Professor John Blake CMath FIMA (1947–2016)

On 10 June 2016, Professor John Blake passed away peacefully following a short illness and surrounded by his family. He was 69.

For over twenty years, and until his retirement in 2013, John was Professor of Applied Mathematics at the University of Birmingham, where he held the Headship of the School of Mathematics on two occasions; he was also Dean of the Faculty of Science. Through his research John played a leading role in establishing and maintaining the UK mathematical community's activity in bubble dynamics and low Reynolds number biological flows. He published profusely, producing over 40 papers on Bubble Dynamics alone. John was also generous in his support for younger colleagues, supervising 22 PhD students and mentoring 17 postdoctoral researchers.

In addition to this commanding profile in mathematical research, John was amongst the first true champions of teaching and learning within higher education which led him, in typical fashion, to establish the UK Mathematics Courseware Consortium (MATHWISE), a ground-breaking forerunner of later innovative uses of software in teaching and learning. In 2000, John became inaugural Director of the highly-regarded Mathematics, Statistics & Operational Research (MSOR) Network under the auspices of the national Learning and Teaching Support Network. As Director, he shaped a number of important initiatives through the Network and many regard this as his greatest legacy. That legacy, and work that flowed from it, thrives to this day.

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John Robert Blake was born in Jamestown, South Australia on the 22 January 1947 and, as a boy, he grew up in this small agricultural town before moving to Adelaide to complete secondary education at Prince Alfred College. It was natural that John would then enter the University of Adelaide where, alongside his obvious mathematical talent, he was a keen and talented sportsman. His particular forte was Australian Rules Football. He captained the University team, winning the Gunning medal for best player, and was also an integral part of the 'All Australian University team' in 1967, 1968 (as Captain) and 1969. And it was in his undergraduate years that John met his first wife, Denise.

In September 1969 John moved to the University of Cambridge to embark upon postgraduate study under the supervision of Sir James Lighthill who had recently arrived as the Lucasian Professor of Mathematics at Cambridge. (Lighthill's successor in Newton's chair, would later be Stephen Hawking). Lighthill, of course, is widely recognised as the moving force behind the establishment of the Institute of Mathematics and its Applications, and John was well known as a powerful advocate and strong supporter of the IMA. He was elected to IMA Council in 2002.

Almost immediately John had written his first paper. With typical forthrightness, upon his arrival, he told Lighthill that there was a mistake in one of his publications – a term in an expansion had been ignored when it should have been retained. John completed his PhD within three years, having already published three papers in the leading *Journal of Fluid Mechanics* – these papers remain amongst his most highly cited works and continue to be widely referenced over 45 years later.

In 1971 he was elected to a Research Fellowship at Trinity College which provided support for John to carry out research for four years after the completion of his PhD. In what was to be the start of an international career, John put on hold the prestigious Cambridge fellowship and accepted the opportunity of spending a year as a research fellow at the California Institute of Technology. After returning to Cambridge for a further two years, he spent a period working at the Commonwealth Scientific and Industrial Research Organisation in Canberra. From there John moved to a professorship at the Mathematics Department at the University of Wollongong, before returning to England to occupy the Chair in Applied Mathematics in the School of Mathematics at the University of Birmingham. During his tenure at Birmingham, the longest time he spent in any one institution, John became widely acknowledged as a respected administrator, a world-ranking researcher and an inspirational teacher.

John's research interests were broad and varied, spanning a range of areas and applications. He is perhaps best known for his work on bubble dynamics which focused on cavitation dynamics near solid boundaries and free surfaces, through the use of numerical and analytical techniques, closely allied to experimental studies. He is recognised for his pioneering use of the boundary integral method in the study of cavitation. John's contributions in biological fluid mechanics range from the method of fundamental solutions for the Stokes flow equations (in excess of 350 citations on Google Scholar) to models of lung disease, sperm motility, and the chaotic dynamics of protozoa feeding.

His wider interests encompassed the application of mathematics in industry, defence, sport, and medicine. In all he has well over 100 refereed journal articles, including his highly cited 1987 paper in the *Annual Review of Fluid Mechanics*.

John was a kind and loving father to his children Nick, Samantha, Andrew, Ben and Emily, maintaining his academic career while caring for them after the tragically early death of his first wife Denise. In 2002 John married Rachel with whom, along with their son Adam, he spent many happy and memorable years.

We, who knew John as a friend as well as a colleague, will long cherish our memories of this remarkable man. He will be deeply missed, but remembered fondly. His influence will continue to live on in anyone who was fortunate enough to know or work with him.

Michael Grove FIMA and Joe Kyle
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