

Dame Mary Cartwright DBE FRS (Mathematics, 1919)

1900-1998

Mathematician Dame Mary Cartwright was a pioneer of what is now known as chaos theory, and served as Mistress of Girton College, University of Cambridge, between 1949 and 1968 (the longest-serving Mistress in the history of the College).

She was the first woman mathematician to be elected to the Royal Society in 1947 and became the first woman to receive the Society's Sylvester Medal (1964). She was also the first woman to be President of the Mathematical Association (1951-1952), and the first woman to be President of the London Mathematical Society (1961-1963).

Born in Northamptonshire in 1900, Mary Cartwright came up to St Hugh's in 1919 to read Mathematics. Having achieved First Class Honours for her undergraduate degree (as the first woman to finish the course), she went on to complete her DPhil under G. H. Hardy on 'The Zeros of Integral Functions of Special Types' in 1930. Her thesis was examined by J.E. Littlewood, one of the most significant figures in British pure mathematics of the period, with whom she established an enduring collaboration. Together, they were among the first to recognise the combined power of topological and analytical methods to tackle deep problems in differential equations, and they discovered what later become known as chaos theory.

In 1930, she moved to Cambridge to become Yarrow Research Fellow at Girton College, where she continued to work on the topic of her doctoral thesis. She soon rose through the ranks at Girton, becoming Fellow and Director of Studies in Mathematics in 1934. She was appointed a University Lecturer in 1935, and became Mistress of Girton College in 1949, just a year after women had been admitted to full membership of the University. She served on many University committees, including the Cambridge University women's appointments board and Education Syndicate, and as the President of the Cambridge Association of University Women from 1957 to 1960. She was appointed a University Reader in the theory of functions in 1959.

On her retirement in 1968 she was appointed a Life Fellow of Girton College and Emeritus Reader, and she worked at universities in England, America and Poland before returning to Cambridge, where she was one of the editors of *The Collected Papers of G H Hardy*.

Her book, *Integral Functions*, was published in 1956. Over her lifetime, she wrote over ninety articles published in mathematical journals, which made important contributions to the theory of functions and differential equations.

Mary Cartwright received awards, medals and honorary degrees from several universities and societies across the world, including an honorary doctorate from Oxford in 1966 and an Honorary Fellowship from St Hugh's College. As well as being the first woman to receive the Royal Society's prestigious Sylvester Medal in 1964 (for her contributions to analysis and the theory of functions of a real and complex variable), she was also the recipient of the London

Mathematical Society's Dr Morgan Medal for outstanding contribution to mathematics in 1968. Mary Cartwright was appointed DBE in 1969. She died in 1998 at the age of 97.

Sources

Bollobás, Béla, 'Littlewood, John Edensor', *Oxford Dictionary of National Biography* 2004

Series, CM, 'Cartwright, Dame Mary Lucy', *Oxford Dictionary of National Biography* 2004

The Times Obituary for Dame Mary Cartwright reprinted in *St Hugh's College Chronicle* 1997-98, no.71, pp.34-35