

Johnson, William Ernest I

Encyclopedia.com

Complete Dictionary of Scientific Biography COPYRIGHT 2008 Charles Scribner's Sons
3-4 minutes

(*b.* Cambridge, England, 23 June 1858; *d.* Northampton, England, 14 January 1931)

logic.

Johnson's father, William Henry Johnson, was headmaster of a school in Cambridge, and Johnson first studied there. In 1879 he entered King's College, Cambridge, where he was eleventh wrangler in the mathematics tripos of 1882 and placed in the first class in the moral sciences tripos of 1883. For the next nineteen years he held a variety of temporary positions around Cambridge. During that period he published three technical papers on Boolean logic and one on the rule of succession in probability theory. In 1902 Johnson was appointed to the Sidgwick lectureship in moral science and was awarded a fellowship at King's College. He held these positions until shortly before his death. Although shy and sickly, he was a popular, respected teacher. Indeed, it was his students, especially Naomi Bentwich, who persuaded him to publish his three-volume *Logic* (1921-1924). A fourth volume, on probability, was never finished, but the first few chapters were published posthumously in *Mind*. This book won Johnson fame, honorary degrees from Manchester (1922) and Aberdeen (1926), and election as a fellow of the British Academy (1923).

Johnson made some technical contributions to logic. In "On the Logical Calculus" he developed an elegant version of Boolean propositional and functional logic, using conjunction and negation as his primitive symbols. He even attempted to define the quantifiers in terms of these connectives. In "Sur la théorie des équations logiques" and in his later writings on probability, he developed various rules of succession for the theory of probability. His primary contributions were, however, in the foundations of logic and of probability theory.

Johnson made many worthwhile, although not major, contributions to the philosophy of logic. Perhaps the most important were his distinction between determinables and determinates, his theory of ostensive definition, and his distinction between primary and secondary propositions. On all of these topics his ideas influenced, directly or indirectly, many contemporary logicians.

Johnson was one of the first to expound the view that probability claims should be interpreted as expressing logical relationships between evidence propositions and hypothesis propositions, relationships determined in each case by the content of these propositions. This view, also adopted by J. M. Keynes, Harold Jeffreys, and [Rudolf Carnap](#), is one of the main contemporary alternatives to the frequency interpretation of probability claims. Although Keynes and Jeffreys published their books before the appearance of Johnson's "Probability," Keynes freely admitted his indebtedness to Johnson's ideas.

BIBLIOGRAPHY

Johnson's main writings are "The Logical Calculus," in *Mind*, **1** (1892), 3-30, 235-250, 340-347; "Sur la théorie des équations logiques," in *Bibliothèque du Congrès international de philosophie* (1901); *Logic*, 3 vols.(Cambridge, 1921-1924); and "Probability," in *Mind* (1932)

Baruch Brody