

McLeod, John Bryce [*known as J. Bryce McLeod*]

(1929–2014)

- John Ball
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McLeod, John Bryce [*known as J. Bryce McLeod*] (1929–2014), mathematician, was born at 28 Camperdown Road, Aberdeen, on 23 December 1929, the son of John McLeod, civil engineer, and his wife, (Adeline) Annie, *née* Bryce. He was, as his father before him, the top student at Aberdeen grammar school, following which in 1950 he obtained an MA degree with first-class honours in mathematics and natural philosophy at the University of Aberdeen, and in 1952 a BA with first-class honours in mathematics at the University of Oxford. On the advice of his tutor at Oxford, the mathematician Theodore Chaundy, he then spent a year at the University of British Columbia as a Rotary Foundation fellow. After national service in the education branch of the Royal Air Force, McLeod returned to Oxford in 1955, where in 1958 he obtained a DPhil in mathematics for his dissertation, ‘Some problems in the theory of eigenfunction expansions’, written under the supervision of Edward Charles Titchmarsh, a renowned expert in mathematical analysis and the Savilian professor of geometry. His work in this period included joint papers with Chaundy and Titchmarsh, and covered problems in algebra, eigenvalues of linear differential operators, convexity, and functional equations. While still a research student he married Eunice Martin Third, a hospital nurse four years his junior, whom he had met while they were both at school, the marriage taking place on 3 August 1956 in Aberdeen. They had four children, Kevin, Callum, and twins, Bridget and Patrick.

From 1958 to 1960 McLeod was lecturer in mathematics at the University of Edinburgh, before returning to Oxford again as fellow and tutor in mathematics at Wadham College. Within a decade or so he was widely recognized as the leading British authority on differential equations and applied analysis, a field then grossly under-represented in the UK in comparison to other leading mathematical countries. He was awarded the Whittaker prize of the Edinburgh Mathematical Society in 1965, elected a fellow of the Royal Society of Edinburgh in 1974, and received the Keith medal and prize of the Royal Society of Edinburgh in 1987. He remained in Oxford until 1988, becoming a university lecturer in 1970 and a senior research fellow of the Science and Engineering Research Council from 1986 to 1991. Several of his research students at Oxford, in particular Jack Carr, Peter Clarkson, Joe Conlon, Michael Shearer, and Charles Stuart, went on to have successful academic careers. During this period he made frequent extended visits as a visiting professor to the USA, especially to the Mathematics Research Center at the University of Wisconsin, and to the University of Minnesota.

Dissatisfied with the appreciation of applied analysis in Oxford, and eyeing the prospect of enforced retirement within a few years, McLeod moved to the University of Pittsburgh as professor, and subsequently university professor, in 1988. He remained in Pittsburgh, greatly valued by his colleagues there, until his retirement in 2007, when he returned for the final time to Oxford, continuing to do research as a senior research fellow in the Oxford Centre for Nonlinear Partial Differential Equations. His election as a fellow of the Royal Society in 1992 and the award of the Naylor prize and lectureship of the London Mathematical Society in 2011 were surprisingly late recognitions from south of the border of his many contributions to and influence on mathematics in the UK.

As a mathematician, McLeod was a supreme problem solver, who eschewed the construction of elaborate theories in favour of ingenious argument tailored to the specific problem at hand. He wrote over 150 papers with more than 50 co-authors, many of them world leading mathematicians, on a wide spectrum of problems involving ordinary and partial differential equations, linear and non-linear, often motivated by scientific questions arising in different fields. His most influential work included studies of convergence to travelling waves and blow-up of solutions to reaction-diffusion equations, travelling waves in neurobiology, various problems from fluid dynamics and mathematical physics, coagulation equations, Painlevé equations, and the dynamics of microstructure.

Bryce McLeod had an infectious mathematical optimism and outgoing manner that encouraged others to work with him. At the end of an interview, filmed when he knew he was terminally ill with pancreatic cancer, he was asked what advice he would have for a young person considering spending a career in mathematical research, and replied:

Above all, have fun ... if you can't have fun doing it then probably you shouldn't do it. In my experience that fun comes not from getting hold of one problem and spending your life digging deeper and deeper and deeper into that problem. It lies in keeping your mind open to what other people are doing ... and conversing with them and working with them, and developing new ideas with them.

(‘Bryce McLeod, a life in mathematics’)

This was the philosophy that made him such a successful mathematician and valued collaborator. He died a few months later on 20 August 2014, at his home, 49 Northcourt Road, Abingdon, and was survived by his wife and children. His funeral service was at Oxford crematorium on 2 September and a memorial conference was held at the Mathematical Institute in Oxford on 30 May 2015.

Sources

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Film

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Likenesses

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