

Thomas Frederick (Fred) Smith AM, FTSE (30 May, 1939 – 1 March, 2014)

Trevor Finlayson, Bill Gardner and Paul Smith

Thomas Frederick (Fred) Smith was born in London on 30 May, 1939. With the outbreak of war, the family moved to the north-east of England, to Sunderland where he received his primary and secondary education before entering the University of Sheffield on a State Scholarship in 1957. He graduated B.Sc. (with First Class Honours in Physics) in 1960 and was awarded a Junior Research Fellowship at Sheffield where he completed his Ph.D. in 1963. His Ph.D. Thesis, "The Specific Heat of Some Pt₃Fe Alloys", was completed under the supervision of Dr. John Crangle. While at Sheffield University he met Marian Redfearn and they were married on 2 April, 1963.



Image courtesy Monash University Archives, IN270

With wife Marian, he departed England for La Jolla in California, joining Professor Bernd Matthias's group to study superconductivity at the newly created University of California, San Diego. Matthias was convinced that he could find materials, initially metallic alloys which perhaps needed squeezing, that would superconduct up to room temperature. Fred chose to show whether high pressures would aid superconductivity and worked with his student Paul Chu, who, later with others, discovered the new high temperature superconducting materials. Matthias produced a highly charged atmosphere and young researchers were expected to be self-driven and work hard, benefitting from a constant stream of distinguished visiting scientists such as Anderson (a future Nobel laureate), Zachariasen, Fröhlich, Geballe, Ziman, etc. Fred enjoyed this stimulating environment and held a series of different positions until April, 1967.

In May, 1967 Fred returned to the U.K. with his family, taking a position as a Senior Research Fellow at the Atomic Energy Research Establishment, Harwell. His collaboration with Dr. Bill Gardner prospered during this period. He lectured widely and also worked with Dr. Rex Harris, University of Birmingham. In Bill's words, "Fred made the equipment move into the fledgling computer era, using the Harwell IBM mainframe computer and programmes he wrote with data input based on boxes of punched cards that were so slow that they had to be run overnight - a computing world now unimaginable to young students..."

After almost three years at Harwell, Fred and Marian decided to return to La Jolla, again in the Matthias superconductivity group.

Dr. Smith's next move in May 1973 took him to Australia as a Senior Research Scientist within the CSIRO Division of Physics in Sydney, working with Dr. Guy White. It was here a long and productive research collaboration with Dr. Trevor Finlayson, a Lecturer in the Department of Physics, Monash University, began. The Monash Department was well equipped to produce materials and to measure superconducting properties while the CSIRO laboratory had excellent equipment for the measurement of thermal expansion at low temperatures. Fred also decided to take up long distance running at this time, eventually working up to running marathons in the 1980's.

Fred became a Senior Lecturer in the Department of Physics at Monash University during 1974 and moved to Melbourne with Marian, Helen and Paul. He was appointed Professor

in 1976 following the departure from Monash of the Department's founding Professor and Chairman, Robert Street. He subsequently served as Chairman of the Department from 1981 to 1991 before moving to La Trobe University to become Deputy Vice-Chancellor (Research), a position which he held until his retirement in 2004. Throughout he continued his research collaboration with Finlayson at Monash, which produced over 50 papers covering a broad range of materials and physical properties, and included the research training of 15 postgraduate students.

During his later career, Professor Smith proved to be a most competent Administrator, serving as President, Australian Institute of Physics (1985-1986), President of the Federation of Australian Scientific and Technological Societies (1985-1987), Chair, AVCC Pro-Vice-Chancellors (Research) Committee (1993), Chair, Australian Science Olympiads Committee (1987-96), Honorary Secretary, Council of Australian Academy of Technological Sciences and Engineering (2005-08), Honorary Secretary, The Royal Society of Victoria (2007-10), President, Australian Institute of Genealogical Studies (2007-10), and many other roles. He was honoured with a Fellowship of The Academy of Technological Sciences and Engineering in November, 2000 and with elevation to Member, Order of Australia (AM) and Centenary Medal in 2001.

In retirement, Fred was an Honorary Professorial Fellow in the Centre for Population and Urban Research, Monash University, working closely with Dr. Bob Birrell. He assisted postgraduate students with their research and participated in a number of important projects with Bob within the Centre. He was also a keen genealogist from 2000, researching many family trees beyond his own, and a regular publisher in the Institute magazine *The Genealogist*.

Professor Smith is survived by his wife, Marian, their two children, Helen and Paul and four grandchildren.