

Friday, June 25 1:30-4:30 PM, rm. 148

“Moritz Schlick, Albert Einstein, and the Early History of Logical Empiricism”

Matthias Neuber, “Einstein (?), Störing, Schlick: What happened in Zurich in 1909?”

Michael Heidelberger: “From Neo-Kantianism to Critical Realism and Positivism: Riehl and Schlick on the Mind-Body Problem ”

Don Howard, “Schlick, Einstein, and the Role of Convention in Space-Time Physics.”

Thomas A. Ryckman, “Schlick, Helmholtz, and ‘Geometry and Experience.’”

(Primary contacts: Howard and Neuber)

This symposium celebrates the publication of the new critical edition of Moritz Schlick’s *Raum und Zeit in der gegenwärtigen Physik* (1917), volume 2 (but the first volume to appear) in the planned new edition of Schlick’s writings and correspondence, published by Springer, under the general editorial direction of Friedrich Stadler (Wien) und Hans Jürgen Wendel (Rostock). Co-edited by Fynn Ole Engler and symposium participant and co-organizer Matthias Neuber, the new edition of *Raum und Zeit in der gegenwärtigen Physik* represents a major contribution to the expanding scholarship on the history of twentieth-century philosophy of science.

Raum und Zeit in der gegenwärtigen Physik, which went through four editions by 1922, was important both for the later development of logical empiricism and for the emerging philosophical interpretation of Einstein’s general theory of relativity. It represents Schlick’s thinking in his pre-Vienna Circle days, when he was defending an avowedly realist philosophy of science. The book was drafted at a time when Schlick was in close, regular contact with Einstein, who esteemed it highly, especially its chapter on the philosophical interpretation of general relativity, and it constitutes the crucial background to their later, joint efforts to craft a “new form of empiricism” adequate to the task of defending the empirical integrity of general relativity against a variety of positivist and neo-Kantian critiques.

The present symposium brings together four veteran Schlick scholars for a fresh look at both the background to and later impact of Schlick’s *Raum und Zeit in der gegenwärtigen Physik*, with special attention to Schlick’s early engagement with space-time physics and his relationship to Einstein.

Matthias Neuber: “Einstein (?), Störing, Schlick: What happened in Zurich in 1909?”

It is a largely open question when and how Schlick became acquainted with Albert Einstein. Some scholars (among others Don Howard) conjecture that this happened as early as 1909, when both Schlick and Einstein stayed in Zurich. Unfortunately, there is enough evidence to prove the opposite, that is, Schlick and Einstein did not meet in Zurich in 1909. The reasons for this claim will be delivered in the first part of my paper.

Nevertheless, Schlick’s stay in Zurich was of great importance to his further philosophical development. For there was another, less well-known scientist whose influence on Schlick is

obvious but—as yet—unrecognized: the psychologist Gustav Störing (1860-1946) who taught between 1902 and 1911 at the Zurich University and who had published an *Einführung in die Erkenntnistheorie* in 1909. On closer scrutiny, it becomes evident that this very book of Störing's anticipated much of what we later find in Schlick. At least three aspects deserve mentioning: (1) Störing's conception of philosophy as "Wissenschaftslehre," which he took over from Alois Riehl, whose influence on Schlick in turn is traceable from 1910 on; (2) Störing's critique of positivism and neokantianism, which reads like a prelude to the third part of Schlick's *Allgemeine Erkenntnislehre* (1918); (3) most importantly, Störing's theory of space which I dare say laid the foundation for Schlick's reading especially of Einstein's general theory of relativity.

The Störing connection and, in particular, its formative role for Schlick's later understanding of both geometry and Einstein's theory of relativity will be discussed in the second part of my paper. Eventually, I will arrive at the conclusion that one must read Störing in order to see why Schlick came to another—less Kantian and more 'realist'—account in these respects than, for example, the early Reichenbach and the early Carnap.

Matthias Neuber, on the staff of the Moritz-Schlick-Projekt in Vienna, is co-editor of the new edition of Schlick's *Raum und Zeit in der gegenwärtigen Physik* as well as volume 4 of the new Schlick edition, *Berlin, Rostock, Kiel 1907-1922*, which comprises all of Schlick's published papers from the period before his move to Vienna. His dissertation, under the direction of Michael Heidelberger, concerns structural realism. Neuber has taught at the Humboldt University (Berlin), the University of Tübingen, and Seattle University.

Michael Heidelberger: "From Neo-Kantianism to Critical Realism and Positivism: Riehl and Schlick on the Mind-Body Problem "

One of the major themes of Schlick's *General Theory of Knowledge* is the mind-body problem. In the following, I would like to treat Schlick's solution and its origin in Alois Riehl's philosophy of mind.

Riehl tried to do two things: (1) to interpret the *paralogism*-chapter of Kant's *Critique of Pure Reason* in the sense of contemporary psychophysical parallelism, and (2) to adapt all this to "critical realism," which he also thought to be in the spirit of Kant's theoretical philosophy. He thought that the reality underlying physical and psychical aspects of our perception is identical with Kant's thing-in-itself. Since he shared this and other ideas with Kant, he is usually considered a neo-Kantian. But, contrary to other Neo-Kantians, he interpreted the *noumena* as objective and causally effective reality independent of human consciousness, and he defended, in contrast to Kant, the notion that the *noumena* are to a certain degree recognizable. Riehl labeled this mind-body conception "identity theory" and "realistic monism," thereby idiosyncratically constricting the traditional meanings of those terms.

Schlick took this conception over from Riehl and combined it with positivism, especially in the form in which it was developed by Richard Avenarius and Ernst Mach. He arrived at a conception that acknowledges a reality transcending the given and views that reality as

consisting of qualities, whether or not they are actually given for consciousness.

In the conclusion, I try to show how far Schlick could use the strategy that proved so successful for the mind-body problem also in the realm of relativity theory.

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Don Howard: “Schlick, Einstein, and the Role of Convention in Space-Time Physics.”

Conventionalism is one of the defining features of logical empiricist analyses of the philosophical implications of relativity theory, a theme best known through Hans Reichenbach’s three major books on relativity: *Relativitätstheorie und Erkenntnis Apriori* (1920), *Axiomatik der relativistischen Raum-Zeit-Lehre* (1924), and *Philosophie der Raum-Zeit-Lehre* (1928). However the roots of this view are to be found in earlier writings of Schlick, already with his 1915 essay “Die philosophische Bedeutung des Relativitätsprinzips,” but most importantly in his *Raum und Zeit in der gegenwärtigen Physik* (1917), which was written in a setting wherein Schlick was in close, regular contact with Einstein, who was himself developing an explicitly conventionalist interpretation of general relativity. Crucial for understanding the later development of logical empiricism is the fact that the earlier conventionalism of Schlick and Einstein differed in fundamental respects from the later conventionalism of Reichenbach (and Schlick, too, after move to Vienna), mainly in the fact that the earlier conventionalism of Schlick and Einstein bespoke a more Duhemian, holistic understanding of the place of conventions in scientific theory, this by contrast with Reichenbach’s restricting the place of convention to the choice of coordinating definitions, a view of conventions owing more to Poincaré than Duhem. It is against the background of these contrasting views on the role of conventions that one must assess both Einstein’s famous turn against logical empiricism in the later 1920s and later debates within the Vienna Circle, most notably the protocol-sentence debate of the early 1930s.

Don Howard is a philosopher and historian of science, currently Director of the History and Philosophy of Science Graduate Program and Professor of Philosophy at the University of Notre Dame. A 1979 Ph.D. from Boston University, Howard’s research concerns mainly the history and philosophical foundations of twentieth-century physics and the history of the philosophy of science. A co-founder in 1990 of HOPOS, The International Society for the History of Philosophy of Science, Howard has also worked as an assistant and contributing editor for *The Collected Papers of Albert Einstein*.

Thomas A. Ryckman: “Schlick, Helmholtz, and ‘Geometry and Experience.’”

Einstein’s essay “Geometry and Experience” (1921) was cherished by the logical empiricists as virtually the overture to the grand opera of their philosophy of science. It is instructive to consider how this came about. As can be documented in Schlick’s comments and elucidations to

an edition of Helmholtz's epistemological writings of the same year, Schlick found in Einstein's essay the leitmotiv that stipulations (in the first instance, about measurement apparatus) must first be made in order to give empirical content to a physical theory. This made into a methodological fetish the useful heuristic of "practical geometry" that first led Einstein to the conception of curved space-time. In addition, Schlick conveniently ignored the fact that Einstein's "practical geometry" was a polemical response to attempts to incorporate matter fields into space-time geometry, disallowing consideration of rods and clocks as posits independent of that geometry. Sidestepping the latter issue was decisive. But as Schlick recognized, the methodology of "practical geometry" furnished a much needed weapon against Cassirer's neo-Kantian interpretation of relativity theory, for the expressly "empiricist interpretation of the new physics" Schlick sought as counter to Cassirer was still a work in progress in 1921. These claims will be substantiated by showing the transformation of Schlick's views on the geometry of space-time prior to, and after, 1921, and by evaluating Schlick's inspired attempt to situate Helmholtz as a precursor of Einstein, assimilating both to the new empiricism he needed to oppose to Cassirer's critical idealism.

Thomas A. Ryckman, Visiting Fellow at Clare Hall, Cambridge in 2003, has taught also at Northwestern and Berkeley. A 1986 Ph.D. from Columbia University, Ryckman has written extensively on the history of the philosophy of science and the philosophical foundations of physics. He is the author of a book on Weyl and Reichenbach currently under consideration at Oxford University Press.

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