TORRANCE, Esther (McCormick). August 12, 1909–January 3, 1978. Barnard College (BA 1931), Cornell University (MA 1932), Brown University (PhD 1939).

Esther Ober McCormick was the elder of two surviving children of Ethel Mary (Ober), born in Ohio in 1879, and Thomas Holmes McCormick, born in Indiana in 1875. Her parents were both students at Hiram College in Ohio; her mother was there for one year, 1900–01, and her father graduated in 1902, shortly before their marriage in June of that year. Their first daughter died in infancy.

Esther McCormick was born in Fort Wayne, Indiana, where her father was a mathematics teacher at Fort Wayne High School. At some point her mother gave guitar lessons. Her younger brother, Edgar T. McCormick (1914–1991), was born in New York City after the family moved there in the summer of 1913. Edgar McCormick later attended Princeton University and became an analyst for Prudential Life Insurance. An avid and successful chess player, he also was chess team coach for Prudential. For a few years, the family lived in New York City where her father was a teacher of mathematics at the Commercial High School and occasionally served as a substitute preacher. He continued to teach at the high school after the family moved to East Orange, New Jersey. Esther McCormick graduated from Eastern Grammar School in East Orange in 1923 and from East Orange High School in 1927.

McCormick attended Barnard College, Columbia University, where she majored in mathematics and studied primarily with Lulu Hofmann (Bechtolsheim) and Edward Kasner. She took several graduate courses at Columbia in addition to her undergraduate work. She joined the AMS in the summer of 1930 and attended two meetings of the society before she received her bachelor's degree in February 1931.

She immediately entered graduate school at Cornell for the second term of the academic year 1930–31 and returned to Columbia for graduate work during the summer of 1931. She had a graduate scholarship at Cornell for 1931–32 and received her master's degree in February 1932, having done her work in geometry and written her master's thesis with Virgil Snyder. She stayed at Cornell through the end of that academic year before going to Brown University for the year 1932–33 with a scholarship and part-time work.

While a student at Cornell, McCormick met Charles Chapman Torrance, who had received a PhD in mathematics from Cornell in 1931 and was an instructor there from 1927 until 1931. C. C. Torrance (1902–1967) was born in Yonkers, New York, and had earned an ME in 1922 and an MA in 1927 from Cornell. He spent 1931–32 as an instructor at Stanford and 1933–34 at the Institute for Advanced Study in Princeton. During 1933–34 Esther McCormick traveled in Europe before marrying Charles Torrance on June 19, 1934. A daughter later reported that a professor at Cornell told her that Charles was brilliant, and that the best contribution she could make to the world of mathematics was to marry him and keep him happy and productive.

C. C. Torrance was a member of the faculty at Case School of Applied Science in Cleveland, Ohio, from 1934 until 1946 and was a contract mathematician at the Bureau of Ordnance of the Navy Department at Washington, D.C., 1944–45. At Case he was instructor 1934–40, assistant professor 1940–44, and associate professor 1945–46.

Esther Torrance was an instructor at Oberlin College 1937–38. Both of the Torrances were in residence at the Institute for Advanced Study in Princeton during 1938–39. A daughter reported that hers was a courtesy invitation while C. C. Torrance was working with von Neumann. During that year Charles and Esther Torrance translated an article by Arnaud Denjoy of the Institut Henri Poincaré that appeared in the *Duke Mathematical Journal*. Esther Torrance finished the work for her PhD at Brown in 1939.

After several miscarriages, two daughters were born, both of whom later earned doctorates. Ellen McCormick was born in March 1941, did her undergraduate work at Barnard,

received a master's degree from Stanford, and received a PhD in mathematics in 1968 from the University of Illinois at Urbana-Champaign. Wendy was born in April 1942, did her undergraduate work at Occidental College in Los Angeles, and received a PhD in physics in 1971, also from the University of Illinois.

In 1946 C. C. Torrance moved to the Naval Postgraduate School in Annapolis, Maryland, and was associate professor 1946–50 and professor 1950 until his retirement in May 1967. When the school moved to Monterey, California, in December 1951, the Torrances moved to the West Coast. Esther Torrance taught in high school in Salinas for a brief time in the late 1950s or early 1960s. Her husband died very soon after his retirement, and afterwards Esther Torrance moved to Fresno. She was assistant professor at Fresno State College (California State University, Fresno since 1972) from 1967 until her retirement in 1972, after an unsuccessful bid for tenure. She moved back to Monterey after her retirement.

Esther Torrance was described by her younger daughter as "formal and forbidding, but would go way out of her way to be of service." When they lived in Annapolis, she was particularly active in a number of community organizations, serving as an advisory member of the Anne Arundel Youth Commission, as a member of the Annapolis Planning Commission, and on the board of directors of the Citizens Planning and Housing Association of Annapolis and Anne Arundel County. She was also a registered lobbyist in Congress for a housing coalition. According to her younger daughter, "she idolized Jane Addams of Hull House." She played the stock market for both fun and profit and played chess by mail and bridge. She loved long walks and camping in Yosemite, where every summer she and the girls would camp two to three weeks and be joined by her husband for a shorter time. In August 1977, a few months before her death, she climbed Mt. Whitney, the tallest mountain in the contiguous United States. At this time, too, she was working for passage of the ERA. She was a member of the Disciples of Christ and was active in the Pacific Grove church.

After a series of strokes and heart attacks in December 1977 and early January 1978, Esther Torrance died in January 1978 at age sixty-eight in Monterey, California.

Organizational affiliations: AMS, AWM.

Thesis and dissertation:
1932 [McCormick, E. O.] Quadratic plane transformations. MA thesis, Cornell University. Typescript.
1939 Superposition on monotonic functions. PhD dissertation, Brown University, directed by Jacob David Tamarkin. Typescript. Printed version, 1940, reprinted from *Duke Math. J.* 6:307–17.

Publications:

1938 Superposition on monotonic functions. *Fund. Math.* 30:90–91. Reviews: *JFM* 64.01-87.02 (S. Kempisty); *Zbl* 018.34902 (H. Blumberg). Presented to the AMS, State College, PA, 10 Sep 1937; abstract: *Bull. Amer. Math. Soc.* 43:626.

1940 Superposition on monotonic functions. *Duke Math. J.* 6:307–17. Published version of PhD dissertation. Reviews: *JFM* 66.0213.01 (A. Bischof); *MR* 01,303c (J. A. Clarkson); *Zbl* 023.30601 (G. Alexits). Presented in part as "Superposition on monotonic functions II" to the AMS, New York City, 6 Sep 1938; abstract: *Bull. Amer. Math. Soc.* 44:638.

Abstract not listed above:

1932 [McCormick, E. O.] On reduction of space Cremona involutions. *Bull. Amer. Math. Soc.* 38:488. Presented by title to a meeting of the AMS, Los Angeles, 30 Aug–2 Sep 1932.

References to: AmMWSc 12P–13P, 14.

Other sources: MA thesis vita 1931; PhD dissertation vita 1939; conversation with Ellen Torrance and communications with Wendy Torrance Padgett 1998; Division of Rare and Manuscript Collections, Cornell University Library; communication with Hiram College Archives; US Census 1900 OH, 1900 1910 IN, 1920 1930 NJ; SSDI.

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