



Obituaries

Peter Gavin Hall

20 November 1951 – 9 January 2016



Peter Gavin Hall was one of the most accomplished Australia-based mathematical scientists in our history, being the only one ever to be elected to fellowships of the Australian Academy of Science and the Royal Society of London and become a foreign associate of the National Academy of Sciences of U.S.A. He was also awarded the Order of Australia for distinguished service to mathematical science. He served as president of the Australian Mathematical Society between 2006 and 2008.

Peter was born in Sydney on 20th November, 1951, and grew up in the southern Sydney suburb of Oatley. His mother, Ruby Payne-Scott, had a distinguished scientific career as the first woman in radio astronomy and her story is told in a 2009 book by W.M. Goss and R.X. McGee titled *Under the Radar*. His father, Bill Hall, worked as a telephone technician during Peter's upbringing. His younger sister, Fiona Hall, is a celebrated artist and sculptor. During his youth, Peter developed interests in photography and trains, with the two often intersecting—he would regularly camp near railway tracks in the bush around Sydney with his camera on the ready.

His schooling took place in the St George area of Sydney and was followed by an undergraduate mathematics degree at the University of Sydney during the early 1970s, achieving First Class Honours. He was also an active participant in Vietnam conscription protests during those years. He commenced graduate study at the Australian National University (ANU) in 1974 under Chris Heyde, working in probability. Soon after starting at the ANU he was awarded a scholarship from Brasenose College at the University of Oxford. This was a surprise since he thought that he had cancelled all such applications after deciding to do his PhD at the

ANU. He couldn't resist the opportunity for adventure and even made his way to England via the Trans-Siberian Railway. Peter received a DPhil from Oxford in 1976 for a thesis on limit theorems in probability. His ANU work was converted to a Master's thesis. During his Oxford years he met Jeannie Jean Chien Lo and they were married in Hong Kong on 15th April, 1977.

Peter's first job was as a lecturer at the University of Melbourne, but lack of permanency there caused him to move to the ANU in 1978. He was told by his new departmental chair, Chip Heathcote, that he needed to move into statistics to make it there. This was a pivotal event since, during the next decade, he made a name for himself as an excessively talented and prolific statistical theoretician. By the late 1980s he was publishing about 20 statistics papers a year and leading the charge to unravel theoretical properties of new-wave computationally intensive statistical methods such as bootstrapping, projection pursuit and automatic smoothing parameter selection. A ranking of statistical theory researchers by page counts in top-tier journals for the period 1980–1986 was published by Phillips, Choi and Schochet in *Econometric Theory* in 1988. Peter Hall was first in the world followed by 'daylight' and then some big names from Berkeley, Stanford and Wisconsin. In the Eastern Bloc, rumours spread that 'Peter Hall' was a pseudonym for a consortium of authors similar to the 'Nicolas Bourbaki' pure mathematics consortium of the 1900s. He was acclaimed internationally and courted by some of the best statistics departments in the world, but chose to stay in his home country. He was promoted to professor at the ANU in 1988 and stayed there for another 18 years, helping to set up the Centre for Mathematics and its Applications in 1990. His final position was at the University of Melbourne which he took up in 2006 and in 2014 he became director of the newly funded Australian Research Council Centre of Excellence for Mathematical and Statistical Frontiers.

Peter mentored about 50 graduate students and post-doctoral research fellows and had about 240 distinct co-authors. Those who worked with him were struck by his brilliance and speed. There were stories that papers that Peter would start after lunch would be put into the typist's tray before heading home for dinner, written in his signature fountain pen black ink. Many of us felt that it was only he that could solve particular statistical theory problems, at least in a reasonable amount of time. Overseas researchers were known to keep lists of 'Peter Hall problems' for the next time they saw Peter, even though some were surrounded by world-leading theoreticians in their own departments. Despite his high profile and intellect Peter was unassuming, down-to-earth and personable. He particularly enjoyed lunch and tea breaks and was an erudite and often jovial contributor to their conversations.

Another great love was travel and Peter was a regular visitor to several statistics research groups around the world. He enjoyed going to the highlands of Scotland, the railway stations of Calcutta, the back streets of Paris and other exotic locations with his photographic equipment. Starting in 2005 he held a one-quarter appointment at University of California, Davis, U.S.A., where he would spend about two months a year until 2013. The Université catholique de Louvain, Belgium, the Universidad de Cantabria, Spain, the University of Glasgow, U.K., and the University of Sydney each awarded him an honorary doctorate. In 1989 he was awarded the Committee of Presidents of Statistical Societies Award which

is made by the presidents of five mainly North American statistical associations. In 2011 the Royal Statistical Society, U.K., awarded him the Guy Medal in Silver.

During his later career Peter was involved in the upper echelons of his field's main international society, the Institute of Mathematical Statistics, serving as its president and editor of its flagship journal *The Annals of Statistics*. However, an emphasis on what he did for Australian mathematics is appropriate here. He had been chair of the Australian Academy of Science's National Committee for Mathematical Sciences, Secretary for Physical Sciences at the Australian Academy of Science, and chair of the Steering Committee for the National Committee for Mathematical Science's Decadal Plan. Peter was the first chair of the Scientific Advisory Committee of the Australian Mathematical Sciences Institute. Most recently, he played a key role in establishing the Australian Research Council Centre of Excellence in Mathematical and Statistical Frontiers at the University of Melbourne.

Starting in April 2014 Peter suffered a prolonged period of serious illness and in May 2015 he was diagnosed with acute leukaemia. He passed away on 9th January, 2016, in The Royal Melbourne Hospital. Peter is survived by his wife, Jeannie, and his sister Fiona.

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