

# Professor David Blockley, 1941–2024

*BEng, PhD, DSc, FREng, FIStructE, FICE*

**DAVID BLOCKLEY**, Emeritus Professor of Civil Engineering and Fellow of the Royal Academy of Engineering, died in March 2024 at the age of 82, while still at the height of his powers. His last book, on principled capitalism for tackling climate change, was published just seven weeks before his demise, and illustrates the breadth of interests encompassed by this most remarkable engineering academic.

He made seminal contributions to structural engineering, in particular by linking our discipline with others such as philosophy, fuzzy mathematics, sociology, psychology and economics. He was a systems thinker *par excellence*, calling on us all to exercise the Aristotelean *phronesis*, or practical wisdom for action, that engineers are uniquely positioned to do.

The presidency of the Institution of Structural Engineers in 2001–02 was the pinnacle of David's structural engineering achievements. He had by then won the Telford Gold Medal of the Institution of Civil Engineers for his paper analysing the reasons for structural collapses, inclusive of human and social factors; and the Oscar Faber Diploma of the Institution of Structural Engineers for a paper on a roof collapse due to snow loading, written with the late Barry Turner, a sociologist, and Nick Pidgeon, now a psychology professor. He drew a parallel between engineering failures and Sir Karl Popper's falsification of scientific theories, as means for the growth of knowledge.

David used interval probability theory to model fuzziness and incompleteness, the neglected components of the real-world uncertainty within which engineering has to be practised. But he always sought to develop practical tools that embodied his ideas. He also wrote six books about engineering for the public. It is no wonder that his Presidential Address was titled "Thinking outside of the box".

David made pioneering contributions to systems thinking too. Colin Brown and Ian Munro, the founding editors of *Civil Engineering Systems*, "had to wait until David Blockley's seminal papers appeared before a satisfactory methodology became available" – i.e. for "including subjective and non-numerical features into the process of civil engineering decision making" – a reference to David's fuzzy logic papers and his first book, *The Nature of Structural Design and Safety*. That was near the start of his career.

Closer to the end, his friend and fellow systems thinker, David Elms, said that while the systems approach was not easily systematised, 'specific guides' were needed nevertheless; and that these



were "found aplenty in David [Blockley]'s work, especially in *Doing it Differently*, written with Patrick Godfrey". The book went into a second edition 17 years after it was first published in 2000.

Two guides that come to mind are the 'Italian Flag' representation of the potential success of an outcome that embodies interval probability theory; and the process loop diagrams made up of 'holons' (both parts and wholes) that represent purpose (*why*) as the driver of transformation (*how*) through the flow of change in the attributes *who*, *what*, *where* and *when*. His book on *Bridges* (OUP) not only discusses their structural form ('hard systems'), but also how people are involved ('soft systems') in their construction and use.

David's intellectual home for all these pursuits, since 1969, was the University of Bristol, which awarded him an earned DSc in 1988 and a personal chair in 1989. He was made Head of Civil Engineering (twice), and Dean of Engineering, following in the illustrious footsteps of Sir Alfred Pugsley (IStructE President 1957–58) and Roy Severn (ICE President 1990–91).

The University organized a felicitation symposium on his retirement, called *Systems 2030*. The proceedings became a special issue of *Civil Engineering and Environmental Systems* in 2010, a 'waypoint' in the history of the journal according to Paul Jowitt, its longest-serving chief editor.

David supervised around 30 PhD students (and postdocs) at Bristol from a dozen or so countries

including his own. His 10 books, nearly 200 papers, and *Engineering Synergy* blogsite, are securely a part of Karl Popper's 'World 3' – the store of archived human knowledge. His legacy will also live on in the hearts and minds of his students and colleagues.

David was born to Olive and Harold Blockley in the middle of WWII, and developed passions for football, cricket and church music during his formative years in Derby; and also for mathematics, due to a particular upper school teacher. He obtained from the University of Sheffield a BEng in 1964 with first class honours; and a PhD in 1967.

His sojourn in Sheffield enabled him to meet Karen Bailey, whom he married in 1966, a week after England won the football World Cup! David is survived by her, after over 57 years of marriage, and their two children, Andrew and Alison.

David, with Karen, displayed the best of human values and virtues. He wore all his accomplishments lightly, was the embodiment of British understatement, and extended enormous generosity of spirit towards those he met. He is now "a portion of the loveliness which once he made more lovely" – through his holistic engineering descriptions of the dappled things in our world.

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