

SCHLICK'S *GENERAL THEORY OF KNOWLEDGE* REVISITED¹

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With the Neurath rediscovery by now a nearly historical phenomenon and a Carnap revival in full swing, it is only fitting that the titular head of the Vienna Circle is also now receiving a wave of scholarly attention comparable to those bestowed on his colleagues. Indeed, with the Neurath *Gesamtausgabe* apparently stalled and the Carnap's *Collected Works* just one volume old, the *Kritische Gesamtausgabe* of Schlick even threatens to steal a march on its rivals: to date already four volumes have been published (only the first of which is reviewed here). Moreover, these publications are accompanied by the launch of two series of studies dedicated to the work of Schlick. To judge from their first volumes they will do much to help not only new readers of Schlick to put his work into context but also seasoned readers of his to deepen their appreciation of it.

Pride of place, of course, goes to Volume 1 of the *Kritische Gesamtausgabe* for which has been chosen, rightly in my view, not his earliest writings but his *Allgemeine Erkenntnislehre*, published in two editions in 1918 and 1925 (the latter was translated into English by Albert Blumberg as *General Theory of Knowledge*, Open Court, LaSalle, 1974). This is the book which made his name in German philosophy as a fresh and independent voice and which, together with his *Raum und Zeit in der gegenwärtigen Physik* (in various forms and editions 1917–1922, reprinted in vol. 2 of the *Gesamtausgabe* and translated as “Space and Time in Contemporary Physics” in Schlick, *Philosophical Papers* (ed. by H. Mulder and B. van de Velde-Schlick), Reidel, Dordrecht, 1979, Vol. 1) established him as a leading philosopher of science of his day. While it still distinguished Schlick from his later positivist self by its critical realism (what today we may call “scientific

1. Review of:

Moritz Schlick, *Allgemeine Erkenntnistheorie*. Vienna-New York: Springer, 2009 (Kritische Gesamtausgabe, Abteilung I, Band 1), 956 S. ISBN 978-3-211-32768-5.

Friedrich Stadler & Hans Jürgen Wendel (Hg.), *Stationen. Dem Philosophen und Physiker Moritz Schlick zum 125. Geburtstag*. Vienna-New York: Springer, 2009 (Schlick-Studien Band 1), 300 S. ISBN 978-3-211-71580-2.

Fynn Ole Engler, Mathias Iven (Hg.), *Moritz Schlick. Leben, Werk und Wirkung*. Berlin: Parerga, 2008 (Schlickiana Band 1), 318 S. ISBN 978-3-937262-82-6.

realism”) this book also provides evidence for why becoming a logical positivist must have seemed to him a most natural development.

Briefly, Schlick’s *Allgemeine Erkenntnislehre* consists of three parts whose content may be indicated as follows. Part 1 sets out to state what knowledge is. Knowing in daily life as in science means the recognition of the same in something different, it presupposes the making of comparisons. Exactness and generality is only achieved by means of concepts which are signs which are “coordinated” to their referents typically by means of ostensive definitions. Complete exactness is only possible, however, by concepts defined implicitly by purely formal determination through axioms. Judgements express the existence of facts not by picturing them in an intuitive sense but purely symbolically; they are true when they are uniquely coordinated with the facts they address. All knowledge is symbolic in requiring the use of signs; intuition is not knowledge but experience, providing only acquaintance. The aim of knowledge is to describe a maximum of facts uniquely by means of a minimum of signs. Part 2 discusses deductive logic and the knowledge gained from it which is always analytic. The criterion of truth is declared to be not certainty but (fallible) verification, the comparison of judgement and fact. Part 3 criticises positivistic theories and affirms the transcendence of reality compared to the given. Knowledge proceeds from experience and rises above it by means of conceptual constructions. The concept of physical space is arrived at by application of the method of coincidence of individual points in intersubjective observation. The physical and the psychological are not separate parts of reality but different ways of concept formation. Theoretical science is hypothetical-deductive. As already in Parts 1 and 2 in the second edition, the synthetic a priori is refuted: mathematics is analytic, natural science a posteriori. Induction is basic but cannot be logically justified; inductive knowledge presupposes a certain uniformity of the universe.

As evident from this stenographic menu, Schlick’s book makes scientific knowledge central for epistemology and anticipates certain theses of logical empiricism including its rejection of Kant. At the same time it strikes a realistic tone uncharacteristic of Schlick’s own later work. Given the existence of two editions, one appearing four years before, the other three years after his move to Vienna, the book invites exegetical inquiries. On this point, the editors note—following Schlick’s own remarks in his correspondence—that “the changes in his epistemological views were apparently great enough” to have led to delays of more than two years in Schlick’s preparation of the manuscript for the second edition (97). In the end, the editors report, Schlick made 145 insertions (47 of which involved longer passages), 178 deletions, 11 replacements of passages and 19 rearrangements. Most of these concern Part 1, “The Nature of Knowledge”, and Part 3, “Problems of Reality”. The editors trace a number

of these changes to criticisms from Herbert Feigl, Wolfgang Köhler and Hans Reichenbach. The latter in particular—following a line of research initiated by Alberto Coffa—is credited with having prompted the new Chapter 11, “Definitions, Conventions, Experience”, which specifies in much greater detail than the first edition the conventional character of implicit definition and much more sharply than before rules out a third category of judgements beyond synthetic and analytic one, namely the synthetic a priori. In their Report, the editors trace the exchanges from Reichenbach’s 1920 review of the first edition of Schlick’s *Erkenntnislehre* as having falsely rejected the possibility of a suitably relativised synthetic a priori and Schlick’s criticism of Reichenbach’s understanding of Poincaré’s conventionalism in his book on relativity theory of 1920, through their correspondence later that year, to the relevant passages in the second edition both in Chapter 11 and later in Part 3.

Wherein then, the reader will ask, consisted the changes in Schlick’s views between the two editions? Did Schlick really retract the realism of the first edition? While the editors claim to detect a “slight distancing” from it (99), this reader finds in the passages referred to merely fallibilism, stress on the analytic nature of the syllogism and emphasis on the rejection of the synthetic a priori. And does Chapter 11 constitute a “modification towards positivism” of his earlier views as claimed (104)? Again, for this reader the materials adduced by the editors do not establish that the exchange with Reichenbach produced more than clarifications of Schlick’s position. It would seem safe to say—and here the editors are unlikely to disagree—that whatever the radical epistemological changes were that Schlick underwent by his own account, none of them are easily detectable in the second edition. (This is not to deny that none are detectable at all, but as the debate between Don Howard and Thomas Oberdan has shown—in W. Salmon and G. Wolters (eds.), *Language, Logic and the Structure of Scientific Theories*, Pittsburgh University Press, Pittsburgh, 1994—considerable exegetical effort is needed to unearth it and any such diagnosis is bound to stay controversial.) The most radical changes, it seems, are not reflected in the second edition at all.

One way to see what conflict Schlick felt in preparing the second edition is to compare his *Erkenntnislehre* (in both editions) with his essay “Erleben, Erkennen, Metaphysik” of 1926 (reprinted in vol. 6 of the *Gesamtausgabe* and translated as “Experience, Cognition and Metaphysics” in *Philosophical Papers*, op. cit., vol. 2) which defines his positivist turn. (Possible doubts as to its relevance can be allayed: to be sure, when Schlick gave a first lecture version of that paper in the summer of 1925, the Circle had finished a first reading of Wittgenstein’s *Tractatus* following a presentation by Kurt Reidemeister in 1924 and became familiar with Carnap’s *Aufbau* project during the latter’s visit in early 1925, but already by the time Schlick had completed the revision of *Erkenntnislehre* in January 1925,

he had already become a convert to the Wittgensteinian point of view to which Carnap's *Aufbau*-project was to be very soon and somewhat rashly assimilated.)

In "Erleben", the long-established distinction between acquaintance and cognition is sharpened so much as to banish experiential content from knowledge altogether. Knowledge was now concerned exclusively with the detection of the form of true experience, namely its structure relative to the given: the "reality" of the world was there reduced to the possibility of something being given in an experience. (Where in the *Tractatus* all molecular statements were truth functions of the atomic statements of which they were composed, in the *Aufbau* all scientific statements were held to be reducible to statements about remembered similarities between the speaker's experiences.) Given the reductions postulated by the *Tractatus* and seemingly effected in the *Aufbau*, transcendence of the given became metaphysical. The transcendence of which *Erkenntnislehre* still spoke became unnecessary to sustain a kind of realistic attitude towards many (but not all) of the pronouncements of science. (The counterintuitive consequence of declaring natural laws strictly speaking meaningless was cheerfully endorsed around 1930 before Carnap's verificationism was liberalized by 1931 and Schlick's by the middle of that decade.) Schlick's own critique of the "philosophy of immanence" in *Erkenntnislehre* was never explicitly withdrawn, however. In the light of the later "Positivismus und Realismus" (1932, also reprinted in vol. 6 of the *Gesamtausgabe* and translated as "Positivism and Realism" in *Philosophical Papers*, op. cit., vol. 2), that critique may instead be seen as recast against wrongly understood forms of positivism. The trick, as it were, of Schlick's transformation from "realist" into "positivist"—which in retrospect was surprisingly smooth—lay in a double radicalization of the conception of verification that already was embraced in *Erkenntnislehre*: its becoming the criterion of meaningfulness as such and its structuralist interpretation in terms of reduction to the given. The problem Schlick had in producing the second edition of the *Erkenntnislehre* was that these radicalizations of his views were unincorporable without changing the original book beyond recognition.

But back to its present critical edition: its editorial standard, as that of all the volumes of the *Gesamtausgabe* published so far, is excellent. The editors provide an "Introduction" that surveys the content of the work and points out the significant intellectual influences on it and an "Editorial Report" that gives a detailed account of the biographical context of the production of the work and its fate at the hands of the printers. Considerable attention is also paid to the circumstances and distinguishing features of the second edition. In their Report the editors make ample use of archival materials like Schlick's correspondence and refer to some of the relevant scholarly literature. The main text used is that of the second edition, with all the changes from the first edition clearly marked and deleted text

and alternative formulations from the first edition appropriately preserved in the footnotes. The footnotes in turn are of three sorts which are clearly differentiated: first Schlick's own, then editorial notes specifying the variations between the two editions (the full Preface and the Index of the first edition are reproduced in an Appendix), and, third, editorial notes to clarify allusions and references in Schlick's text and footnotes (with extensive use of his unpublished writings). A second Appendix provides a full bibliography of the literature cited by Schlick himself and by the editors, a bibliography of Schlick's writings published during his lifetime, information about the principles informing the *Gesamtausgabe* and Name and Subject Indexes. Reading *Allgemeine Erkenntnislehre* in this edition becomes a much enriched experience.

As the first volumes of the series *Schlick-Studien* and *Schlickiana* show, this volume and its companions in the *Gesamtausgabe* have begun to stimulate a new phase in research on logical empiricism. The papers in these accompanying volumes, *Stationen*, edited by Friedrich Stadler and Hans-Jürgen Wendel, and *Leben Werk und Wirkung*, edited by Fyn Ole Engler and Mathias Iven, can be divided very broadly into those of a more biographical and those of a more systematic nature, though this distinction should not be taken to indicate neglect of content or context in either category. (Several researchers on both sides of this expository divide are represented in both volumes.) Detailed discussion is out of the question here, but I shall try to indicate what aspects of the life and work of Schlick these papers illuminate and how they bear on the issues raised by the *Allgemeine Erkenntnislehre*.

First a brief overview of the more biographical contributions. Massimo Ferrari contributes "1922: Moritz Schlick in Wien" to *Stationen*, an extensive study of Schlick's arrival from Northern Germany and his successful attempts to integrate in the intellectual milieu of the Austrian capital, and "Moritz Schlick in Wien: Die Wende der Philosophie" to *Leben Werk und Wirkung*, an illuminating shorter study of the subtle changes in his understanding of the task of philosophy from *Erkenntnislehre* to his "Die Wende der Philosophie" of 1930 (also reprinted in vol. 6 of the *Gesamtausgabe* and translated as "The Turning Point in Philosophy" in *Philosophical Papers* vol. 2, op. cit.). Iven offers "Wittgenstein und Schlick. Zur Geschichte eines Diktats" in *Stationen* and "Moritz Schlick und der erste Weltkrieg" in *Leben Werk und Wirkung*. The former is a piece of archival detective work concerning Wittgenstein's D302, the so-called "Diktat für Schlick" in which Iven convincingly argues for Schlick (rather than Waismann) having been the recipient of the dictation and which he dates to September 1933; the latter provides information about a period of Schlick's life where little had been known so far. Also in *Leben Werk und Wirkung*, Barbara Franziska Blanche van de Velde-Schlick gives a personal memoir of her father and Dieter Hoffmann provides an

illuminating account of the personal and intellectual relations between Schlick and his former teacher Max Planck, while in *Stationen*, Renate Lotz-Rimbach investigates the murky circumstances of Schlick's murder in 1936 and its aftermath—in particular the shadowy role of the later (post-World War II) Viennese *Ordinarius* of philosophy Leo Gabriel.

One of the questions raised by the work of pioneering philosophers of science like Schlick is whether it does not only illustrate the principle that the quality of the epistemology developed can only improve with increased familiarity with current science, but whether their philosophical work can also play a positive role in the further scientific development itself. It is this question to which Engler dedicates a paper each in the two accompanying volumes. In “Über das erkenntnistheoretische Raumproblem bei Moritz Schlick, Wilhelm Wundt und Albert Einstein” in *Stationen*, he considers two early unpublished papers by Schlick from the years 1907–09 on the development of our intuitive understanding and our mathematical concept of space which endorsed a conventionalist position that gives primacy to the mathematical conception, but stressed that its application is subject to a demand for measurability that already characterises our intuitive understanding of space. These views enter into the *Erkenntnislehre* (completed in the main in 1916) elaborated as “the method of coincidences”: objective space is determinable as such by virtue of an intersubjectively observable coincidence of pointers, by the process of measurement. Soon after, in the first version of “Raum und Zeit” (1917), this epistemological principle is declared confirmed by the general theory of relativity where according to Schlick that principle figures centrally as a criterion of reality. However, since the same method of coincidences is likely to have been discussed by Schlick and Einstein already during Schlick's possible first visit to Einstein in December 1915, Engler concludes that it is moreover likely that Schlick's ideas were not merely confirmed by Einstein's theory but helped its very formation.

Edwin Glassner, in his “Was heisst Koinzidenz bei Schlick?” in *Stationen*, appears to dispute Engler's suggestion even though it is not explicitly discussed. Glassner takes his start from the fact that Einstein's breakthrough to the general theory of relativity in 1916 involves crucially the notion of point coincidence against the background of a metrical field: only such coincidences were said to possess physical reality. The question then arises whether Einstein's and Schlick's notions of coincidence were themselves in agreement. What might it mean to make the coincidence of what are ultimately extensionless points the epistemological basis of the new physics, as Einstein's thought experiment would seem to suggest? Schlick's attempt to ground physical measurement generally on the notion of coincidence fails, Glassner argues, because he fails to have noted the priority of the metric over the individuation of points, in short the holism

inherent in Einstein's argument for general relativity. Here Glassner follows Thomas Ryckman in that Einstein did not ascribe foundational status to point coincidences—contrary to what Schlick (and Reichenbach) did. It would seem to follow then also that Schlick's overly concrete notion of coincidence may at best have prompted Einstein to develop his own far more holistic argument, but that it cannot be credited with a positive role beyond this.

Engler returns to the theme of the role of philosophy in science in *Leben, Werk und Wirkung* with “Moritz Schlick und Hans Reichenbach über die Eindeutigkeit der Zuordnung”. Following a clear exposition of Reichenbach's argumentation in his 1920 monograph on relativity theory, Engler focuses on his reaction to Schlick's denial of the synthetic a priori in his 1920 article in *Die Naturwissenschaften*. There Schlick considered scientific concept formation in general and was led to regard the principle of causality principle as a higher-order empirical hypothesis, namely that all natural events are nomological determined (while allowing for discontinuities on the quantum level), and that all determinations of natural laws presuppose experiences of regularity. Engler argues that Reichenbach's and Schlick's early views contrast not only along the conventionalism/apriorism axis as regards the basic epistemological principle of coordination, but also with regard to whether experience or a priori principles can provide legitimation for exemptions from the principle of causality. Once their debate had ended with Reichenbach conceding the case to Schlick, Engler claims, not only Schlick's interest but also the primary role for scientific philosophy shifted to the development of quantum theory—not in small measure due to the impression that Schlick's 1922 Leipzig lecture celebrating the “victory” of his “empiricism with constitutive conceptual principles” made on Werner Heisenberg. Engler supports this claim by relating Heisenberg's 1926 discussion of the motives leading to his approach to quantum mechanics back to Schlick's address, thus suggesting another instance where the interaction of science and philosophy was beneficial for the former as well.

The Schlick-Reichenbach debate and Schlick's philosophy of quantum physics also feature in two other papers in *Stationen* which in turn have companions in *Leben, Werk und Wirkung*. In “Geometry, Convention, and the Relative Apriori”, Thomas Oberdan reconsiders the diagnosis put forward by Michael Friedman that despite Reichenbach's own surrender to Schlick it is the former's conception of the relative a priori that is superior to the latter's notion of convention in being grounded on a principled distinction within scientific theories themselves. Oberdan argues that initial appearances notwithstanding, Schlick's distinction between hypotheses and conventions is just as principled. Instead Oberdan locates the difference between Reichenbach and Schlick in what the relative a priori and conventions constitute: while the former constitutes the

objects of scientific knowledge, the latter constitutes the concepts deployed in scientific theories. Their difference at the start was thus by no means mostly terminological, despite what they told each other in correspondence: Reichenbach's relative a priori was still synthetic enough to rightly offend the realist Schlick. Oberdan's thesis goes a long way to explaining what kind of considerations must have played a crucial role in Reichenbach's conversion to Schlick's standpoint: his documented objection to Poincaré, cited by Engler from his correspondence with Schlick, seems a bit too brittle to account for his initial hostility to Schlick's account. Whether it was an argument denouncing the anti-realism implicit in the Kantian conception (which Oberdan attributes to Schlick) that convinced Reichenbach appears to remain open, however, though it would link up nicely with Reichenbach's later stance (and contrast with Schlick's own later positivism).

In "Die letzte Gesetzlichkeit" in *Stationen*, Tobias Fox investigates Schlick's philosophy of quantum physics beyond Engler's suggestions. After a brief resumé of the developments to date, Fox shows how Schlick's comments in 1925 on quantum physics focus on its challenge to the causal principle but remain uncommitted, but that in his major paper on "Causality in Contemporary Physics" of 1931 this challenge is finally conceded. Schlick's later lectures and papers on the subject broaden the appreciation of the philosophical relevance of quantum physics, especially for issues arising from biology. Fox then places Schlick's contribution in its historical context and notes that he was among the first philosophers to have drawn attention to its challenge to the causal principle, but also suggests that there are reasons to be dissatisfied with Schlick's understanding of the acausality of quantum physics.

Michael Stöltzner considers a closely related topic in "Can meaning criteria account for indeterminism?" in *Leben, Werk und Wirkung*. He is concerned with Schlick's employment of verificationist reasoning to defend Heisenberg's interpretation of the uncertainty relation as requiring no supplementation whatsoever and allowing quantum theory to be regarded as complete. After illustrating the tensions between his previous positions on causality, Stöltzner focuses on Schlick's attempt to reconcile positivism and realism via verificationism. Taking his views on the uncertainty relation as exemplary for this strategy, Stöltzner argues that Schlick's attempt presupposes a prior determination of which types of concepts are meaningful. In the absence of being able to draw a sharp distinction between framework and content, this commits him, so Stöltzner to a form of realism, his apparent positivism notwithstanding.

In other essays in *Stationen* Björn Henning foregrounds Schlick's pedagogical views and concerns, Steffen Kluck considers the reception of Schlick's philosophy by Gunther Jacoby, a representative of the school of "critical ontology" (of which Nicolai Hartmann is perhaps the best known) and Engler chronicles Schlick's

participation in the Einstein competition of the *Scientific American* of 1920. In *Leben, Werk und Wirkung* meanwhile, Tobias Breidenmoser considers Schlick's and Cassirer's influence on Carnap in "Der logische Aufbau der Welt und seine Baumeister" in *Leben, Werk und Wirkung* in order to argue against Michael Friedman's and Alan Richardson's neo-Kantian interpretation; Christian Bonnet offers an analysis of what Schlick called the "parallelism" of the mental and the physical and reaches the conclusion that it has very little to do with the view of this name attributed to Spinoza and Leibniz; Olaf Müller revisits Schlick's to my mind highly problematical position in the protocol sentence debate (see my *Empiricism at the Crossroads*, Open Court, 2007, Chs. 9–10), namely his attempt to delineate a "foundation of knowledge", and argues for a kind of phenomenalism that takes some of its inspiration from Schlick but would not seem to be found in his work in just this way (here Schlick's explorations are taken further into contemporary epistemology and philosophy of mind with systematic intent); Niko Strobach closes with an exploration of whether the notion of "Denkstil" could be applied to Schlick and what the outcome might be. As in the case of what I called the more biographical essays, that these are less directly related to the most central theses of *Allgemeine Erkenntnislehre* and so can receive no more detailed comment here must not be taken as a reflection of their merit. Together with the *Gesamtausgabe*, both *Stationen* and *Leben, Werk und Wirkung* mark an exciting new phase in Vienna Circle scholarship.