

Prof. T. J. Willmore
A Passion for Mathematics

Thomas James Willmore was most unusual, a man of science with outstanding communication skills. An internationally renowned differential geometer, an exuberantly memorable lecturer, an outstandingly inspirational mentor to his research students, and a wartime boffin, Willmore will be remembered with great admiration and affection. His unselfish delight in the advancement of differential geometry, his pastoral care for and wise guidance of his graduate students, and his emphasis upon the quality of his own teaching as well as the quality of maths teaching throughout the school and university curriculum - all these things mattered deeply to him. Devoted to his family, he was well known for his generous-spirited friendship, his wit and humour, his wealth of entertaining stories, and his relish for good food.

He attended Kings College, London, where he was introduced to modern mathematics, his life-long passion, particularly the branch known as differential geometry. Following his degree, he was appointed a lecturer, but the outbreak of war intervened before he took up his duties.

During WWII Willmore served as a Scientific Officer with the Air Ministry, a boffin. He worked mainly on the design of barrage balloons. He made many important discoveries ranging from the precise height at which the balloons should fly to the exact tensile strength of the tethering cables in order to cause maximum damage to enemy aircraft. Another vital discovery was the design of a new linkage device to enable barrage balloons to remain tethered to the ships of the Arctic convoys supplying Russia. An unforeseen spin-off resulted in a raid utilising meteorological balloons upon German heavy industry that disrupted the electrical and telephonic infrastructure of the Ruhr valley. Throughout the war, in those rare moments of inaction, he wrote his doctoral thesis on general relativity theory and cosmology.

After the war Willmore took up a lectureship in maths at the University of Durham. Moving to Liverpool University, he became senior lecturer, then a reader and he returned to Durham as professor of pure mathematics. Willmore will be chiefly remembered as the developer of a branch of differential geometry, so-called Willmore surfaces, thus named by the pre-eminent specialist in differential geometry, S. S. Chern. He was instrumental in bringing the newly launched annual London Mathematical Society Maths Symposia to Durham in 1977, where it has remained. He was an able administrator and organiser. Both he and his wife Joyce, an eminent local artist, were invited to join the Senior Common Rooms of several colleges, including Collingwood College, where he was elected Honorary Life Fellow in 1999.

He wrote four influential textbooks about differential geometry and was working on his fifth at the time of his death. His regular attendance at the prestigious Mathematisches Forschungsinstitut, Oberwolfach, Germany, where

attendance is by invitation only, is an index of his international stature. The German physicist, Martin Schmidt, recently announced a proposed proof of the Willmore Conjecture, first postulated in the mid-1960s and the subject of widespread and intensive effort ever since. This was a highlight of Toms life's work. The mathematics developed to describe and analyse Willmore surfaces has entered the mainstream of modern science, annually generating over 600 research papers published not only in mathematics, but also in disciplines ranging from fundamental particle physics to colloidal chemistry. His reputation abroad in the field of differential geometry cannot be underestimated - he has profoundly influenced its development in the UK and in countries as far ranging as Germany, Belgium, Italy, the USA and Japan.

Thomas James Willmore: born 16 April 1919, Gillingham, Kent; B.Sc. (1939), M.Sc. (1941), Kings, London, Ph.D. London (1943), D.Sc. London (1959), Hon. D.Sc. Open University (1993); Scientific Officer, Air Ministry (1939-46); appointed Lecturer in Mathematics, Kings College, London (1939), but unable to take up this position due to the outbreak of war; Lecturer in Mathematics, University of Durham (1946-54); Senior Lecturer (1954-62), Reader (1962-65) University of Liverpool; Professor of Pure Mathematics, University of Durham (1965-84), Emeritus Professor (1984-2005); Head, Dept. of Mathematical Sciences (1965-71, 1973-75, 1977-79), Dean of the Faculty of Science (1967-69); Vice-President, London Mathematical Society (1978-80); foreign member, L'Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique (1977-2005); Leverhulme Fellowship (Emeritus, 2004-2005); Assoc. Fellow, Royal Photographic Society; married Joyce Miller (1940- d. 1996), one daughter, Helen; married Dr. Gillian Boughton (2002- 2005), Vice-Principal, St. Marys College, University of Durham; died 20 February 2005.

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