

SANDERSON, Mildred Leonora. May 12, 1889–October 15, 1914.

MOUNT HOLYOKE COLLEGE (BA 1910), UNIVERSITY OF CHICAGO (MS 1911, PhD 1913).

Mildred Leonora Sanderson was born in Waltham, Massachusetts, the daughter of Edna E. Pratt (b. 1862) and Horace M. Sanderson (b. 1856), natives of Massachusetts. Her father was a florist and truck farmer. In the census of 1900, there were four children living of five born; her siblings were two older sisters, May E. (b. 1884) and Alice Gertrude (b. 1886), and a younger brother, Ralph H. (b. 1898). The household also listed two servants from Ireland: a farm laborer and one who did general housework.

Sanderson attended North Grammar School and Waltham High School, public schools in Waltham. After graduating from high school as valedictorian in 1906, Sanderson was a student at Mount Holyoke College until her graduation in 1910. At Mount Holyoke she earned general honors at the end of her sophomore year and honors in mathematics when she graduated. The year following her college graduation Sanderson studied at the University of Chicago as the holder of the Bardwell Memorial Fellowship from Mount Holyoke. She studied with E. H. Moore, L. E. Dickson, H. E. Slaught, W. D. Macmillan, G. A. Bliss, and A. S. Gale, and wrote her master's thesis under the direction of Dickson. During the next two years she also studied with F. R. Moulton, E. J. Wilczynski, K. Laves, and A. C. Lunn, and wrote her dissertation in the area of modular invariant theory, again advised by Dickson. She received her PhD with minor work in astronomy.

In his 1915 "Tribute" to Sanderson, Dickson described the work she did under his direction noting that her master's thesis on generalizations in the theory of numbers and theory of linear groups "might well have served for her doctor's thesis; but she was quite willing to undertake a new investigation in a wholly different field." About her doctoral dissertation he wrote, "This paper is a highly important contribution to this new field of work; its importance lies partly in the fact that it establishes a correspondence between modular and formal invariants. Her main theorem has already been frequently quoted on account of its fundamental character. Her proof is a remarkable piece of mathematics." E. T. Bell wrote in 1938 that "Miss Sanderson's single contribution (1913) to modular invariants has been rated by competent judges as one of the classics of the subject" (p. 22).

Sanderson was an instructor at the University of Wisconsin during the first semester 1913–14 but left in February 1914 when she became ill with pulmonary tuberculosis. She died at age twenty-five in a hospital in East Bridgewater, Massachusetts, the following October. Services were conducted in her family's home in Waltham by a pastor of the First Baptist Church, and she was buried in Mt. Feake cemetery in Waltham. Writing a few months later in the *Monthly*, Dickson called her his "most gifted pupil." A Mildred L. Sanderson prize for excellence in mathematics was established in 1939 and is awarded annually by Mount Holyoke College.

Organizational affiliations: AMS, Phi Beta Kappa.

Thesis and dissertation:

1911 The general linear group with respect to a function and composite integer as moduli. MS thesis, University of Chicago, directed by Leonard Eugene Dickson. Typescript. See also **1911** in **Publications**.

1913 Formal modular invariants with application to binary modular covariants. PhD dissertation, University of Chicago, directed by Leonard Eugene Dickson. Reprinted from *Trans. Amer. Math. Soc.* 14:489–500.

Publications:

1911 Generalization in the theory of numbers and theory of linear groups. *Ann. of Math.* 2nd ser., 13:36–39. Published version of MS thesis. Reviews: *JFM* 42.0159.02 (F. Schur); *Rev. semestr. publ. math.* 20, pt. 2: 10 (W. A. Wythoff).

1913 Formal modular invariants with application to binary modular covariants. *Trans. Amer. Math. Soc.* 14:489–500. Published version of PhD dissertation. Reviews: *JFM* 44.0139.01 (W. Fr. Meyer); *Rev. semestr. publ. math.* 22, pt. 2: 6 (P. Mulder). Presented as “A fundamental theorem in the theory of modular invariants” to the AMS, Chicago, 21 Mar 1913; abstract: *Bull. Amer. Math. Soc.* 19:448 #9.

Abstract not listed above:

1914 A method of constructing binary modular covariants. *Bull. Amer. Math. Soc.* 20:76 #34. Presented to a meeting of the AMS, Madison, WI, 8–13 Sep 1913.

References to: [BioWMath](#).

“Miss Mildred L. Sanderson.” (Obituary) *Waltham Daily Free Press-Tribune*, 16 Oct 1914.

“Funeral of Miss Sanderson.” *Waltham Evening News*, 16 Oct 1914.

Dickson, L. E. “A Tribute to Mildred Lenora [*sic*] Sanderson.” *Amer. Math. Monthly* 22 (1915): 264. Reprint: *AWM Newsletter* 14 (Jul–Aug 1984): 16.

Other sources: MS thesis vita 1911; PhD dissertation vita 1913; communications with East Bridgewater, MA, town clerk and with Waltham, MA, Public Library; Bell, “Fifty Years of Algebra in America”; Green and LaDuke, “Contributors to American Mathematics”; US Census 1900, 1920 MA.