STOKES, Ruth W. October 12, 1890–August 27, 1968.
Winthrop Normal and Industrial College of South Carolina (BA 1911), Vanderbilt University (MA 1923), Duke University (PhD 1931).

Ruth Wyckliffe Stokes was born in Greenville, South Carolina, the youngest of six children of Frances Emily (Fuller) (1857–1915) and William Henry Stokes (b. 1850), natives of South Carolina who married in 1879. In the 1880 census her father was listed as an MD and a farmer; in 1900 he was listed as a farmer. Her older siblings were John T. (1880–1963), Marie V. (1881–1957), Franklin F. (1883–1943), Sara F. (1885–1977), and Clarence E. (1887–1941). In 1910, five of the adult children were living at home with their widowed mother in Mountville, South Carolina. No occupation was given for the nineteen-year-old Ruth, her sister Marie was a public school teacher, two brothers were farmers, and one was at school. Although there is conflicting information about the birth year for Ruth Stokes, census records indicate that 1890 is the most likely date.

Stokes attended Winthrop Normal and Industrial College of South Carolina (after 1920, Winthrop College, the South Carolina College for Women; now Winthrop University), then a women's college in Rock Hill, South Carolina, for four years and graduated in 1911. She had six teaching positions during the next dozen years. In 1911–12 she taught in grade school in Denmark, South Carolina; the next year she taught high school mathematics, English, and French in the same town; in 1913–16 she was principal of the Ebenezer Graded School in Rock Hill, South Carolina; the following year she was head of the mathematics department at Synodical College in Fulton, Missouri; in 1917–20 she taught high school mathematics and English in Spartanburg, South Carolina; and in 1920–22 she taught high school mathematics in Greenville, South Carolina.

According to material in the Winthrop University Archives, Stokes indicated in January 1922 that she had received certificates in mathematics and English for work done at Columbia University (six weeks), the University of Virginia (six weeks), and the University of Chicago (six weeks). She also did correspondence work at the University of Chicago. Stokes held a fellowship at Vanderbilt 1922–23 and received her master's degree in 1923. She spent the next five years as assistant professor in a four-person mathematics department at Winthrop College. During the summers of 1926, 1927, and 1928 she attended summer school at the University of Wisconsin.

In the autumn of 1928 Stokes enrolled at Duke University, where she was a graduate student and an assistant 1928–31. She received her PhD, the first awarded in mathematics by Duke, in 1931. Apparently at the time of her departure for Duke for her doctoral work, Stokes felt that she had a private understanding with the president of Winthrop that she would return to her position there after receiving her degree. However, he died in 1928, and his replacement was not aware of such an understanding. Thus, after Stokes received her degree in 1931, she did not return to Winthrop but instead remained at Duke as an instructor 1931–32. In 1931 Stokes published her dissertation in the *Transactions* of the AMS. Her dissertation results were discussed in some detail in "Different motivations and goals in the historical development of the theory of systems of linear inequalities" by Tinne Hoff Kjeldsen (*Arch. Hist. Exact Sci.* 56 (2002): 469–538). He noted, "The innovative element in

Stokes' contribution to the literature she is building on is the *method* she invoked in developing the theory and the numerical solution method she derived" (p. 510).

The next three years, 1932–35, Stokes was an associate professor at North Texas State Teachers College (now North Texas State University) in Denton. The following year she was professor and head of the department at Mitchell College in Statesville, North Carolina. She also taught in the summer of 1936 at the Asheville Normal and Teachers College in North Carolina. In the fall of 1936 Stokes returned to Winthrop College, where she remained for most of the next ten years as professor of astronomy and mathematics and as department head. While there she was active in a number of professional organizations and, in 1940, was a member of the Solar Eclipse Expedition to St. Augustine, Florida. During the summer of 1941 Stokes attended the summer session at Brown University for advanced instruction and research in mechanics. At some point in the period 1942 through 1946, during and after World War II, she was an instructor of military cryptography and cryptanalysis.

In the 1940s Stokes had disputes with the administration at Winthrop, partly over issues of funding for the mathematics department. These resulted in her leaving in 1946, when she joined the faculty at Syracuse University as assistant professor. Nancy Cole became a colleague a year later. Stokes remained at Syracuse the rest of her career. She held a dual position in mathematics and education in 1947–48 and was promoted to associate professor in 1953. Stokes was granted a year's leave of absence in 1956–57 to accept a visiting professorship at the American University in Beirut. She returned home in December 1956 to be with her sister, Marie V. Stokes, who was at that time in the Greenville, South Carolina, hospital. Marie Stokes died the following August. Ruth Stokes retired from Syracuse as associate professor emeritus in June 1959 after which she was associate professor, 1959–60, at Longwood College (now Longwood University) in Farmville, Virginia.

Stokes was always professionally active. In the early 1940s she was vice-chairman and then chairman of the Southeastern Section of the MAA, and she was president of the mathematics section of the South Carolina Education Association. She was a member of the board of directors of NCTM 1944–47 and was a member of their committee on visual aids. Stokes was particularly interested in mathematical models; she gave a number of talks on this subject in the 1940s and exhibited a collection of models at the International Congress of Mathematicians at Cambridge, Massachusetts, in 1950. While she was at Syracuse she was the first editor-in-chief of the *Pi Mu Epsilon Journal*, whose first issue was November 1949 and whose parent organization was founded at Syracuse in 1914. She belonged to the New York Academy of Sciences, the South Carolina Academy of Science, and the Astronomical Society of the Pacific.

Stokes was also a member of Pi Lambda Theta, an honorary and professional association in education; Chi Delta Phi, an honorary literary society; and Sigma Kappa, a social sorority. Around 1940 she described herself as a Methodist and a Democrat with art (oil paintings, florals, landscapes) as a hobby and golf as her favorite recreation.

After her retirement, Stokes moved to her family home in Mountville, South Carolina. She died at age seventy-seven in the hospital in nearby Clinton in 1968 and was buried in the Mountville Cemetery. An obituary noted that she was a member of the Mountville Presbyterian church, the Daughters of the American

Revolution, and the National League of American Pen Women. She was survived by one sister, Sara S. Hunter of Laurens, South Carolina.

Organizational affiliations: AMS, MAA, NCTM, AAAS, Sigma Delta Epsilon, AAUW, AAUP, Sigma Xi, Pi Mu Epsilon.

Thesis and dissertation:
1923 History of the fundamental theorem of algebra. Master's thesis, Vanderbilt University.
1931 A geometric theory of solution of linear inequalities. PhD dissertation, Duke University, directed by Joseph Miller Thomas. Typescript. Printed version, 1931, reprinted from *Trans. Amer. Math. Soc.* 33:782–805.

Publication:
1931 A geometric theory of solution of linear inequalities. *Trans. Amer. Math. Soc.* 33:782–805. Published version of PhD diss. Reviews: *JFM* 57.0249.02 (B. H. Neumann); *Zbl* 002.24802 (K. Hofreiter). Presented by title to meeting of the AMS, New York City, 3 Apr 1931; abstract: *Bull. Amer. Math. Soc.* 37:171 #140.

Abstracts not listed above:
1936a Quadratic factors of symbolic forms. *Amer. Math. Monthly* 43:459 #17. Presented to a meeting of the MAA, Columbia, SC, 17–18 Apr 1936.
1936b Symbolic cubic forms in six variables. *Amer. Math. Monthly* 43:8 #5. Presented to the MAA, Lubbock, TX, 20 Apr 1935.
1939 Materials and devices as aids to the teaching of mathematics. *Amer. Math. Monthly* 46:389 #26. Presented to a meeting of the MAA, Charleston, SC, 24–25 Mar 1939.
1940a Aids to motivation in junior college mathematics. *Amer. Math. Monthly* 47:517 #21. Presented to a meeting of the MAA, Athens, GA, 29–30 Mar 1940.
1940b Four models on conic sections for use in projective geometry. *Amer. Math. Monthly* 47:516 #2. Presented to a meeting of the MAA, Athens, GA, 29–30 Mar 1940.
1941 A demonstration of mathematical models and how they are constructed. *Amer. Math. Monthly* 48:424 #21. Presented to the MAA, Chapel Hill, NC, 28–29 Mar 1941.
1946 Mathematical program for college majors who plan to teach. *Amer. Math. Monthly* 53:488 #8. Presented to a meeting of the MAA, Raleigh, NC, 19–20 Apr 1946.
1949 Some models useful in the teaching of high school and college mathematics. *Amer. Math. Monthly* 56:144 #5. Presented to the MAA, Schenectady, NY, 1 May 1948.
1953 Conic sections and other curves on the screen and in space. *Amer. Math. Monthly* 60:597 #4. Presented to a meeting of the MAA, West Point, NY, 8–9 May 1953.

Presentation not listed above:
Equipping mathematics majors to teach in the high schools of the future. Presented to the NCTM, Cleveland, OH, 22 Feb 1946.

References to: AmMSc 5–8, 9P–10P; AmWom 1935–40; WhoAmW 1.
"Dr. Stokes, Mathematician, Dies at 76." Unidentified newspaper clipping.
"Ruth Wyckliffe Stokes (October 12, 1891 – August 1968)." (Historical Biography) *Southeastern Section Newsletter* (Spring 2008) 27: 19–23.

Other sources: Owens questionnaire 1937; Brown University Archives; communications with Duke University Archives and Winthrop University Archives; Tinne Hoff Kjeldsen, "Different motivations and goals in the historical development of the theory of systems of linear inequalities," (*Arch. Hist. Exact Sci.* 56 (2002): 469–538); US Census 1880, 1900, 1910, 1920 SC.

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