

Skolem, Albert Thoralf | Encyclopedia.com

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(b. Sandsvaer, Norway, 23 May 1887; d. Oslo, Norway, 23 March 1963)

mathematics.

Skolem was the son of Even Skolem, a teacher, and Helene Olette Vaal. He took his *examen artium* in Oslo in 1905 and then studied mathematics (his preferred subject), physics, chemistry, zoology, and botany. In 1913 he passed the state examination with distinction.

In 1909 Skolem became an assistant to Olaf Birkeland and in 1913–1914 traveled with him in the Sudan to observe the [zodiacal light](#). Then, in 1915–1916, he studied in Göttingen. In the latter year he returned to Oslo, where he was made *Dozent* in 1918. He received his doctorate in 1926.

Skolem conducted independent research at the Christian Michelsens Institute in Bergen from 1930 to 1938, when he returned as full professor to the University of Oslo. He retired in 1950. On several occasions after 1938 he was a visiting professor in America. Skolem served as editor of various mathematical periodicals and was a member of several learned societies. In 1962 he received the Gunnerus Medal in Trondheim.

Skolem published more than 175 works. His main field of research was the foundations of mathematics: but he also worked on algebra, [number theory](#), set theory, algebraic topology, group theory, lattice theory, and Dirichlet series. Half of his works are concerned with Diophantine equations, and in this connection he developed a p -adic method. In 1920 he stated the Skolem-Löwenheim theorem: If a finite or denumerably infinite sentential set is formulable in the ordinary predicate calculus, then it is satisfiable in a denumerable field of individuals.

Skolem freed set theory from Cantor's definitions. In 1923 he presented the Skolem-Noether theorem on the characterization of the automorphism of simple algebras. According to this theorem, it is impossible to establish within a predicate calculus a categorical axiom system for the natural numbers by means of a finite or denumerably infinite set of propositions (1929).

Most of Skolem's works appeared in Norway, although his monograph *Diophantische Gleichungen* (1938) was published in Berlin. With Viggo Brun, he brought out a new edition (1927) of Netto's textbook on combinatorial analysis, for which he wrote all the notes and an important addendum.

Skolem also investigated the formal feasibility of various theories and concerned himself with the discovery of simpler, more constructive demonstrations of known theorems. He was especially influenced by the mathematicians Sylow and Thue.

BIBLIOGRAPHY

For a bibliography of Skolem, see T. Nagell. "Thoralf Skolem in Memoriam," in *Acta mathematica* **110** (1963), which lists 171 titles. On his life, see also Erik Fenstad. "Thoralf Albert Skolem in Memoriam," in *Nordisk Matematisk Tidsskrift*, **45** (1963), 145–153, with portrait; and Ingebrigt Johansson. "Minnetale over Professor Thoralf Skolem," in *Norske Videnskåps-Akademi i Oslo Arbok 1964* (1964), 37–41.

H. Oettel