

Stolz, Otto | Encyclopedia.com

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(*b.* Hall [now Solbad Hall in Tirol], Austria, 3 July 1842; *d.* Innsbruck, Austria, 25 October 1905)

mathematics.

Stolz was the son of a physician who later achieved some prominence as a psychiatrist. After graduating from the Gymnasium at Innsbruck, he studied mathematics and natural sciences at the University of Innsbruck and later at Vienna. In 1864 he received the Ph.D. at the University of Vienna, where he was subsequently a *Privatdozent* until 1869, when he obtained a scholarship for further study at Berlin and Göttingen.

From 1869 to 1871 Stolz attended courses given by Weierstrass, Kummer, and Kronecker at Berlin and by Clebsch and Klein at Göttingen. Weierstrass made the greatest impression on him and led him to extend his research from geometry to analysis.

In July 1872 Stolz was appointed associate professor at the University of Innsbruck. He became a full professor in 1876 and married in the same year. He remained in Innsbruck for the rest of his life.

Stolz's earliest papers were concerned with analytic or [algebraic geometry](#), including spherical trigonometry. He later dedicated an increasing part of his research to real analysis, in particular to convergence problems in the theory of series, including double series; to the discussion of the limits of indeterminate ratios; and to integration. Stolz was the first to formulate the counterpart, for double series, of Cauchy's necessary and sufficient condition for convergence. He also generalized Abel's theorem on the behavior of a power series in radial approach to the circle of convergence ("regularity of Abelian summability") to approach in an angular region with a vertex on the circle of convergence.

During his lifetime, and for some time afterward, Stolz was known as the author of several carefully written textbooks, of which *Vorlesungen über all-gemeine Arithmetik* (1885–1886) and *Theoretische Arithmetik* (1900–1902) in particular gained wide recognition. The latter work was written with his student J. A. Gmeiner. Stolz is known today for his contributions to many questions of detail rather than for any major single achievement. For example, he is credited by K. Knopp with having been the first to show that every irrational number has a unique representation in decimal notation.

Stolz was greatly interested in the history of mathematics. After the Weierstrass ϵ, δ approach had found general acceptance in the early 1870's, he was the first to point out that Bolzano had suggested essentially the same approach even before Cauchy introduced his own, less rigorous method. Under the influence of P. du Bois-Reymond, Stolz also reexamined the theory of infinitely small and infinitely large quantities that had been used, on shaky foundations, until the advent of Weierstrass' method.

BIBLIOGRAPHY

I. Original Works. Stolz's writings include "Beweis einiger sätze über Polenzreihen," in *Zeitschrift für Mathematik und Physik*, **20** (1875), 369–376; "B. Bolzano's Bedeutung in der Geschichte der Infinitesimalrechnung," in *Mathematische Annalen*, **18** (1881), 255–279; *Vorlesungen über allgemeine Arithmetik*, 2 vols. (Leipzig, 1885–1886); and *Theoretische Arithmetik* 2 vols. (Leipzig, 1900–1902), written with J. A. Gmeiner.

II Secondary Literature. See J. A. Gmeiner, "Otto Stolz," in *Jahresberichte der Deutschen Mathematikervereinigung*, **15** (1906), 309–322; and K. Knopp, *Theorie und Anwendung der unendlichen Reihen*, Grundlehren der mathematischen Wissenschaften in Einzeldarstellungen, no.2 (Berlin, 1922).

Abraham Robinson