



Michael Heidelberger, Helmut Pulte and Gregor Schiemann (eds.): Hermann von Helmholtz: Philosophische und Populärwissenschaftliche Schriften

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Throughout his academic career, it was a matter of serious concern for Hermann von Helmholtz (1821–1994) to present his research and its results and to make accessible their epistemological implications to a broader public. He collected his lectures and speeches already during his lifetime and began to publish them between 1865 and 1876 under the title of *Populäre wissenschaftliche Vorträge*. In 1884, he edited them anew as *Vorträge und Reden*, the latter seeing further editions in 1896 und 1903. Thus, not only did Helmholtz himself attribute considerable weight to these texts, they obviously also appealed to the educated public.

The present collection of Helmholtz's *Philosophische und populärwissenschaftliche Schriften*, edited by Michael Heidelberger, Helmut Pulte and Gregor Schiemann, not only contains these discourses in their entirety, but also incorporates the epistemological reflections dispersed throughout the scientific work of Helmholtz, in his papers as well as in his handbooks and *Vorlesungen*, but also a number of talks and sketches that were left unpublished by their author during his lifetime. This opens up the unique chance to follow the chronological development of Helmholtz's philosophical reflections as well as to assess them for their coherence and consistency. With that, a long-felt gap is closed for research on Helmholtz whose writings have never ceased to arouse the interest of philosophers and epistemologically interested historians of science. The collection presents a continuum from mainly scientific texts through more philosophically oriented ones to texts motivated by science policy issues. The introduction to the edition provides a succinct outline of Helmholtz's life and work, essentially proceeding along the lines of the successive academic positions that he held, from Berlin to Königsberg to Bonn to Heidelberg and back to Berlin. In addition, Helmholtz scholars will appreciate the complete bibliography of Helmholtz's own writings and of the secondary literature in German, English and French from the time of Helmholtz to this day.

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Hermann von Helmholtz was a towering figure in nineteenth century science in Germany. His interests spanned not only from physiology, in particular sensory physiology, to basic questions in classical mechanics as well as electrodynamics, thermodynamics, and mathematics, but also to literature, music and the fine arts. He was, in addition, an exceptionally gifted experimenter. “We must engage with the things themselves” (Vol 1, 577), he states in his opening speech to the *Naturforscherversammlung* 1869 in Innsbruck. And he continues: “Only if the observer becomes so deeply absorbed in his object, only if he so directs all his thoughts and all his interest to it that for weeks, months or years he cannot let it go [...] only then a competent and valuable work will result” (Vol. 1, 577). And we must not forget his own literary talents that spring to the eye when reading his carefully articulated speeches, such as the one just cited. Above all of that, Helmholtz can be seen as a scientist who consciously considered himself as pursuing the epistemological legacy of Kant by knitting together philosophical thought and empirical work in a way such as to keep the grand vista of the Copernicus of philosophy alive all while avoiding premature metaphysical solutions to problems that continued to haunt the physical as well as the biological sciences of his day. His philosophical legacy gravitates around his so-called sign theory of perception. Already in his Königsberg *Habilitationsvortrag* of 1852, Helmholtz states in this respect: “We can thus possibly designate the relation [between sensation and object] best by saying: Sensations of light and colors are only symbols for relations of reality; with the latter, they show as little and as much similarity or connections as the name of a human being or the lettering for the name of the human being itself” (Vol 1, 25). Helmholtz’s position that takes sensations as indices for relations in the external world is today discussed under the label of structural realism.

The philosophy of Helmholtz has been much debated. Depending on inclination, he has been attributed realist, idealist, metaphysical or empiricist positions. But as the editors of these three volumes rightly state, Helmholtz would have refused to be considered as a philosopher *tout court*. He saw himself as a scientist, but one who did not eschew philosophical challenges. For academic philosophers, he could find hard words. In a letter to the mathematician Rudolf Lipschitz, he called them “impotent book worms who never created new knowledge” (Lipschitz, Briefwechsel, Vol. 2, 130). What he had in mind was different and more at the same time. He understood the natural sciences—as he pursued them—as the empirical continuation and experimental fulfillment of Kant’s Critique. For him, the knowledge claims of classical philosophy were realized, step by step, in a thoroughly non-metaphysical fashion by the natural sciences as long as they remained reflective about themselves. But he was also keenly aware of the limits of a science based on mechanistic principles. He did not want to impose these principles prematurely neither on psychology nor on the arts. For the latter in particular, he claimed a legitimate place in the intellectual universe of mankind, all the more as he grew older.

I was of course keen to have a look at Volume 3 of the present edition, the *Nachgelassene Schriften*. They do, however, not significantly add to the carefully crafted published texts. And yet, some of them point, as drafts, to the places where Helmholtz’s thoughts remained undecided. The last paper of this series, “Über den hypothetischen Charakter des Kausalgesetzes,” is particularly telling in this respect. On the one hand, Helmholtz here bluntly states that the law of causality “is only a hypothesis and not otherwise provable as such.” On the other hand, he claims in the same breath that “Thinking means to look for causality. [...] Without the law of causality thus no thinking” (Vol. 3, 1252). It is to be hoped that the present edition will spark new interest in Helmholtz’s nuanced epistemological positions and help to keep them present in the current discourse of the sciences of cognition.