

## **In Memoriam: John Grant FREng**

John Grant was born in January 1948 in Stannington, Northumberland. The family initially lived at Netherton and subsequently moved to Bedlington, where John's father worked as a coal miner. John did very well in the 11-plus and went to Bedlington Grammar School, which was great progress; his father had been unable to take up a scholarship to grammar school as his family could not afford to support him.

John excelled both academically and sportingly at school and became Head Boy in the sixth form. He interviewed for Oxbridge, but, perhaps as a result of his quiet demeanour, opted to go to Leeds University in 1966 to study Mathematics. Despite a serious health issue, which left him hospitalised for several weeks during his final year, and caused his tutors to suggest that he took a year out, he continued with his studies, gaining a first and a university prize. After Leeds, John moved closer to home in 1969 to study for a doctorate in Mathematics at Newcastle University, drawn northwards in part by his future wife Elizabeth who he married in 1970. His thesis, on "The Fluid Mechanics of a Bose Condensate", marked the beginning of John's research in fluid dynamics, working on the behaviour of superfluid liquid helium.

Having successfully completed his PhD in 1972, John took up a position as a Senior Scientific Officer at the Royal Aircraft Establishment in Farnborough, working on modelling the supercritical flow around helicopter blade tips in high-speed flight. This work produced the aerodynamic designs for BERP (the British Experimental Rotor Programme) which took the helicopter speed record on a Lynx aircraft in 1986, a record which stood for over 30 years. Whilst based at Farnborough John and Elizabeth's two daughters, Julie and Lara, were born. Their son David was born after their return to the North East, which came in 1979 when John was recruited by John Bolter FREng to the post of Chief Aerodynamicist at NEI Parsons.

John spent the following 24 years at Parsons, staying with the business as it transitioned to ownership by Rolls-Royce and ultimately Siemens, and he took on increasingly broader roles, culminating in him becoming Engineering Director in 1996. John's technical achievements during his time at Parsons are too numerous to fully do justice to here. The blade path is the heart of a steam turbine generator, and John completely rejuvenated the blade designs used throughout the entire Parsons product range. In high-pressure and intermediate-pressure turbines he introduced the "R Series" family of blading, providing a step-change in efficiency and mechanical strength. This subsequently evolved into a family of "3D blading" powering large steam turbines which were amongst the most efficient ever produced. In low-pressure turbines he introduced 'high-twist' blades, and a novel articulating tip-strut to manage their vibration characteristics, which yielded efficiency improvements of several percentage points. In addition to powering competitive new steam turbines, these families of blades were extensively retrofitted to existing plant, dramatically improving their performance and extending their useful economic life. John worked closely with academia during this period, collaborating with Professor John Denton FREng and his team at the Whittle Laboratory in Cambridge, and serving as a Visiting Professor at Newcastle University.

After retirement John stepped back from engineering and enjoyed his family which grew to include several grandchildren, his garden, and his beloved Newcastle United. He died on 10<sup>th</sup> March 2023 following a tragic accident, leaving Elizabeth, Julie, Lara, David and five grandchildren. John is remembered by those who worked with him not only as an outstanding engineer, but as a friend, father-figure and mentor to a whole generation of engineers who passed through Parsons. He was the most modest and unassuming of men and few outside those who have worked directly with him understand the full extent and impact of his contributions. He is greatly missed.