CRATHORNE, Charlotte Elvira (Pengra). May 30, 1875–February 9, 1916. University of Wisconsin (BA 1897, PhD 1901).

Charlotte Elvira Pengra was born in Juda, Wisconsin, the eldest of five children of Mary Ellen (Preston) (b. 1853) and Winfield Sherman Pengra (b. 1847), both natives of Wisconsin. In 1880 the family was living in Jefferson, Wisconsin, near Madison, and her father was a farmer; in 1900 they lived in Madison and he was a landlord. All of the five Pengra children received bachelor's degrees from the University of Wisconsin; in addition to Charlotte, they were Mabel (b. 1877), Preston (b. 1880), Delia (b. 1882), and Marshall (b. 1885), and they earned their degrees in 1899, 1902, 1904, and 1905, respectively.

Charlotte Pengra graduated from the Madison, Wisconsin, high school before attending the University of Wisconsin, from which she received her BA in 1897, the same year that Wisconsin awarded its first PhD in mathematics. She then taught in high schools in Fox Lake and Sparta, both in Wisconsin. In a letter to Charles S. Slichter, inquiring about a possible fellowship for graduate study at the University of Wisconsin, written May 12, 1899, from Sparta, Pengra indicated that she wanted a more complete college education for its own sake and because she would like to teach mathematics to students more advanced than in the high school. She indicated that she wanted to take a PhD, probably from Wisconsin, and that if she had the fellowship she would not teach again until she received the degree. Whereas the financial question was "not very pressing," she wrote that if she did not get the fellowship she would stay in Sparta (Biographical Files, Charles S. Slichter, Box 35, Miscellaneous University Correspondence 1886–1946, University of Wisconsin-Madison Archives). She did receive it and completed her work for the PhD with L. W. Dowling two years later, as the third Wisconsin PhD in mathematics. After receiving her doctorate, Pengra was in charge of the mathematics department of a high school in Elgin, Illinois, for three years.

On June 21, 1904, in Madison, Charlotte Pengra married the English-born Arthur Robert Crathorne (1873–1946), who had been a graduate student and instructor in mathematics at Wisconsin. He had come to the United States with his family as a young boy, grew up in Illinois, received a bachelor's degree from the University of Illinois in 1898, was a tutor in mathematics and astronomy at the University of Maine, and had been at Wisconsin since 1900. Shortly after the wedding they sailed from Montreal to Liverpool to spend some time in England before continuing to Germany.

The Crathornes spent the years 1904 through 1907 studying mathematics at Göttingen, where A. R. Crathorne received his PhD in 1907. Their daughter Mary Preston was born on November 28, 1906. On their return from Göttingen, A. R. Crathorne took a position at the University of Illinois. The Crathornes had two more children: Anne Harrison, born July 31, 1909, and Arthur Robert Jr., born June 5, 1911.

Charlotte Crathorne's daughters report that she was a collaborator in the preparation of *College Algebra* by H. L. Rietz and A. R. Crathorne in 1909, although she is not mentioned in the extensive acknowledgements in the preface to the book.

After an illness of about three years, Charlotte Crathorne died of breast cancer at her parents' home in Brodhead, Wisconsin, in 1916 at age forty. She was buried

in Juda, Wisconsin. Arthur Robert Crathorne remarried in 1917 and spent the rest of his career at Illinois.

Organizational affiliation: Phi Beta Kappa.

Dissertation:
1901 [Pengra, C. E.] On functions connected with special Riemann surfaces, in particular those for which $p = 3$, 4, and 5. PhD dissertation, University of Wisconsin, directed by Linnaeus Wayland Dowling. Printed version, 1904, Madison, WI, reprinted from *Trans. Wisc. Acad. Sci., Arts, Letters* 14:655–69.

Publication:
1904 [Pengra, C. E.] On the conformal representation of plane curves, particularly for the cases $p = 4$, 5, and 6. *Trans. Wisc. Acad. Sci., Arts, Letters* 14:655–69. Published version of PhD dissertation. Talk with same title presented by title to the Wisconsin Academy of Sciences, Arts, and Letters, Milwaukee, 30 Dec 1903.

References to: BioWMath.
"Beautiful Home Wedding," *Madison Democrat*, 22 June 1904.

Other sources: Private correspondence with Lilah Pengra; University of Wisconsin-Madison Archives (Biographical Files, Charles S. Slichter, Box 35, Miscellaneous University Correspondence 1886–1946); NatCAB 35 (Crathorne, Arthur Robert); communication with Mark McKinzie 1998; Ray F. Pengra and Mary Markham, *Genealogies: Morse, Mason, Lyon, Pengra* (Brodhead, WI: The Independent-Register, 1959); US Census 1880, 1900, 1910, 1920 WI, 1910 IL; Wisconsin death certificate.

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