

Kuhnian and post-Kuhnian Models of Science Dynamics in the History and Sociology of the Sciences

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Abstract: Late in his career Thomas S. Kuhn practiced more as a philosopher of science than as a historian of science. However, during the period leading up to the *Structure of Scientific Revolutions* and during the majority of his tenure in the Princeton history of science group—that is roughly 1958 to 1977—Kuhn functioned as what I term a ‘critical historian’; that is, a historian who constructs explanatory categories in order to apply them to large scale narratives, evaluation of which can suggest modification of those guiding categories.

The younger Kuhn’s outlook was shaped by his historiographical idol, Alexandre Koyré. Kuhn’s creative articulation of Koyré’s historiographical approach explains his innovations concerning scientific revolutions (plural), his loosening of Koyré’s central category of ‘metaphysics’ and his invention of the crucial conception of ‘normal science’. Additionally, Kuhn’s devotion to Koyré explains some historiographical pitfalls and blind spots that bedevilled his historical work: for example, and his failure to capitalize on his correct insight into the nature of scientific discovery as the non-revolutionary yet tradition modifying core process in the sciences, an insight that would have rendered his ‘normal science’ much more dynamic and creative. Kuhn also pioneered what might be termed the historicity of experiment; but, as with discovery, he let this crucial insight slide to the margin.

When from the mid 1970s early ‘post-Kuhnian sociology of scientific knowledge’ rediscovered and articulated these issues, producing an improved ‘post-Kuhnianism’, Kuhn himself was tone deaf to the developments. I argue that the most important part of the Kuhnian heritage resides exactly in this Kuhn/post-Kuhn dialectic in critical history and sociology of scientific knowledge, not in philosophical debates or in vulgarized borrowings of ‘Kuhn’ for use in the internal politics of fields like psychology, feminism, economics and technology policy.

However, in conclusion I suggest that the ‘correction’ of Kuhn’s model using ‘post-Kuhnian’ perspectives in micro sociological and historical case studies—a strategy in play since the mid 1970s—does not do justice to his original historicist aims, because these approaches themselves lack his diachronic and explanatory interests—concerns which should continue to define the problematic of history of science, properly and seriously construed. The views I am expressing have been formed over fifty years, starting in September 1969 as a graduate student of Kuhn, and then as a participant in the evolution since the mid-70s of post-Kuhnian perspectives in the historiography and sociology of science.

1.0 Tom Kuhn, Critical Historian (circa 1958-1977)

2.0 The Beginning: The first chapter of *SSR*. ‘A Role for History’

3.0 Alexandre Koyré as Historian of Science

4.0 Kuhn Articulating, Improving and Being Blinkered by Koyré

5.0 Eyewitness Report: Kuhn Teaching History of Science...More Koyré than *SSR*

6.0 The Motor: Promise and Problem of Normal Science

7.0 Origins of Post-Kuhnian SSK

8.0 Kuhn Hits Upon, Then Loses, The Concept of ‘Significant Discovery’ in Normal Practice

9.0 Kuhn on the Historicity of Experiment and Testing—Another Lost Opportunity

10. Kuhn Eventually Acknowledges Post-Kuhnianism, But Incompletely and Unproductively

11. Post-Kuhnian Problematics [And Me]

12. Conclusion Productive and Unproductive Worries about Kuhn

SSR= *Structure of Scientific Revolutions*; SSK = sociology of scientific knowledge

Over page: some reading suggestions

It might be useful, especially for those interested in a more intense discussion of these matters in the second hour of this event to read at least one piece from these two categories.

I. My views on Kuhn and post-Kuhn in the History of Science [try one perhaps]

J.A. Schuster [2018] 'The Pitfalls and Possibilities of Following Koyré: The Younger Tom Kuhn, 'Critical Historian', on Tradition Dynamics and Big History' In: Raffaele Pisano, Joseph Agassi and D. Drozdova [Eds]. *Hypotheses and Perspectives in the History and Philosophy of Science. Homage to Alexandre Koyré 1964–2014*. Springer, Dordrecht, pp.391-420.

J.A. Schuster [2016] essay review of James A. Marcum, *Thomas Kuhn's Revolutions. A Historical and An Evolutionary Philosophy of Science*, Bloomsbury Academic, 2015, *Notre Dame Philosophical Reviews* <https://ndpr.nd.edu/news/thomas-kuhns-revolutions-a-historical-and-an-evolutionary-philosophy-of-science/>

J.A.Schuster [1979] 'Kuhn and Lakatos Revisited', *British Journal for the History of Science* 12: 301-317.

II. What I call classical post-Kuhnian sociology of scientific knowledge [try one perhaps]

B.Barnes, *T.S. Kuhn and Social Science*, chapter 3 up to p.57 only.

B. Barnes, 'Thomas Kuhn' in Q.Skinner (ed.) *The Return of Grand Theory in the Human Sciences*_(1985) pp.83-100.

T. Pinch, 'Towards an analysis of scientific observation: the externality and evidential significance of observational reports in physics', *Social Studies of Science* 15 (1985), pp.3-36.

S. Shapin, 'History of science and its sociological reconstructions' *History of Science* 20 (1982), read only pp.157-169