HOPKINS, Margarete C. (Wolf). November 3, 1911–April 3, 1998.
UNIVERSITY OF WISCONSIN (BS 1932, MA 1933, PHD 1935).

Margarete Caroline Wolf was born in Milwaukee, Wisconsin, the second of two daughters of Caroline (Kupperian) (1875–1973) and John Theodore Wolf (1872–1953). Her mother, who was born in Germany and immigrated to the United States in 1892, and her father, born in Milwaukee, were married in January 1898. Both were formally educated through elementary school. In the 1900 census her father's occupation was listed as conductor on the street railroad; later he was a truck gardener. Margarete Wolf's older sister, Louise A. Wolf, was born in Milwaukee in October 1898 and also received a PhD in mathematics from Wisconsin in 1935.

After attending the Jefferson School, a grade school in Greenfield, Wisconsin, and Bayview High School in Milwaukee 1924–28, Margarete Wolf entered the Milwaukee Extension Division of the University of Wisconsin for the year 1928–29 before going to Madison for the remainder of her undergraduate and graduate work. She held a Fanny P. Lewis scholarship 1930–32 and was president of the mathematics club her senior year. In February of her senior year at Wisconsin, she was recommended for a scholarship for the following year. Mark Ingraham, the acting chair, wrote,

> She has now been at the University for five semesters and in all her courses has received an "A" – this in spite of the fact that she has uniformly elected as hard a program as she could; has at times taken correspondence courses during vacations for the fun of it; has entered classes where she was warned that she did not have the prerequisite and then proceeded to lead the class; and during this last semester has taken Mathematics 220 and 265 (The Theory of Analytic Functions and Harmonic Analysis), two of our standard and difficult graduate courses, and has received "A's" in both of these courses. (Ingraham to Dean Slichter, February 25, 1932, folder Budget 1931–33, box 1: 1924–1937, Budget Files, Department of Mathematics, College of Letters and Science, University of Wisconsin–Madison Archives)

Margarete Wolf held scholarships 1932–34 and was a research assistant 1934–35 before receiving her PhD in 1935 as a student of Mark H. Ingraham. Margarete's sister, Louise, thirteen years her senior, also earned her doctorate in 1935 with Ingraham serving as her advisor. In a conversation with one of the authors in 1997, Margarete said that they got their interest in mathematics and in education from their mother.

Ingraham, the department chairman, wrote to E. J. Moulton at Northwestern on August 8, 1935, "By the way, we have just gone through the examinations and completed signing the theses of the two Wolf sisters – Margarete and Louise. They are among the best women doctors I have known. If you know of any positions for corking good people, both mathematicians and teachers, who are at the same time women, please give me a tip" (folder 1933–35, box 1: Personal Correspondence, Correspondence and Manuscripts 1927–1935, Mark H. Ingraham, General Files, College of Letters and Science, University of Wisconsin-Madison Archives). Louise immediately took a position at the University of Wisconsin's Milwaukee Extension Center (now University of Wisconsin-Milwaukee), where she remained until her retirement shortly before her death in 1962. Margarete continued at Wisconsin as

research assistant 1935–36, part-time instructor 1936–38, and also research associate 1937–38. After receiving her doctorate, Margarete Wolf continued to work with Mark Ingraham and published four papers, including her dissertation and two joint with Ingraham, by 1938. She was supported on grants for the work on three of these papers; work on her 1937 paper was supported by the Graduate School at Wisconsin and work on both of her 1938 papers was supported by the Wisconsin Alumni Research Foundation. In addition to publishing papers with Ingraham, while on her research assistantship she helped in the preparation of a paper by him alone that appeared in the February 1938 issue of the *Bulletin* of the AMS. She also gave several talks, including two joint with Ingraham and one joint with her sister. Results from Margarete Wolf's dissertation, published in 1936 in the *Duke Mathematics Journal*, were generalized thirty years later and continued to be referenced into the early 2000s.

In 1938 Margarete Wolf moved to Wayne University (now Wayne State University) in Detroit, where she was an instructor until 1941. On August 31, 1941, she married Edward John Hopkins, who was born in 1908 in New York City. He received his BS in electrical engineering from Wisconsin, worked for RCA 1936–37, and spent the rest of his career, 1938–71, working as an electronics engineer with the US Navy in Brooklyn, where they made their home.

Although it does not appear that Margarete Wolf Hopkins had a regular job when she went to New York, she taught in the evening and extension sessions of Hunter College during the 1942–43 and 1943–44 academic years. Her first child, Edward John, was born on February 14, 1945, in New York. Her daughter, Margaret Louise, was born on January 19, 1949, also in New York. Edward earned a bachelor's degree in chemistry, a master's degree in science education, and a doctorate from the University of Wisconsin in meteorology. Margaret did all of her work at Wisconsin; she received a bachelor's degree in physics, a master's degree in meteorology, and had several years of doctoral research.

Margarete Hopkins returned to her mathematics career in 1958, when she joined the faculty at St. Joseph's College for Women in Brooklyn. She related in 1997 that when she stopped by to donate some periodicals they convinced her to teach part time and then full time. She was assistant professor 1958–64, associate professor 1965–68, and professor and chairman of the mathematics department 1969–78. In 1970 the college changed its name to St. Joseph's College, New York; it became coeducational in 1971.

Edward Hopkins, Margarete's husband, died in October 1985. Margarete Hopkins later moved to Madison and lived with her daughter's family. She and Elizabeth Hirschfelder attended the UW-Madison Mathematics PhD Centennial Conference held in Madison in May 1997; they were then eighty-five and ninety-five, respectively. Margarete Wolf Hopkins died the following April.

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

Dissertation:
1935 [Wolf, M. C.] Symmetric functions of matrices, PhD dissertation, University of Wisconsin, directed by Mark Hoyt Ingraham. Summary: *Summaries of Doctoral Dissertations, University of Wisconsin* 1:129. See also **1936**.

Publications:

1936 [Wolf, M. C.] Symmetric functions of non-commutative elements. *Duke Math. J.* 2:626–37. Published version of PhD dissertation. Reviews: *JFM* 62.1103.01 (R. Kochendörffer); *Zbl* 016.00501 (N. Jacobson). Presented as "Symmetric functions of matrices" to the AMS, Ann Arbor, MI, 10 Sep 1935; abstract: *Bull. Amer. Math. Soc.* 41:486 #274.

1937 [Wolf, M. C.] with M. H. Ingraham. Relative linear sets and similarity of matrices whose elements belong to a division algebra. *Trans. Amer. Math. Soc.* 42:16–31. Reviews: *JFM* 63.0087.04 (O. Teichmüller); *Zbl* 017.09902 (J. L. Dorroh). Presented as "Characteristic spaces associated with the matrix whose elements belong to a division algebra" by M. H. Ingraham to the AMS, Ann Arbor, MI, 13 Sep 1935; abstract by M. H. Ingraham: *Bull. Amer. Math. Soc.* 41:622 #301. Also presented by M. H. Ingraham to the AMS, Cambridge, MA, 3 Sep 1936; abstract: *Bull. Amer. Math. Soc.* 42 (7, pt. 1): 493 #295.

1938a [Wolf, M. C.] Transformation of bases for relative linear sets. *Bull. Amer. Math. Soc.* 44:716–18. Reviews: *JFM* 64.0943.01 (R. Kochendörffer); *Zbl* 021.00403 (W. Franz). Presented as "The transformation of bases of relative linear sets" to the AMS, Indianapolis, IN, 29 Dec 1937; abstract: *Bull. Amer. Math. Soc.* 44 (1, pt. 1): 50 #80.

1938b [Wolf, M. C.] with M. H. Ingraham. Convergence of a sequence of linear transformations. *Amer. J. Math.* 60:107–19. Reviews: *JFM* 64.0166.01 (H. Raff); *Zbl* 018.09801 (H. Ulm). Presented by M. C. Wolf to the AMS, Chicago, 9 Apr 1937; abstract: *Bull. Amer. Math. Soc.* 43:187 #172.

Abstracts not listed above:

1938 [Wolf, M. C.] with L. A. Wolf. The linear equation in matrices with elements in a division algebra. *Bull. Amer. Math. Soc.* 44 (9 pt. 1): 639 #384. Presented by M. C. Wolf to the AMS, New York City, 6 Sep 1938.

1939 [Wolf, M. C.] Transformations of bases for relative sets over a non-commutative field. *Bull. Amer. Math. Soc.* 45:686 #394. Presented to the AMS, Madison, WI, 8 Sep 1939.

References to: AmMSc 6, WhoAmW 8–9.

Other sources: PhD dissertation vita 1935; Owens questionnaire 1940; Smithsonian questionnaire 1982; conversation with author, 23 May 1997; University of Wisconsin–Madison Archives; US Census 1900, 1920 WI.

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