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O'BRIEN, Katharine. April 10, 1901–April 10, 1998.

BATES COLLEGE (BA 1922), CORNELL UNIVERSITY (MA 1924), BROWN UNIVERSITY (PhD 1939).

Katharine Elizabeth O'Brien was born in Amesbury, Massachusetts, the younger of two daughters of Catherine (Higgins) (1867–1947) and Martin William O'Brien (1867–1944), both of whom had emigrated from Ireland about a decade before their marriage in 1896. Her sister, Mary Ellen (1897–1974), was also born in Amesbury, where in 1900 Martin O'Brien was a carriage painter. The family moved to Portland, Maine, when Katharine was an infant. In 1910 her father was a painter in a carriage factory; in 1920 he was an auto painter in a repair shop, and her sister was a primary school teacher. For about the last twenty years of his life her father was superintendent of the Songo River [Steamboat] Line when he and his wife lived in Lake Sebago, Maine, in the summers.

Katharine O'Brien was the class valedictorian when she graduated from Deering High School in Portland at age seventeen. She then entered Bates College in nearby Lewiston, Maine, and graduated from Bates in 1922 with double honors in mathematics and science and with a minor each in the language and philosophy groups.

O'Brien's interests throughout her life focused on three areas: mathematics, music, and poetry. In 1922–23, the year after her college graduation, she played piano as an assistant in the department of hygiene and physical education at Smith College. She also took a graduate course in music and one in English that year. When O'Brien applied for admission to Cornell in May 1923, she asked about possible assistantships in English or music. We do not know the outcome of that request, but in 1923–24, she did graduate work in mathematics there and earned a master's degree in 1924 with a major in geometry and a minor in analysis, although she had requested a minor in English.

From January to June 1925 O'Brien taught at Jordan High School in Lewiston, Maine, and from 1925 until 1936 at the College of New Rochelle, a Catholic college for women in New Rochelle, New York, that now admits men to schools other than the original school of arts and sciences. At New Rochelle, O'Brien was instructor 1925–29 and professor and department head 1929–36. She was also a scholarship participant in a master class in piano with Sigismond Stojowski in New York City in 1934–35.

In 1936 O'Brien returned to graduate studies in mathematics at Brown University, where in 1937–38 she was a University scholar. She received her PhD in 1939 with a dissertation in analysis.

O'Brien joined the mathematics faculty of Deering High School in Portland, Maine, in 1940. The first five years there she was also director of the Girls' Glee Club. She became head of the mathematics department in 1945 and remained head until her retirement in 1971. Although she seems to have been an extremely successful teacher, it appears she sought other positions at least in the 1940s. In a letter to R. G. D. Richardson of Brown on October 9, 1948, she wrote, "It seems strange that there has been no teaching position for me in a New England college in the nine years since I received the degree at Brown" (Correspondence 1947–1949, R. G. D. Richardson Papers, Brown University Archives).

In 1962 O'Brien became a lecturer at Gorham State Teachers College (now the University of Southern Maine). She continued lecturing there until 1973; during that time the name of the college changed to Gorham State College, then Gorham State College of the University of Maine, and, in 1970, to the University of Maine at Portland-Gorham. She was also a lecturer in NSF institutes for teachers at Brown in summers 1962–65 and 1967.

O'Brien's many professional and extracurricular activities included serving as the Maine representative to NCTM 1951–56, refereeing for the NCTM journal *Mathematics Teacher* for more than thirty years (1953–84), and participating in activities of the NCTM affiliate, the Association of Teachers of Mathematics in New England (ATMNE). During the 1950s she gave talks to both of these groups and served on a panel, "The Gifted Student," at a meeting of the National Education Association. During the summer of 1951 she helped to run an ATMNE-sponsored institute for teachers of mathematics at Connecticut College. She was governor for the north-eastern region of the United States of Mu Alpha Theta, the high school and junior college mathematics club, 1962–65, and was a member of the New York Academy of Sciences. O'Brien published poetry and light verse in magazines and newspapers, including the *Saturday Review*, *Christian Science Monitor*, *New York Herald Tribune*, *New York Times*, *Ladies Home Journal*, and *Scientific Monthly*. She also wrote mathematical poems, many of which appeared in professional journals; portions of two of those poems, **1968** and **1982a**, were reprinted in a dictionary of mathematical quotations. In 2008 two poems, "Undefined Terms" and "Valentine," from O'Brien's collection **1967** were reprinted in the anthology *Strange Attractors: Poems of Love and Mathematics* (Natick, MA: A. K. Peters). She was a member of the International Platform Association, dedicated to public speaking and performing, and the Poetry Society of America. She also composed music and published choral octavos using the words of Thomas Hardy. Finally, she was a member of Bates Key, the Portland College Club, and the Society of Bowdoin Women.

O'Brien was recognized in a number of ways for her contributions to mathematics, poetry, and music. In 1960 the University of Maine awarded her an honorary Doctor of Science in Education degree, and in 1965 Bowdoin College gave her an honorary Doctor of Humane Letters degree. The Dr. Katharine E. O'Brien mathematics award to be given annually to a senior at Deering High School was established by the Deering class of 1964. In 1985 Westbrook College, which later merged with the University of New England, gave O'Brien the Deborah Morton Award, an annual award in Maine honoring women's achievement.

Katharine O'Brien died on her ninety-seventh birthday at a nursing home in Falmouth, Maine, after a lengthy illness. A funeral Mass was celebrated at St. Joseph's Church, and she was buried in St. Joseph's Cemetery in Amesbury, Massachusetts. After her death, the University of Maine System received a gift of \$400,000 from her estate in support of its library holdings. In particular, each of the seven universities in the system was to create one or two specialized named library collections. While almost all of the schools choose to honor O'Brien with poetry collections, other areas covered are literature, women's and ethnic studies, mathematics, computer science, environmental studies, forestry, nursing, secondary education, and children's literature. A bequest of a comparable size was made to Bowdoin College, a portion of which was earmarked for the library. Her papers, including photographs, are housed in the Maine Women Writers Collection, University of New England Libraries.

Organizational affiliations: MAA, NCTM, Phi Beta Kappa, Sigma Xi.

Thesis and dissertation:

1924 A study of methods of proof of Descartes' rule of signs and the Budan-Fourier theorem. MA thesis, Cornell University. Typescript.

1939 Some problems in interpolation by characteristic functions of linear differential systems of the fourth order. PhD dissertation, Brown University, directed by Jacob David Tamarkin. Typescript. Abbreviated form, 1940, reprinted from *Bull. Amer. Math. Soc.* 46:281–90.

Publications (excluding poetry, music, and other short pieces):

1940 Some problems in interpolation by characteristic functions of linear differential systems of the fourth order. *Bull. Amer. Math. Soc.* 46:281–90. Abbreviated form of PhD dissertation. Reviews: *JFM* 66.0420.01 (E. Kamke); *MR* (I. J. Schoenberg) 1,334c; *Zbl* (F. Schoblik) 024.31505.

1952a Review of *Anthology in Education*, by L. W. Harding. *Math. Teacher* 45:302.

1952b Review of *Second Algebra*, 2nd ed., by V. S. Mallory and K. C. Skeen. *Math. Teacher* 45:618–19.

1953 Review of *Calculus*, by T. Fort. *Math. Teacher* 46:219.

1955a (Editor) *Successful Devices in Teaching Algebra*. Portland, ME: J. Weston Walch.

1955b (Editor) *Successful Devices in Teaching Geometry*. Portland, ME: J. Weston Walch.

1956 Problem solving. *Math. Teacher* 49:79–86. Talk with same title presented to Assoc. Teachers Math. New England, Boston, 4 Dec 1954.

1966 *Sequences*. Houghton Mifflin Mathematics Enrichment Series. Boston: Houghton Mifflin. Telegraphic review: *Amer. Math. Monthly* 75:1144.

1970 Review of *Mainstreams of Mathematics*, by J. B. Fraleigh. *Amer. Math. Monthly* 77:320.

Mathematical poetry and other short pieces:

1947 Trivial things. *Scripta Math.* 13:176.

1948 The present. *Scripta Math.* 14:98.

1949 Raymond Clare Archibald. *Scripta Math.* 15:65.

1950 Winter. *Scripta Math.* 16:71.

1953 Mathematician. *Christian Science Monitor*, 2 Nov.

1965 Collected mathematical poems. *Math. Teacher* 58:536–37.

1966a Me. *Amer. Math. Monthly* 73:732.

1966b Memo to a calculus class. *Math. Teacher* 59:542.

1966c The old oaken calculus problem. *Amer. Math. Monthly* 73:881.

1967 *Excavation and Other Verse*. Portland, ME: Anthoensen Press. Telegraphic review: *Amer. Math. Monthly* 76:577.

1968 Einstein and the ice-cream cone. *Math. Teacher* 61:404.

1973 Glossary. *Math. Mag.* 46:38.

1974 Hair. *Math. Mag.* 47:149. Abstract: *Hist. Math.* 2:118.

1975 Mini-profiles. *Math. Mag.* 48:199. Abstract: *Hist. Math.* (D. E. Kullman) 3:379.

1979a The Bernoullis. (Miscellanea #25). *Amer. Math. Monthly* 86:482.

1979b Vocabulary. *Math. Mag.* 52:291.

1981a Curves. *Math. Mag.* 54:130. With illustrations.

1981b Laplace transforms. *Math. Mag.* 54:78.

1981c Little green man. *Two-Year College Math. J.* 12:front cover. With illustrations.

1981d Three haiku: What is mathematics? (Miscellanea #63). *Amer. Math. Monthly* 88:626.

1982a \forall and \exists . *Math. Mag.* 55:41.

1982b Mathematician. *Math. Mag.* 55:235. Version presented to the Poetry Soc. Amer., New York City, Feb 1981.

1983a A collection of mathematical poems by Katharine O'Brien. In *Mathematics 1984 Calendar*. Raleigh, NC: Rome Press.

1983b Paradoxes. *Math. Mag.* 56:176.

1984 Conversation piece. *Math. Mag.* 57:208.

1985 Measure theory. *Math. Mag.* 58:23.

1986 Bilateral convolution. (Miscellanea #169). *Amer. Math. Monthly* 93:399.

Presentations not listed above:

The theory of limits. Presented to the NCTM, Boston, 16 Apr 1955.

Some functions and their behavior. Five lectures presented to the Assoc. Teachers Math. New England, Hanover, NH, 22–24, 26, 27 Aug 1957.

Sequences, series, and limits. Presented to the NCTM, Boston, 15 Nov 1968.

References to: AmMSc 5–6, 8, 9P–11P; AmMWSc 12P–13P; ConAmC 1–2; IntWWM 10; IntWWP 5–6; WhoAmW 1–4, 4A, 6, 9–10.

“Katharine E. O'Brien: Math Teacher, Poet, Musician.” (Obituary) *Portland Press Herald/Maine Sunday Telegram News Archive*, 11 Apr 1998.

“Katharine E. O'Brien, April 10, 1998.” (Obituary) *Bates College Fall 1998 Alumni Magazine*.

Related manuscript material:

Katharine E. O'Brien 1901–. Maine Women Writers Collection. Abplanalp Library. Westbrook College Campus. University of New England. Portland, ME.

Other sources: PhD dissertation vita 1939; Smithsonian questionnaire 1985; Brown University Archives; Division of Rare and Manuscript Collections, Cornell University Library; communication with Bowdoin College Development Office and with Mu Alpha Theta; *Mathematically Speaking: A Dictionary of Quotations*, selected and arranged by C. C. Gaither and A. E. Cavazos-Gaither (Bristol: Institute of Physics Publishing, 1998); US Census 1900 MA, 1910, 1920 ME; SSDI.

Last modified: December 21, 2010.