

Bojana Mladenović, *Kuhn's Legacy: Epistemology, Metaphilosophy, and Pragmatism*. New York: Columbia University Press, 2017. Pp. xiv, 236.

Thomas S. Kuhn's famous book, *The Structure of Scientific Revolutions*, is one of the founding texts of the history and philosophy of science.¹ For many years, the account of scientific change proposed in *Structure* has been the focal point of discussion of Kuhn's work. However, Kuhn continued to develop his views throughout the remainder of his career. In recent years, there has been an increasing tendency to approach Kuhn's work in a way that is informed by these post-*Structure* developments.

The present book is a good example of this recent trend. Mladenović presents an interpretation of Kuhn's work that encompasses the whole of his philosophical trajectory. The analysis is informed by the entirety of Kuhn's work as well as the extensive secondary literature that has grown up around his work. Mladenović is a sympathetic commentator on Kuhn who presents his philosophical ideas in a favourable light. But the book is not simply an uncritical exegesis of Kuhn. Mladenović offers correctives where she finds Kuhn to have gone astray. She also presents novel interpretative suggestions not found in other commentators. On several occasions, Mladenović extends Kuhn's views in directions that he may well have resisted. As may be expected of a sympathetic treatment of Kuhn, there is a tendency to dismiss philosophical criticism of Kuhn as based on misinterpretation (3). The balance between sympathetic interpretation of Kuhn and serious engagement with Kuhn's critics is one that is not easily achieved.

The book opens with a summary of key Kuhnian ideas such as normal science, anomaly, crisis, revolution and incommensurability. It then turns to consideration of Kuhn's thinking about the relationship between the history of science and the philosophy of science. Next Mladenović addresses modifications of his views about the role of the history of science, which Kuhn was prompted to make in response to sociological appropriation of his work. She then turns to the issue of relativism, arguing against a widespread understanding of Kuhn that he was in fact an anti-relativist. This leads into an analysis of Kuhn's thinking about scientific rationality and the nature of scientific progress. The book concludes with a novel interpretation of Kuhn's philosophical outlook as bearing a strong resemblance to the philosophical views of the American pragmatists.

One novel feature of Mladenović's interpretation of Kuhn is the proposal that Kuhn's model of scientific change is to be read in Weberian terms. Mladenović draws on Max Weber's notion of an ideal-type in her analysis of key Kuhnian concepts such as paradigm and scientific revolution. An ideal-type, she says, is a "heuristic device for forming hypotheses", rather than "a complete description of reality" (45). Though an ideal-type must "originate in careful observations of culture and history", it need not "correspond to or have perfect instantiations in empirical events" (45). Despite this, it is possible to use ideal-types for explanatory purposes, since they draw attention to significant features of historical phenomena. Mladenović suggests that some of the key notions of *Structure* are to be understood in this way. For example, she claims that the notion of a scientific revolution is "empirically grounded" in

¹ T. S. Kuhn, *The Structure of Scientific Revolutions*, 4th ed. (Chicago: University of Chicago Press, 2012).

such major “disciplinary changes as the Copernican and Darwinian revolutions” (48). Incommensurability plays a key role in such changes, though there is variation between revolutions with respect to the extent of incommensurability involved, as well as the length of time that the revolution endures. One implication of this interpretation is that Kuhn’s model of scientific change is less open to empirical scrutiny than is usually assumed. If Mladenović is right, Kuhn’s claims about the processes of scientific change are not generalizations that are subject to empirical refutation. They involve ideal-type concepts which do not always apply exactly to the real world of scientific practice.

A second novel feature of Mladenović’s view relates to Kuhn’s connection with the sociology of science. On Mladenović’s interpretation, Kuhn undertook dramatic revision of his meta-philosophical position in reaction to the sociological appropriation of his work. Because of Kuhn’s emphasis on social aspects of science, *Structure* was taken by sociologists of science as a classic text of their discipline. But Kuhn was critical of the sociology of science. He sought to distance himself from the sociological approach, especially its relativistic tendencies.² In doing so, Mladenović argues, Kuhn’s meta-philosophical conception of the relationship between the history of science and the philosophy of science underwent significant change. At the time of writing *Structure*, Kuhn sought to bring the philosophy of science into productive interaction with the history of science. Mladenović characterizes Kuhn’s historical approach as a hermeneutic one which seeks to understand earlier science in its own terms rather than in “presentist” terms from the perspective of current science. Rather than impose contemporary standards on past science, “by discovering reasonable grounds for long-rejected views, it inclines a philosopher of science to understand scientific rationality as changing over time through both collaborative scientific work and scientific disagreements” (34). In Mladenović’s view, Kuhn’s earlier meta-philosophical approach laid him open to relativistic appropriation by the sociology of science. Given his rejection of the relativistic implications of the sociology of science, Kuhn undertook a major revision of his meta-philosophical outlook. Accordingly, toward the end of his career, Kuhn presented his account of scientific change, not as based on the history of science, but as a philosophical theory deriving from “first principles” about the nature of developmental processes.³ Kuhn sought a philosophical account of epistemic rationality that would not give rise to the relativism embraced by the sociology of science. Where the sociological approach emphasizes social, political and personal factors in the development of science, Kuhn insisted that the sciences are to be understood in cognitive and internalist terms.

To develop the revised version of his views, Kuhn sought a new conception of both scientific rationality and the nature of scientific progress. According to Mladenović, Kuhn was fully committed to the rationality of science. What he rejected was not the rationality of science but the received view of the nature of such rationality. On Mladenović’s analysis, Kuhn failed to fully recognize the social aspects of his own conception of scientific rationality. Thus, in what appears to be an explicit departure from Kuhn, Mladenović argues that scientific rationality has a communal component: “individuals become scientists by becoming a part of a scientific community: their *scientific* rationality exists exclusively through their membership

² The key text for this is Kuhn’s Rothschild lecture, ‘The Trouble with the Historical Philosophy of Science’, reprinted in *The Road Since STRUCTURE* (Chicago: University of Chicago Press, 2000), chapter five.

³ See Kuhn, ‘The Trouble with the Historical Philosophy of Science’, 112.

in the group” (114). While an individual scientist may be a rational person in isolation from a group, they only participate in the rationality of science by way of their membership of and contribution to a scientific community. Turning to the question of progress, Kuhn explicitly rejected a cumulative conception of progress toward an ultimate goal in *Structure*, arguing that progress is best thought of in negative terms as movement away from an earlier starting-point. Kuhn thought of progress in evolutionary terms. He came increasingly to emphasize the importance of specialization in the sciences, which he compared to speciation. As Mladenović notes, this brings with it an altered conception of the role of incommensurability: “it now obtains not only between the old paradigm and the new specialities but also among the new specialties themselves” (148). While Kuhn thus came to emphasize the disunity of science, Mladenović argues that Kuhn downplays the extent to which productive interdisciplinary research reflects the presence of unifying forces in science. In the end, she argues for a pluralistic conception of progress: “The same science progresses in different ways in different periods of its development: sometimes cumulatively, sometimes with a ‘Kuhn-loss’ in empirical content, sometimes by discovery, sometimes by the reclassification of familiar phenomena, sometimes by division of a previously unified field, and sometimes by a reunification of previously distant fields” (157).

Perhaps the most distinctive feature of the book emerges in the final chapter, entitled ‘Kuhn’s Pragmatist Roots’. Mladenović writes that “Kuhn’s philosophy is properly appreciated only if it is seen as a creative and fruitful continuation of American pragmatism” (168). The claim is not that Kuhn explicitly identified his views with those of the pragmatists. As Mladenović notes, Kuhn “never even mentioned the philosophical works of Peirce, James, or Dewey” (168). The claim, rather, is that Kuhn’s epistemology is “*structurally* a pragmatic epistemology” (168). That is, there are strong similarities between Kuhn’s epistemological views and those of the pragmatists which warrant classifying Kuhn’s philosophical position as a pragmatist one. Like the classical pragmatists, for example, Kuhn displays little interest in the problem of epistemological scepticism in developing his philosophical account of science. Instead, Kuhn “situates his epistemological project within the bounds of scientific inquiry, the existence and nature of which he never problematizes from an external, sceptical point of view” (177). Kuhn’s epistemology is also pragmatist to the extent that Kuhn takes scientific knowledge to be fallible, and in that he understands science in non-representational terms as a “series of structured practices” (180). While Mladenović takes Kuhn’s views to be appropriately classified as pragmatist, she recognizes that this is not something on which Kuhn ever explicitly committed himself. Instead, Mladenović attempts to show that pragmatism exerted an influence on Kuhn’s philosophical outlook because it was an important undercurrent in the intellectual context in which Kuhn worked. Kuhn did not refer to the classical American pragmatists. But his work bore the imprint of contemporary thinkers whose work was imbued with pragmatist themes.

The book is well-written. It engages well with a significant portion of the literature on Kuhn. In attempting to develop a sympathetic interpretation of Kuhn, there is a tendency to selectively draw upon that literature. As a result, some of Kuhn’s philosophical ideas do not receive detailed scrutiny that reflects the sustained critical discussion found in the existing literature. The issue of incommensurability is one example of this failure to seriously engage with the philosophical literature on the topic. No doubt, Mladenović would defend neglect of the literature by claiming that the literature is based on an incorrect understanding of Kuhn. But the topic of incommensurability raised important questions about such issues as change of

reference, the reference of theoretical terms, theory comparison, conceptual relativism, translation and understanding, which fail to receive adequate attention in this book. In an otherwise commendable effort, failure to come to grips with the critical literature is a disappointment. It leaves this reviewer with the impression of a job that has not been carried through to completion.

Howard Sankey

University of Melbourne