WHEELER, Anna (Johnson) Pell. May 5, 1883–March 26, 1966.
University of South Dakota (BA 1903), University of Iowa (MA 1904), Radcliffe College (MA 1905), University of Chicago (PhD 1910).

Anna Johnson was born in Calliope (now Hawarden), Iowa, the youngest of three surviving children of four born to Amelia (Friberg or Frieberg) (1854–1935) and Andrew Gustav Johnson (1846–1920), both from Skaraborglän, Wästergötland, Sweden. Her parents had each immigrated to the United States in 1872, married several years after their arrival, and settled in Union Creek in Dakota Territory. Her father first farmed but later was a furniture dealer and undertaker. Her sister, Esther Carolina (1879–1979), and her brother, Elmer (b. 1881), were both born in Dakota Territory. In 1882 the family moved to Iowa, first Calliope and then, in about 1891, to nearby Akron. Anna Johnson attended public school in Akron and graduated from high school there in 1899. According to Esther Johnson's granddaughter Nancy J. Owens, who spoke at an AWM-sponsored symposium in honor of her great aunt, Amelia Johnson regretted not having received an education and sent her two daughters, but not her son, to college.

In 1899 Anna Johnson entered the University of South Dakota in Vermillion, about twenty-five miles from Akron; her sister, Esther, had entered the previous year. Anna first took courses that allowed her to complete the formal entrance requirements of the school. When the census was taken in early June 1900, she was enumerated as a boarder in Vermillion and with her family in Akron, where her father was a furniture dealer, her sister was a school teacher, and her brother was a day laborer.

Anna Johnson continued her studies at South Dakota, where her mathematical talent was recognized by Alexander Pell, who "found his prodigy" after seeing her approach to an original geometry problem he had assigned (Hardesty and Unruh, "The Enigma of Degaev-Pell," 17). Pell and his wife, Emma, took several students, among them Anna and Esther Johnson, into their home to live.

With Pell's strong encouragement, Johnson graduated from South Dakota in 1903 and went to the University of Iowa on a scholarship. She received her master's degree in 1904 and then went to Radcliffe College with a scholarship. She received her second master's degree in 1905. Still on scholarship she stayed at Radcliffe until 1906, when she went to the university in Göttingen on an Alice Freeman Palmer fellowship from Wellesley College. On July 9, 1907, she married Alexander Pell in Göttingen. Pell's first wife had died in December 1904, and he and Johnson had remained in contact over the years.

Pell was born Sergei Petrovich Degaev in 1857 in Moscow, Russia. After attending military schools Degaev received an army commission in 1876. He retired from the service in 1879 and entered engineering school in St. Petersburg. Toward the end of 1880 he joined the People's Will, a group that was responsible for the assassination of Tsar Alexander II in March 1881. Degaev was among those arrested but was released a few weeks later. He graduated in June and married Liubov Nikolavena Ivanova in November 1881. His subsequent activities in, and escape from, Tsarist Russian were described in a 1972 article, "The Enigma of Degaev-Pell," and were more fully depicted in a 2003 monograph, *The Degaev Affair*. In November 1882 Degaev was sent to Odessa by the People's Will to set up a printing press and was soon arrested there. He contacted the head of the secret police, Georgii Sudeikin, hoping, according to his sister, "to achieve revolutionary goals through the government" (Pipes, *The Degaev Affiar*, 67); he became a collaborator and was allowed to escape. However, upon the arrest of many members of the People's Will, Degaev confessed his collaboration to this group, promised to assassinate Sudeikin, and did so in December 1883. After the assassination Degaev was expelled from the People's Will but was offered money to travel to America. Furthermore, in February 1884 the Russian authorities circulated a poster with his picture and offered a significant reward.

Degaev and his wife fled to England and then came to North America. This part of his life was described in a 1921 obituary by Charlotte Scott:

> His early history is that of so many of his compatriots in that sorely disturbed country, driven into futile revolutionary courses by his patriotism and forced by failure to leave his native land. . . . Apparently he went from place to place, doing whatever he could find to do; one of his earliest jobs was in a printing office in a small Canadian village. These early struggles must have occupied a few years before he went to St. Louis, where he secured a position in a chemical factory in 1886. ("Dr. Alexander Pell," *Bryn Mawr College News*, 9 Feb 1921, 2)

In 1891 Degaev and his wife, using the names Alexander and Emma Pell, became US citizens, and Alexander Pell began his study of mathematics at Washington University in St. Louis under the direction of C. M. Woodward. He began graduate studies at Johns Hopkins University in 1895 and was awarded his PhD in 1897. He was appointed professor at South Dakota that year and not long afterwards had Anna Johnson as a pupil. Thus, despite "his constant fear of revolutionary retribution" (Pipes, 119), Pell traveled to Göttingen in the summer of 1907 in order to marry his protégé. Both Alexander and Anna Pell returned to the United States in August.

The year 1907 also marked the opening of the University of South Dakota's School of Engineering and the appointment of Pell as its first dean. Anna J. Pell taught at South Dakota during the fall semester of 1907 and returned alone to Göttingen in the spring of 1908. In August 1908, Alexander Pell, who had been starred in the 1906 edition of *American Men of Science*, resigned from his position as dean of the College of Engineering at South Dakota and took a position as an assistant professor at the Armour Institute of Technology (now Illinois Institute of Technology) in Chicago. In December 1908, when she was almost ready to take her final examination with David Hilbert in Göttingen, Anna J. Pell returned to the United States without her degree and in January 1909 enrolled at the University of Chicago.

Anna J. Pell received her PhD magna cum laude in 1910 from the University of Chicago. While she was officially a student of E. H. Moore, she wrote at the time that her dissertation, in the new field of functional analysis, had been written independently while in Göttingen. Moore was unable to secure Anna Pell a position at a research institution, so she remained in Chicago and taught a class at the university during the fall. In January 1911, Alexander Pell, by then an associate professor at the Armour Institute, suffered a stroke while teaching. Anna J. Pell substituted for her husband for the remainder of the semester. His only teaching after the stroke was for a semester at Northwestern University in 1915–16.

In the fall of 1911 Anna Pell became an instructor at Mount Holyoke College in Massachusetts. In 1914 she was promoted to associate professor. Four years later she moved to Bryn Mawr College as associate professor to fill the vacancy created when Olive C. Hazlett went to Mount Holyoke College. Bryn Mawr, whose mathematics department was headed by Charlotte A. Scott, had a more active department than Mount Holyoke and also had a PhD program. The department's journal club met regularly, and Anna Pell was an active participant, often giving both the first and last talks of the semester.

Early in 1921 Alexander Pell died. That same year the third edition of *American Men of Science* appeared with Anna J. Pell starred. The following year, Anna Pell's first PhD student, Margaret Buchanan (Cole), earned her degree. In 1923 Pell was appointed to the American Mathematical Society's committee on policy and budget. Later that year the AMS was incorporated and she was appointed to the original board of trustees, which consisted of thirty-one members; Anna J. Pell and Clara E. Smith of Wellesley College were the only women on the board. While neither Pell nor Smith was elected in 1924 to the smaller five-member board of trustees, Pell was elected to serve on the council of the

AMS for 1924–26. Also, in 1923 Pell became the first woman to deliver an invited address at a meeting of the AMS; the next was delivered by Emmy Noether in 1934.

Pell became head of the department after Charlotte Scott's retirement in 1924. She was named Alumnae Professor of Mathematics the following year. In July 1925 she married Arthur Leslie Wheeler (1861–1932), a Connecticut-born, Yale-educated classicist who had been on the faculty at Bryn Mawr since 1900 and who was widowed before Pell joined the Bryn Mawr faculty. Before their marriage, Arthur Wheeler had accepted a professorship at Princeton University. Their marriage was announced in the *Bulletin* of the AMS, which notes, "they will continue to occupy their professorships and they will be at home after this fall in Princeton and in Bryn Mawr" (31 (1925): 573). Shortly before her marriage to Wheeler, Anna Pell made a contribution in honor of Alexander Pell to the society's endowment fund.

In 1927 D. V. Widder, an associate on the Bryn Mawr mathematics faculty, was promoted to associate professor, thus allowing Anna Pell Wheeler to become a non-resident lecturer, teach only part time, and live full time in Princeton, New Jersey. She continued this arrangement for the next four years except for a year spent in Europe. While still living in Princeton, she returned to her professorship in 1931 when Widder, who later married one of Wheeler's doctoral students, left for a position at Harvard. The following year Arthur Wheeler died and Anna Pell Wheeler moved back to Bryn Mawr, Pennsylvania.

While she was married to Arthur Wheeler, Anna Pell Wheeler was particularly active in both the AMS and the MAA. In addition to finishing her term on the AMS council, in 1926 she served on the first MAA Chauvenet Prize committee and the following year began a fifteen-year appointment as an associate editor of the *Annals of Mathematics* representing the MAA. She directed three dissertations while she lived in Princeton (Marion Cameron Gray 1926, Laura Guggenbühl 1927, and Rose Lucile Anderson 1930). In 1927 Wheeler became the first woman to deliver the AMS colloquium lectures; the next by a woman were delivered in 1980 by Julia Robinson. Wheeler's lectures do not appear in the Colloquium Publication Series although after Arthur Wheeler's death she apparently planned to rewrite them in book form. After his death in 1932, Anna Pell Wheeler published only one more paper, that in 1935.

After Wheeler's return to full-time teaching, Bryn Mawr joined the University of Pennsylvania and Swarthmore College in a cooperative plan for graduate study. Wheeler hired strong research faculty during the 1930s. Gustav A. Hedlund was at Bryn Mawr from 1930 to 1939; Emmy Noether joined the Bryn Mawr faculty in 1933, became a close friend of Wheeler, and remained until her death in April 1935; Nathan Jacobson stayed only 1935–36; and Hilda Geiringer came in 1939 and stayed until 1944, leaving soon after marrying Richard von Mises of Harvard. During this period Wheeler supervised four more dissertations (Olive Margaret Hughes 1934, Vera Ames (Widder) 1938, Dorothy Maharam (Stone) 1940, and Josephine Mitchell (1942). She also served on the College Entrance Examination Board Commission on Examinations in Mathematics that was appointed in 1933 and reported early in 1935. Later she served several terms on the AMS committee to determine the use of interest accrued from special funds and was chairman of the Philadelphia Section of the MAA in 1944.

Two women's colleges, New Jersey College for Women and Mount Holyoke College, awarded Wheeler honorary DSc degrees, in 1932 and 1937, respectively. Letters written at the time of her retirement in 1948 and talks given at a symposium about her life and work in 1980 indicate that she treated her students and young faculty to the same type of care and encouragement that she had received from Alexander and Emma Pell when she was a student. In 2006 Anna Pell Wheeler was one of forty-five women mathematicians featured with an individual poster containing a brief biography at the "Connecting Women in Mathematics Across Canada" workshop held at the Fields Institute. She and Grace Bareis were the only two women in our study so honored.

After her retirement Anna Pell Wheeler continued to live in Bryn Mawr but spent summers in a cottage, named QED, that she and Arthur Wheeler had bought in St. Hubert's, New York, in the Adirondack Mountains. She also spent some time in northern California, attending section meetings of the MAA in San Francisco in January 1949 and 1951. In 1953 she endowed a mathematics scholarship at the University of South Dakota honoring Alexander Pell. In 1960 anonymous gifts in honor of Anna Pell Wheeler and in memory of Charlotte Angas Scott established funds for prizes awarded annually in their names. Anna Pell Wheeler was eighty-two when she died in Bryn Mawr in March 1966 a few months after suffering a stroke. She is buried next to Alexander Pell in the Lower Merion Baptist Church Cemetery in Bryn Mawr, which accepts members of all faiths for burial.

Organizational affiliations: AMS, MAA, AAAS, Sigma Xi.

Thesis and dissertation:

1904 [Johnson, A.] The extension of the Galois theory to linear differential equations. MA, University of Iowa.

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Publications:

1910a [Pell, A. J.] Existence theorems for certain unsymmetric kernels. *Bull. Amer. Math. Soc.* 16:513–15. Reviews: *JFM* 41.0392.02 (E. Lampe); *Rev. semestr. publ. math.* 19, pt. 1: 7 (D. J. Korteweg).

1910b [Pell, A. J.] On an integral equation with an adjoined condition. *Bull. Amer. Math. Soc.* 16:412–15. Reviews: *JFM* 41.0392.01 (E. Lampe); *Rev. semestr. publ. math.* 19, pt. 1: 6 (D. J. Korteweg). Presented to the AMS, Chicago, 31 Dec 1909; abstract: *Bull. Amer. Math. Soc.* 16:298 #9.

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