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Changes to the Foundations of Mathematics in Britain circa 1900

The early 20th century was a time of great change in British mathematics, particularly in areas concerned with rigour and foundational issues in analysis. Both G. H. Hardy and W. H. Young played a role in this transformation, with Hardy, in particular, publishing an influential textbook in the first decade of the 20th century.

Hardy's 'A Course of Pure Mathematics', published in 1908, and Young's 'The Theory of Sets of Points', published in 1906, both brought ideas from France and Germany to British mathematics. In this paper I discuss the content of these books, concentrating on a comparison to contemporary English-language books.

In particular, I will show that Hardy provided a clear, rigorous introduction to the theory of logarithms and exponentials and also provided a rigorous, comprehensive, constructive definition of the real numbers. Young's text made Cantor's work on set theory available to an English- speaking audience and was published during the time when Hardy published his only papers on set theory. What most sharply divides Hardy's work from a modern text is a lack of set theory throughout his book. I will briefly examine possible reasons why Hardy did not use a set-theoretic approach in 'A Course of Pure Mathematics', despite the availability of Young's work.