

# Wintner, Aurel | Encyclopedia.com

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

---

(b. Budapest, Hungary, 8 April 1903; d. Baltimore, Maryland, 15 January 1958)

*mathematics.*

Wintner studied mathematics at the University of Leipzig from 1927 to 1929. During that period he was an editorial assistant for *Mathematische Zeitschrift and Jahrbuch über die Fortschritte der Mathematik*, serving under the direction of Leon Lichtenstein, who for many years was editor of those journals. This period of apprenticeship had a profound influence on Wintner, and he often expressed his gratitude for his training under Lichtenstein.

Wintner's mathematical reputation was established by a series of papers on the Hill lunar theory that gave the first mathematically rigorous proof of the convergence of George Hill's method involving infinitely many unknowns. He received the Ph.D. at Leipzig in 1929, then spent a semester in Rome as a Rockefeller fellow and another in Copenhagen, where he worked with Elis Stromgren. As a result of that collaboration, Wintner was able to provide a theoretical basis for Stromgren's, "natural termination principle" for orbit periods, which was an empirical analysis of the degeneration of periodic orbits.

In 1929 Wintner published *Spektraltheorie der unendlichen Matrizen*, which contains the first proofs of the basic facts in Hilbert space—the fundamental mathematical construct in the then-developing physical theory of quantum mechanics. Unfortunately, Wintner's fundamental contributions to this subject were (and are) not adequately appreciated because he formulated his results in the language of matrices rather than in the more abstract language of operators, made popular by von Neumann. This lack of recognition embittered Wintner and made him suspicious of the (genuine)merits of the more abstract developments in recent mathematics.

In 1930 Wintner married the daughter of Otto Hölder, one of his teachers at Leipzig. In the same year he joined the faculty of the [Johns Hopkins](#) University, where he remained until his death. In 1944 he became an editor of *American Journal of Mathematics*, to which he devoted most of his energy, both through his scientific contributions (a substantial part of his most valuable work after he came to America was published there) and through his editorial work.

Wintner's work in America covered the entire range of classical analysis, from probability and analytic [number theory](#) to differential equations and basic questions in local differential geometry. Much of his work from 1936 to 1958 was done in collaboration with his student and colleague Philip Hartman. He published several papers with [Norbert Wiener](#) in a branch of probability theory that is now coming back into fashion. He also produced works with several other mathematicians. In 1941 Wintner published *Analytical Foundations of Celestial Mechanics*, which combines great astronomical and mathematical scholarship with deep and meticulous analysis. He is best known for this work.

Wintner, a man of high moral principles, opposed direct government support of scholarly research, for fear of interference. He not only accepted considerable financial hardship by personally refusing such support but also was willing to forgo fruitful scientific collaboration in order to maintain his ideals.

Shlomo Sternberg