In Memoriam: Mary-Elizabeth Hamstrom

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Mary-Elizabeth Hamstrom, 82, a prominent member of the Department for 38 years from September, 1961 to May, 1999, died unexpectedly but peacefully Wednesday morning, December 2, 2009, after several years of declining health.

Born in Pittsburgh, PA on May 24, 1927, Mary-Elizabeth was the eldest of three daughters of Edward Hamstrom and Mabel Kerr Hamstrom. Her sisters survive, as do three nephews, and two grand-nieces and two grand-nephews. Professor Hamstrom's first name was the hyphenated "Mary-Elizabeth," which she frequently abbreviated to "M-E" She objected quite strongly to being called "Mary."

Mary-Elizabeth decided very early to study mathematics. After graduating from Germantown High School in Philadelphia, she enrolled at the University of Pennsylvania and completed her AB degree in June of 1948, with a major in mathematics. She seemed predestined to pursue graduate work with Robert Lee Moore at the University of Texas in Austin. One of her teachers at Germantown High School was Anna Mullikin, who had earned a Ph.D. as a student of R. L. Moore at Texas in 1922 before deciding on a career as a high school mathematics teacher. Moore had been a member of the Penn faculty from 1911 to 1920, and his first Ph.D. student, John R. Kline, remained at Penn after completing his Ph.D. in 1916. M-E worked for a time as an undergraduate student assistant to Kline, who was then head of the Penn Mathematics Department and long-time Secretary of the American Mathematical Society. Moore had taken a position at the University of Texas at Austin when he left Penn, and Kline encouraged M-E to pursue graduate work with Moore at Austin.

During her senior year, having been accepted for graduate study in mathematics at Texas and awarded a scholarship, M-E wrote to Moore at Texas to inquire what she should study during the approaching summer to prepare for her forthcoming graduate work. Moore's surprising response lamented the fact that she had already taken an undergraduate course in real variables that included some point-set topology of the plane and urged her not to read anything more in the field of her proposed coursework. His letter,[1] in which he described in considerable detail what is now called the Moore (or Texas) method of instruction, is of considerable importance in the history of mathematics education.[2]

Mary-Elizabeth completed her Ph.D. in 1952 with Moore as her advisor. Her dissertation was entitled, "Concerning webs in the plane." According to Parker,[3] she was also "strongly influenced" by another Moore student, F. Burton Jones, who had completed his Ph.D. with Moore in 1935 and was on the Texas faculty.

M-E took a position at Goucher College in Baltimore, at that time a college for women. She was an Assistant Professor from 1952–1957, spent the academic year 1956–1957 at the Institute for Advanced Study at Princeton, and then returned to Goucher as an Associate Professor. When

an undergraduate at Penn she had known Paul Bateman, who was then a Penn graduate student completing his Ph.D. with Hans Rademacher. She encountered Bateman again when they were both at the Institute for Advanced Study, at which time he had encouraged her to leave Goucher and come to Illinois. When offered a position by Mahlon Day in 1961, she accepted Illinois' offer.

She was promoted to Professor in 1966, one of just four female full professors in the entire College of Liberal Arts and Sciences at that time. She held various visiting appointments over the years, including Penn in 1954, the University of North Carolina in 1959, and the University of Warwick in England in 1969. An authority in point-set and geometric topology with special interest in spaces of homeomorphisms of manifolds, she authored or coauthored at least 24 research articles in leading professional journals during the years from 1950 to 1980, her period of greatest creative activity. She was an excellent teacher and a supportive and concerned advisor, and she served as a role model for many women mathematics graduate students. She supervised nine Ph.D. dissertations at Illinois, the most recent in 1999. She retired in May of 1999 but remained an active and valued member of the department after her retirement.

Lawrence Boxer, who completed his Ph.D. with M-E in 1976 and is now Professor of Computer and Information Science at Niagara University, wrote in part about her as follows:

> *Her distinction as a scholar and teacher are well known, but I will always remember Professor Hamstrom's quiet guidance and kindness. I [proved] some theorems under Professor Hamstrom's supervision, and she encouraged me to persevere. My dissertation was based on work by BJ Ball and a colleague, and as I was finishing the dissertation, Professor Hamstrom encouraged me to apply for a visiting position at the University of Georgia, where Professor Ball was located. I didn't know at the time that Professors Hamstrom and Ball were long-time friends. The year I spent at Georgia would have a great deal of influence on my subsequent research.*

Ivan Reilly, M-E's 1970 Ph.D. student and now Professor of Mathematics at the University of Auckland, sent a summary of his experiences with M-E. Here is an abridgement of his remarks:

> *I arrived in Urbana from New Zealand in 1966, and it was my good fortune to take the first course in topology that Fall from Professor Hamstrom. I enjoyed it so much that in each of the succeeding three semesters I took a course in topology with her.*
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> *Early in my third semester at Illinois, I decided that I would like her as my doctoral supervisor. The conversation was very close to the following dialogue.*
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> > *"How does one get a PhD supervisor in the Math Department at U of I?"*
> > *There was a short pause, and then M-E said, "Are you asking me to be your supervisor?"*
> > *My reply was, "Yes, I guess I am."*
> > *She replied, "Good, I accept."*
>
> *Her direct, no-nonsense approach suited me well. She was a first-class supervisor. With her guidance I produced a good thesis. Her supervision was crucial to my successful studies at Urbana, and to having a very satisfying subsequent career as a teaching/research mathematician at the University of Auckland.*

And Mary Ellen Rudin, a Moore student who was already completing her 1949 Ph.D. when M-E arrived at Texas, wrote in part:

> *All of our lives, in spite of minimal contact, Mary-Elizabeth and I have had a friendship based on mutual understanding. We were both very unconventional women in all sorts of ways. We were both serious mathematicians. And R. L. Moore almost simultaneously was our major professor for our PhDs. When we entered the mathematical community, there were few other women. While we were students, Moore, who felt using other people's mathematical ideas was immoral, effectively prevented his two women students from contact, either social or mathematical. Later, when Mary-Elizabeth's mathematical*

interests and knowledge became much broader, I cheered her on; and when mine turned to set theory she did the same for me. Mary-Elizabeth was the precise, helpful, referee of several of my papers. … She was a wonderful friend and wonderful mathematician and really interesting gal.

Mary-Elizabeth spent each summer at her summer home in Woods Hole, MA. Sally Hauck, a neighbor in Woods Hole, wrote:

Woods Hole, MA and M-E Hamstrom are synonymous in my mind. She was a fixture every summer. You could count on seeing her car at the post office every morning, with a dog peering over the steering wheel. At 3 P.M. she could be found at Nobska Beach every day—on the beach in nice weather, in her car doing math problems in the rain. I became very fond of her over many years. She could always be counted on to say what she thought in few words, but you clearly knew what she thought. I will miss her a lot—it just won't be the same without her.

An active runner, swimmer, and biker until slowed by failing health, M-E was an avid supporter of Illini sports, especially basketball. She enjoyed classical music and modern dance, and she endowed a travel grant in the Department of Dance to enable advanced graduate dance students to attend conferences and festivals. She was a defender of liberal causes and of women's rights and a generous supporter of the Department of Mathematics and the Mathematics Library. She loved dogs, and in her early years was active in the "companion dog" training program. More recently she could frequently be seen walking her dog on Nobska Beach at Woods Hole or in her neighborhood in Urbana.

Her ashes will be returned to Vineyard Sound near Nobska Beach, where she spent many happy summers swimming and frolicking with her dogs. A lovely, gentle lady, she will be greatly missed by her colleagues and her many friends and neighbors.

Memorials in her memory may be made to the Partnership Fund of the Department of Mathematics at the University of Illinois or to the Champaign County Humane Society.

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[1] Robert L. Moore, *Letter to Miss Hamstrom,* published in *A Century of Mathematics,* American Mathematical Society, Providence, RI (1996) 295-300.

[2] David E. Zitarelli, "The origin and early impact of the Moore method," *Amer. Math. Monthly* 111 (2004) 465-486.

[3] John Parker, *R. L. Moore, Mathematician & Teacher,* Educational Advancement Foundation, Austin, TX and Mathematical Association of America, Washington, D. C., 2005.

—John E. Wetzel