, he should at least aim to provide a consistent and coherent philosophical system. In Chapter 2 of the book, however, Short argues that Peirce has a quite different conception of science. For him, science is neither defined by its metaphysics nor its methods; rather by "the vague idea of the restless spirit of inquiry, a desire to find things out—in whatever form that may take" (28). Metaphysics and methods are themselves products of inquiry and subject to change in light of new scientific findings attained through this empirical inquiry. For example, the substitution of physicalism for materialism (metaphysics) and the introduction of statistical methods into natural sciences (method) are both products of scientific inquiry. If science is not a system of knowledge but a restless inquiry, then the inquiry is not valued for the sake of a complete system of knowledge, but knowledge is valued because it furthers the inquiry. Of course, we might finally end up with a more or less comprehensive system of knowledge due to our scientific inquiry, but this is not the essence of science, just a final product.

After clarifying Peirce's conception of science, in the remainder of the book, Short reexamines some central themes of Peirce's philosophy, e.g., his views on system building and the pragmatic maxim, in light of his understanding of science and its centrality in doing philosophy. *The vague idea* of the restless spirit of inquiry is disambiguated in two ways,

sometimes by Peirce and sometimes by Short's extension of Peirce's project—and it is not always easy to distinguish these two. In Chapter 2, Peirce's discussions of some major episodes in the history of modern science as great exemplifications of this spirit are studied, and in Chapter 3, Short compares and contrasts modern science with classical philosophy, both to further clarify what the "restless spirit of inquiry" as the distinguishing characteristic of science consists in and to defend modern science, as understood by Peirce, against some of its contemporary critics who claim that science has sacrificed truth at the feet of utility and it has emptied out our lives of values and meaning. Two examples of such critics, according to Short, are "Straussian political theorists" and "radical feminists" (46).

I appreciate Short's attempt at extending Peirce's ideas and applying them to current problems, but I am not convinced that he always succeeds. One example is Short's Peircean defense of science. According to Short, in classical and medieval philosophy, "endless growth was not a cognitive ideal: Restlessness was seen to be a moral defect; the aim was for inquiry to come to rest in a comprehensive and coherent system of general truths" (39). In this sense, modern science as understood by Peirce is essentially different from classical philosophy. However, this does not mean that modern science has dropped the ideal of truth and has replaced it with utility as the final goal—Peirce was indeed a scientific realist. Nor does it mean that the ideal of unending inquiry is meant to support relativism or historicism—Peirce was just a strong advocate of fallibilism. But if fallibilism is an essential feature of science and we should model philosophy after science, then where should we look for moral guidance? In our fallible science and philosophy? Then how can we be sure that we are doing the right thing? More importantly, can morality even survive the uncertainty that is associated with fallibilism? These questions might seem "a devastating rebuke" (49) to Peirce's view of philosophy as a science but Short disagrees. For "at about the time when he was beginning to think of philosophy as a science, Peirce argued that this would require our *not* relying on philosophy in any matter of 'vital importance'" including morality (49). In such matters, Peirce thought that "we are better off relying on custom, sentiment, and instinct. For these have been shaped by eons of experience, and, although they likely are admixed with error—error which is sometimes productive of evil—it is unlikely—since we have survived so far—that they will lead us into total disaster" (49).

It is hard to find Short/Peirce convincing here. We cannot think of science and philosophy-as-a-science as our best shots for attaining knowledge and reasonably ask people to look into their customs, sentiments, and instincts for moral guidance. First, this leads to an extreme form of moral relativism because customs and sentiments are as diverse as societies and human beings. Second, modern science has made impressive progress because of the massive financial and intellectual resources provided for it in modern societies. And these resources have been secured for science partly because its advocates from Bacon to Vannevar Bush have promised that scientific progress will advance the health, prosperity, and security of all humankind (Kourany 2021). If a feminist criticizes science for falling short of this promise by reinforcing non-egalitarian ideas, say, it seems odd to tell them to seek refuge in their society's customs and sentiments. After all, these customs and sentiments are exactly what they find problematic and aim to change with the help of science.

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