

## John David Hunt FRS

12 December 1936 – 8 December 2012



John Hunt was an eminent metallurgist who will be remembered as a pioneer in the field of solidification research.

John was born on 12th December 1936 in Cheltenham and soon moved to Dorset to a family farm where he spent a happy childhood with two elder sisters and a younger brother enjoying the freedom of the countryside and the challenges of farming. By the age of 9 he was already a member of the Young Farmers Club in Dorset and his bucolic childhood hugely influenced both his life-style and his pragmatic hands-on research career. John was educated at Wellington School in Somerset, where he was a key member of the School's 1<sup>st</sup> XV Rugby Team and worked in the summer holidays as a beach photographer in Weymouth.

John earned his BA in metallurgy in 1960 and PhD in 1963 both from Cambridge University. His PhD thesis was titled "Modification of Eutectics". John then joined the Bell Telephone Laboratory at Murray Hill, New Jersey as a research fellow for two years and then the UK Atomic Energy Authority at Harwell for one year. He was appointed as a lecturer at Oxford in the Department of Materials Science in 1966 and a Fellow and Tutor in Metallurgy in St Edmund Hall in 1968. He was made an Ad Hominem Reader in 1990, a University Professor in 1996, an Honorary Professor of North Western Polytechnic University in China in 1996, and retired, aged 67, in 2004. Then, in 2006, John became a Professor Associate in BCAST at Brunel University, where he continued his solidification research with great passion.

John was an inspiring and deeply insightful teacher and his lectures on solidification and chemical metallurgy were well remembered by his students due to his unique approach to their delivery. He often started his lectures with a precise definition of a problem, followed by the introduction of the existing theories as potential solutions, but always ended up explaining why the existing theories were wrong. This left his students with a huge urge to solve problems and inspired them to become key players in solidification research.

John had an unusual ability to see through complex natural phenomena and to develop simple physical and mathematical solutions. Through his natural instinct and deep insight, every challenge became easy and simple to him. It was repeatedly demonstrated that his assumptions or simple models could not be improved or bettered. He could often surprise colleagues with an immediate answer within the right order of magnitude. He was well known for his no-nonsense comment at conferences of "I don't believe it!" which inspired colleagues to go the extra mile for better answers and solutions. This made John the major contemporary personality of solidification research and won him great respect from his peers.

John's scientific achievements in the field of solidification are extensive, deep and pioneering. With Ken Jackson he discovered transparent low melting point materials as analogues for metallic materials solidification and the widely used eutectic growth model. With his research group at Oxford, John developed the first self-consistent model of cellular and dendritic growth, the first realistic model of columnar equiaxed growth and the theoretical models for selection of the eutectic range. John's experimental research was also very fruitful. He developed the only method for direct measurement of solid/liquid interfacial energy, *in situ* observation and modelling of porosity formation in aluminium, a new mechanism for particle pushing during solidification, development and modelling of the twin roll casting process and a new single pan high resolution calorimeter. As mentor to the BCAST group at Brunel University, he actively participated in their research activities related to liquid metal engineering and the development of the epitaxial nucleation model and the fully equiaxed solidification model.

John met Ann during their first year as undergraduates in Natural Sciences at Cambridge and they married in 1961 and celebrated their Golden Wedding on the River Thames in September 2011. John and Ann moved to the Church Farm House in North Leigh in 1968 and lived there for the next 44 years, where John ran a well maintained vegetable patch in their huge garden and kept ducks, geese, and pigs. John made a temperature and humidity controlled incubator to hatch the eggs. The Hunt family were kept fed with duck, goose and pork dinners with garden grown vegetables and homemade cider. They ate what they bred and drank what they brewed, and John's students greatly benefited from this farming tradition as John and Ann had an open day each term for them at the Church Farm House. This open day became a village tradition after his retirement.

John published over 200 research papers and received recognition and honours from many quarters. He was elected Fellow of the Royal Society in 2001. He received the Champion Herbert Mathewson Gold Medal from the American Institute of Metallurgical Engineers (AIME) in 1967, the Rosenhain Medal and Prize from the Institute of Metals in 1981, the Bruce Chalmers Award from TMS and AIME in 1996, and the Royal Society and Armourers and Brasiers' Company Medal and Prize in 2001. John's outstanding contribution to solidification research was honoured by a symposium and dinner as part of the TMS Spring Meeting in San Antonio in March 2006, and the John Hunt International Symposium was held at Brunel University in 2011 on John's 75<sup>th</sup> birthday to celebrate 50 years solidification research.

John Hunt died peacefully on 8<sup>th</sup> December 2012 and is survived by Ann, their two children, David and Helena, and their five grandchildren. He will be fondly remembered as a loving family man, a remarkable person and an outstanding scientist.

Respectfully submitted, Z. Fan, BCAST, Brunel University.