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Constructing Kuhn

By Anthony Corones

Paul Hoyningen-Huene, *Reconstructing Scientific Revolutions: Thomas S. Kuhn's Philosophy of Science,* translated by Alexander T. Levine. Chicago: University of Chicago Press, 1993. Pp. xx +330. US$43.75 HB.

There is no doubting the careful and splendidly detailed scholarship of this book. And there is no doubting that Hoyningen-Huene has produced an important philosophical interpretation of Thomas Kuhn's philosophy of science. But, reader beware–you are unlikely to find the Kuhn you expect (especially if Hoyningen-Huene is right about the general misunderstanding of Kuhn's work).

Given that there are almost as many versions of Kuhn as there are readers, this is hardly surprising. What is surprising, however, is that this is a version of which Kuhn himself approves. In the Forewood to the book, Kuhn says of Hoyningen-Huene that 'No one, myself included, speaks with as much authority about the nature and development of my ideas' (p.xi). He tells us, further, that 'Readers who care about resolving the puzzles to be found in my writings will be in his debt for a long time to come' (p.xi). Hoyningen-Huene spent a year with Kuhn discussing this project, and we are fortunate to have Kuhn's confession that 'it was not always Hoyningen who changed his interpretation of what I had meant' (p. xi). This confession points up some of the formidable difficulties which must have attended such a project. But I must say that Hoyningen-Huene gives the impression of being up to the task, both as scholar and as philosopher. This is no work of mere exegesis, but a serious attempt to construct a coherent and fully articulated theory of scientific revolutions.

What you won't find in this book is any historical analysis relating Kuhn's work to earlier philosophy of science; a review of criticism of Kuhn; or an account of the influence of Kuhn's work. What you will find is a concerted hermeneutic approach to the whole range of Kuhn's work (an approach which produces a dazzling example of detailed and extensive footnoting); an attempt to trace the development of Kuhn's thought; and a struggle to determine just what Kuhn's theory does and does not claim. Hoyningen-Huene also addresses himself to the question of justification for

whatever claims the theory does make, being critical where this seems necessary, and elaborating on the claims where expansion is called for.

Hoyningen-Huene's primarily philosophical concerns are evident in the epistemological and ontological focus of the book, and also in the structure of the discussion. Beginning with a consideration of the basic problem on which Kuhn's theory is focussed (that is, the problem of accounting for scientific development), Hoyningen-Huene then moves onto the question of scientific knowledge and its object, and ends with a discussion of the dynamics of scientific knowledge.

It's not the case, however, that Hoyningen-Huene is unconcerned with historical and sociological issues. For the discussion of epistemological and ontological questions hinges on the identification of the relevant communities of scientists and disciplinary fields. These, according to Hoyningen-Huene, are to be identified by Kuhn's 'internal historiography' of science. Thus, the theory of the structure of scientific development is metahistorical, intended as a general explanation for the particulars offered by the historiography. And 'structure' is cashed out by Hoyningen-Huene as a universal phase model for scientific development.

The most obvious 'phases', of course, would be those of normal science and scientific revolution. But for these phases to be understood, Hoyningen-Huene insists that we must understand how phenomenal worlds are constituted by the epistemic activities of the relevant scientific communities. Why 'phenomenal worlds'? Because there can be no meaningful talk about the 'real world', or the 'world-in-itself'. Kuhn's theory of the structure of scientific development requires, rather, a plurality-of-phenomenal-worlds ontology, and the epistemological problem is to discover not only how epistemic subjects constitute such worlds, but also how scientific communities constitute them, and how they induct new members into these phenomenal worlds. Essential to this process is the mastery of similarity/difference relations acquired during professional education. These similarity/difference relations are implicit in the way in which 'objects' and problem situations and solutions within phenomenal worlds are constructed. According to Hoyningen-Huene, this task of fixing similarity and difference relations is the key role of paradigms in Kuhn's theory.

Armed with this analysis of the constitution of scientific knowledge, Hoyningen-Huene proceeds to discuss its dynamics. Having provided what we might call a 'constitutive-of-phenomenal-worlds' interpretation of paradigms, Hoyningen-Huene argues that many of the features of scientific revolutions will fall out of an analysis of what it takes

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to change phenomenal worlds. Characterising normal science as a cumulative growth in knowledge about a particular phenomenal world, Hoyningen-Huene suggests that research practice proceeds along similar lines to 'puzzle-solving' tasks. In the process, of course, anomalies arise. That is, the similarity/difference relations at work in the paradigm cannot be successfully applied. When these relations are altered, we change phenomenal worlds. And such change is characteristic of revolutions.

Hoyningen-Huene discusses such changes under the rubric of 'incommensurability', but argues that Kuhn's theory does not imply the incomparability of different paradigms, or that revolutionary change means complete discontinuity in the development of science, or that revolutions proceed irrationally. Rather, continuity and discontinuity are woven together in complex ways, ways which enable Kuhn's theory to posit both progress within normal science and across scientific revolutions. Such progress, however, cannot be construed as progress towards 'truth' or the 'real world'. It is, instead, an instrumental improvement in puzzle-solving ability.

Hoyningen-Huene acknowledges that there are difficulties with this reconstruction of Kuhn's theory, not least of which is the problem of the assumptions required for such an analysis of science. For there is no comparing of phenomenal worlds with the world-in-itself, nor even a meaningful distinction between them. And if this is so, the sense in which one can examine the constitution of phenomenal worlds is decidedly shaky, since there is no such examination outside of particular phenomenal worlds.

Of course, there is much more to the book than I have been able to indicate in this brief outline. I have failed to do any justice to the depth and subtlety of Hoyningen-Huene's reconstruction of Kuhn's philosophy of science. In particular, the details which Hoyningen-Huene provides of the development of Kuhn's thought have completely slipped through the coarse net of this review.

For anyone interested in Kuhn's philosophy of science, Hoyningen-Huene's book is an important resource, and in invaluable guide to the primary sources. It also provides an extensive bibliography of secondary sources. A word of warning to the reader, however. The discussion is technical and philosophical–not an easy read, unfortunately. But you should not let these difficulties get in the way of appreciating such an important contribution to Kuhn scholarship. By Kuhn's own admission, this is an authoritative account of his ideas. Who am I to disagree?

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