

# Nielsen, Niels | Encyclopedia.com

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(*b.* Ørslev, Denmark, 2 December 1865; *d.* Copenhagen, Denmark, 16 September 1931)

*mathematics.*

Nielsen's father was a small farmer, and his family lived in modest circumstance. He originally wished to attend the polytechnical institute, but he was early attracted to pure science. In 1885 he began his studies at the University of Copenhagen, where he passed the government examination in 1891 and received his doctorate in 1895. He had been teaching in the secondary schools since 1887, and in 1900 he began to give preparatory courses for the polytechnic institute. From 1903 to 1906 he belonged to the University Inspectorate for secondary schools. In 1905 he became *Dozent* and in 1909 he succeeded Julius Petersen as full professor of Mathematics at the University of Copenhagen.

He became a member of the Leopoldina of Halle in 1906 and an honorary member of the Wiskundig Genootschap of Amsterdam in 1907. Nielsen's principal achievements were his many textbooks, which dealt with various classes of special functions. Before he prepared these books he wrote numerous papers. His textbooks on cylindrical functions (1904) and on the gamma function (1906) were widely used.

Nielsen developed no new ideas and did not even present any fundamental theorems, but he possessed great knowledge and the ability to generalize existing formalisms. Moreover, he did make an important contribution to the theory of gamma function and factorial series. The theory originated with W. V. Jensen; Nielsen gave it further impetus, and Nörlund provided its definitive clarification. Nielsen's abilities were thus very restricted. He was a master in the treatment of unmethodical calculations and came up with a multitude of particular points. He playfully conceived new things that were not always in a completed form, and he was a significant influence on his students.

In 1917 Nielsen suffered a breakdown. He never fully recovered but his powers were not perceptibly diminished. He turned his attention to [number theory](#) (Bernoulli's numbers, Fermat's equation), which he treated unsystematically. In the history of mathematics he occupied himself primarily with accounts of personalities and the historical development of specific mathematical problems. Two books on Danish mathematicians and two on French mathematicians are the fruits of his work in this area.

## BIBLIOGRAPHY

I. Original Works. Nielsen's works include the following: *Handbuch der Theorie der Zylinderfunktionen* (Leipzig, 1904), which contains sixteen pp. of bibliography; *Theorie der integrallogarithmus und verwandter Transzendenten* (Leipzig, 1906), which has ten pp. of bibliography, tables, and applications; *Handbuch der Theorie der Gammfunktion* (Leipzig, 1906), which presents twenty years of work and is the first comprehensive treatment of the gamma function since Legendre's *Traité*; and is the first comprehensive treatment of the gamma function since Legendre's *Traité*; and *Lehrbuch der unendlichen* (Leipzig, 1908), an elementary treatment without the use of calculus.

See also *Laeren on Graensvaerdier som indledning til analysen* (Copenhagen, 1910); *Mathematiken i Danmark, 1528 1800, I*; 1801–1908, **II** (Copenhagen- Oslo, 1910), which contains data on his life and a compilation of his published works; Kopenhagen (Leipzig, 1911); *Géomètres français sous la révolution* (Copenhagen, 1929).treats of seventy six mathematicians; and *Géomètres français du dix-huitième siècle*, Niels Nörlund, ed. (Copenhagen–Paris, 1929), which is a posthumous work and treats of 153 mathematicians.

II. Secondary Literature. Nielsen also published about 100 articles in twenty-one different Danish and foreign periodicals. For further information see: Harald Bohr, “Niels Nielsen 2 December 1865 16 September 1931,” in *Matematisk Tidsskrift*, 41 45; and Poggendorf, IV, 1073; V, 905; VI, 1855.

H. Oettel