

BROUWER'S CONTRIBUTIONS
TO THE FOUNDATIONS OF MATHEMATICS*

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1. *Introduction.* In a number of papers, published from 1907 on, Professor L. E. J. Brouwer, of the University of Amsterdam, has developed ideas which affect the foundations of mathematics in a fundamental way. While some of his papers are readily available to American mathematicians,† there are several others which are less accessible. On account of its critique of some of our most fundamental concepts and methods, the position of Brouwer may have a far reaching effect upon the future development of mathematics. In his *Begründung der Mengenlehre*, he has made a beginning with a revision of a basic field of modern mathematics in accordance with his point of view. But, whatever their ultimate significance may be, the conclusions which Brouwer reaches are certainly interesting. Moreover, they are indispensable as a background for an appreciation of his *Begründung der Mengenlehre*, as well as for understanding the controversial discussions on the foundations of mathematics of Weyl and Hilbert.‡

For this reason, it has seemed worth while to present Brouwer's most important ideas concerning the foundations of mathematics to American readers. For this purpose, we

* Presented to the Society, December 29, 1923.

† See *Intuitionism and formalism*, this BULLETIN, vol. 20 (1913), p. 81; Review of Schoenflies-Hahn, *Die Entwicklung der Mengenlehre*, JAHRESBERICHT DER VEREINIGUNG, vol. 23 (1914), p. 78; *Intuitionistische Mengenlehre*, JAHRESBERICHT DER VEREINIGUNG, vol. 28 (1920), p. 203; *Begründung der Mengenlehre unabhängig vom logischen Satz vom ausgeschlossenen Dritten*, Amsterdam, 1918-19.

‡ See Weyl, *Über die neue Grundlagenkrise der Mathematik*, MATHEMATISCHE ZEITSCHRIFT, vol. 10 (1921), p. 39; Hilbert, *Neubegründung der Mathematik*, ABHANDLUNGEN DER HAMBURGISCHEN UNIVERSITÄT, vol. 1 (1922), p. 157, and *Die logischen Grundlagen der Mathematik*, MATHEMATISCHE ANNALEN, vol. 88 (1922), p. 151.