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David Hilbert between mechanical and electromagnetic reductionism (1910–1915).

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The author draws attention to the developing views of Hilbert concerning the basics of physics over the period 1910–1915 and slightly later. He points out that Hilbert’s unified theory of physics presented in 1915 implied an electromagnetic reductionist world-view. He discusses how Hilbert felt that it was possible to reduce all physical phenomena to electromagnetic effects and describes his belief in a system of axioms leading to this idea. The author indicates a number of influences on Hilbert over this period, and describes his ideas on the axiomatisation of physics and of the results of the postulate that the velocity of light is constant. He notes that when discussing relativity before 1915, Hilbert referred to Lorentz rather than Einstein but was influenced by Einstein’s ideas after that time. The author draws attention to the various editions (1915, 1924, 1932) of Hilbert’s paper “The foundations of physics” and points out that although Hilbert’s views had changed over the years, he had never referred to these changes. The author then discusses Hilbert’s first axiom (Mie’s axiom of the world-function), based on the Hamiltonian and points out the connection with Noether’s theorem. Finally, attention is drawn to Hilbert’s acceptance of the theory of relativity and of his disagreements with Weyl and Brouwer. There is a copious list of references.

Reviewed by *Ll. G. Chambers*

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