

Cecilia Payne Gaposchkin (1900-1979)

During the total solar eclipse on 29 May 1919, Arthur Eddington carried out measurements of the bending of light from distant stars by the mass of our own star, the sun. Albert Einstein had reported his prediction based on the general theory of relativity of the bending angle (1.75 arc seconds, about twice as much as the classical value derived from Newton's theory) at a meeting of the Prussian Academy in Berlin in November 1915. Eddington's measurements agreed with Einstein's prediction — and were widely publicized as corroboration of Einstein's new theory of gravity. Einstein was catapulted to world fame as a result.

Eddington's astronomy course at the University of Cambridge enthused a female student of the name Cecilia Payne, who was 19 when Eddington confirmed Einstein's theory. In 1923, upon earning a B.A. from Cambridge, Cecilia, with Eddington's blessing, crossed the Atlantic to continue her studies of astronomy under Harlow Shapley at the Harvard College Observatory. Cecilia was led to believe that women had more opportunities for astronomical research in the U.S. than in England. In 1925, she defended her PhD thesis, which was characterized by a leading astronomer of her day, Otto Struve, as the "most brilliant thesis ever written in astronomy." Indeed, in her thesis, Cecilia established that, despite appearances, all stars are made essentially of the same stuff, namely hydrogen and helium (the differences in appearance are due to different surface temperatures of the stars). In 1934 she married a fellow astronomer, Sergei Gaposchkin, and has been known since as Cecilia Payne-Gaposchkin (or Mrs. G to her colleagues and students). In 1938 she was named lecturer with tenure at the Harvard Observatory and in 1956 professor of astronomy, the first woman promoted to a full professorship from within Harvard. Cecilia's portrait, please see below, now embellishes the Faculty Room at

University Hall, the backdrop of the statue of John Harvard in Harvard Yard. There are only two other woman faculty included in this gallery. Currently, 40% of non-tenured and 27% tenured faculty at Harvard are women.



Portrait of Cecilia Payne-Gaposchkin (2001) by Patricia Watwood who supposedly took inspiration from Vermeer's *The Astronomer* (perhaps in the choice of colors and the mood ...). Commissioned by Georgene & Dudley Herschbach.

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