

PEPPER, Echo D. June 3, 1897–January 5, 1979.

UNIVERSITY OF WASHINGTON (BS 1920, MS 1922), UNIVERSITY OF CHICAGO (PhD 1925).

Echo Delores Pepper was the second child of Josephine LaBena (Sanderson) (1872–1930) and Albert Ephraim Pepper (1872–1944). Her mother and father were born and married in Ontario, Canada. They were in the process of moving to the United States when her older sister, Leah H. (1896–1966), was born on a Native American reservation in Canada. Just after Echo Pepper's birth in Spokane, Washington, the family moved to Seattle where her parents and older sister remained the rest of their lives. At various times other relatives lived with them; her father's younger sister was with them in 1900 as was his seventeen-year-old nephew from Canada in 1920. Both parents were trained as accountants, and after working one year as a bookkeeper in the United States, her father was self-employed and her mother helped in his businesses. Until the Depression they were very successful running first a plumbing company and a funeral home and, later, hotels and apartment houses. Echo Pepper's brother, Vincent A., was born in May 1927. In the 1930s her father had a sheep ranch outside of Seattle that he traded for an apartment house.

When Echo Pepper was seven, she was ill and lost the use of her right hip, although an operation improved the situation so that she could walk without crutches by about the time she entered high school. She received all of her education in Seattle until she was twenty-five. She was taught at home for several years because of her hip problem. She also attended a convent school, Holy Names Academy, and then a public high school, Franklin High School, from which she graduated in 1916. She then attended the University of Washington, where she studied mathematics and physics under E. T. Bell among others for her bachelor's and master's work. Pepper received her BS in 1920 and held a teaching fellowship in mathematics there in 1920–22. She received her MS in 1922 with a thesis referred to as having "exceptional merit" in Constance Reid's biography of Bell (*The Search for E. T. Bell*, 192). In the summer of 1922 Pepper studied with G. D. Birkhoff and L. E. Dickson at the University of California. In 1922–23 she served as an associate at the University of Washington, replacing a faculty member who was on leave.

During the years 1923–25 Pepper was a fellow at the University of Chicago. On August 28, 1924, E. T. Bell, who had taught during the summer quarter at Chicago, reported to E. H. Moore that "Miss Pepper is wholly absorbed in the topic which Mr. Dickson assigned her. I believe she is young enough, and sufficiently ambitious, to prosper by a chance to study with G. H. Hardy, provided the opportunity be given her. By the end of this year she should have mastered the rudiments of research. In my own stuff she has done fine work" (folder 8, box 1, E. H. Moore Papers, University of Chicago Archives, Special Collections Research Center). Pepper's work as a student of Dickson resulted in her dissertation, "Theory of algebras over a quasi-field," and in 1925–26, the year after her PhD (awarded December 1925), she studied with Hardy and A. S. Besicovitch at Oxford University as a holder of a National Research Council fellowship.

Upon Pepper's return from England she went to Bryn Mawr College as instructor for the years 1926–28. While there she taught trigonometry, calculus, advanced calculus, differential equations, and number theory and taught at both the undergraduate and graduate levels.

In 1928 Echo D. Pepper moved to the University of Illinois where she remained most of the rest of her career. She was instructor 1928–29 and associate (similar to senior instructor) 1929–45. During this period she was active in Sigma Delta Epsilon, a society for graduate women in science, and served as national treasurer in 1937 and 1938 and as first vice president in 1944 and 1945. Later, in 1955–57, she served as the business manager of the *Pi Mu Epsilon Journal*. She also was a member of the Illinois Academy of Science.

In the summer of 1945 Pepper applied for a leave of absence to be in Seattle for the year 1945–46, in order to spend time with her family following her father's death and also to be in the less harsh climate. The university president denied the request but indicated that the department might wish to have a formal understanding that she would be reappointed after the year. Thus, Pepper was in Seattle in 1945–46 and while there taught mathematics and physics as assistant professor at Seattle College (now University) at the time that her brother was a student there. She returned to Illinois in 1946 as assistant professor and remained in that rank until 1960.

During the spring of 1952 Pepper had a corrective bone operation and was granted a leave for the fall semester of 1952–53. From about that time she was connected with the rehabilitation program at the University of Illinois. She was the chaperon of a wheelchair basketball team at the university and was later awarded an honorary life membership in Delta Sigma Omicron, a rehabilitation service fraternity on the Illinois campus.

Pepper taught some summers at Southern Illinois University in Carbondale to instruct teachers how to teach the “new math.” In the spring of 1960 Pepper was considering moving to Southern Illinois at a considerably higher salary than she was making at the University of Illinois. Mathematics department papers show that the Illinois department chairman's recommended promotion met with initial resistance from the dean after which several senior members of her department wrote in her behalf. She and her teaching were given high praise. It was noted that she had done much work with the teaching of teachers; also that she “has talent for imparting enthusiasm for mathematics ... whether it be elementary freshman mathematics, calculus for honors students, advanced calculus for engineers, or arithmetic for teachers.” Other specific comments were: “I believe that Professor Pepper's promotion to an associate professorship is long overdue. ... She succeeds in bringing the spirit of mathematical creativity into whatever course the department assigns her to teach.” “Other members of our staff younger and of the opposite sex to that of Professor Pepper, have had immediate response to their requests for consideration.” She was promoted to associate professor in 1960 and remained in that rank until she was forced to retire from the University of Illinois in 1965 because of her age, sixty-eight. She told her brother that she was not promoted to full professor because [Olive Hazlett's](#) illness had convinced the department that women were too frail to become full professors.

From 1965 to 1970, after her retirement from Illinois, Pepper was at Notre Dame University in Nelson, British Columbia, as associate professor and department head. Her brother reported that she was asked to come to Notre Dame by a student she had taught at Seattle College twenty years earlier. She was hired on a year-to-year basis, and her appointment was not renewed the year she turned seventy-three.

According to her brother, Echo Pepper was about five feet tall and weighed no more than a hundred pounds. She was completely ambidextrous and could write with both hands simultaneously. She was a pacifist and an Independent but more Republican than Democrat. She was raised as a “high” Episcopalian but became a Roman Catholic when she was young. About 1940 she became an oblate of the Order of St. Benedict, a lay position, having become involved with the Benedictines through St. Johns University in Collegeville, Minnesota. She was also a member of the Catholic Daughters of America.

After her second forced retirement, Pepper moved to the Washington, D.C., area to live in an adult community in Silver Spring, Maryland, near her brother. When she was past eighty, she moved to the Retirement Living Center at Carroll Manor, a Carmelite home. She died in the Carroll Manor Nursing Home in Hyattsville, Maryland, in January 1979 at age eighty-one after numerous strokes. Pepper was buried at Evergreen-Washelli cemetery in Seattle.

Organizational affiliations: AMS, MAA, London Math. Soc., AAAS, Sigma Delta Epsilon, Phi Beta Kappa, Sigma Xi, Pi Mu Epsilon.

Thesis and dissertation:

1922 On multiplicative and enumerative properties of numerical functions. MS thesis, University of Washington. See also **1923**.

1925 Theory of algebras over a quasi-field. PhD dissertation, University of Chicago, directed by Leonard Eugene Dickson. Typescript. Abstract: *University of Chicago. Abstracts of theses. Science series.* 4:27–30.

Publications:

1923 On multiplicative and enumerative properties of numerical functions. *Tôhoku Math. J.* 22:138–52. Published version of MS thesis. Review: *JFM* 48.1159.04 (R. Fueter).

1927 Asymptotic expression for the probability of trials connected in a chain. *Ann. of Math.* 2nd ser., 28:318–26. Reviews: *JFM* 53.0500.01 (A. Basch); *Rev. semestr. publ. math.* 34, pt. 1: 62 (W. A. Wythoff).

1928 On continuous functions without a derivative. *Fund. Math.* 12:244–53. Review: *JFM* 54.0275.02 (G. Feigl).

1929a On density distribution in stellar space. *Proc. London Math. Soc.* 2nd ser., 29:98–110. Review: *JFM* 55.1218.06 (W. Fender). Presented to the London Math. Soc., 14 Jun 1928.

1929b On Poisson’s series of trials. *Math. Ann.* 101:375–380. Reviews: *JFM* 55.0914.01 (E. Tornier); *Rev. semestr. publ. math.* 35:71 (J. C. Kluyver).

References to: AmMSc 5–8, 9P–11P; AmMWSc 12P; AmWom 1935–40.

Other sources: PhD dissertation vita 1925; Owens questionnaires 1937, 1940; author’s conversation with Vincent A. Pepper 1992; University of Chicago Archives, Special Collections Research Center; University of Illinois Department of Mathematics records; Constance Reid, *The Search for E. T. Bell: Also Known as John Taine* (Washington, DC: Mathematical Association of America, 1993); US Census 1900, 1910, 1920, 1930 WA; Maryland death certificate.