

Dr Philip Woodward DSc MIET September 1919 – January 2018

The man who gave us 'artificial intelligence'

Philip Woodward, who has died aged 98, was a British mathematician, pioneering radar engineer and world-renowned horologist.

Educated at Blundell's School, he won a scholarship to study mathematics at Wadham College Oxford in 1938. His undergraduate course was interrupted when he was drafted in 1941 to the Telecommunications Research Establishment, the RAF's original home of radar research. This led to a career in the Scientific Civil Service spanning four decades.

In 1950, animated by Claude Shannon's *Theory of Communication*, Philip pioneered a new approach to radar signal detection, now seen by many as years ahead of its time.

Several years later, in 1953, he wrote *Probability and Information Theory, with Applications to Radar*, introducing a mathematical technique for radar system design based on Woodward's Ambiguity Function, still used for satellite work today.

Philip joined the IEE (the precursor organisation of the IET) in 1954 as an Associate Member. Before joining, he had already published three papers in an IEE journal.

In 1956, taking up a visiting lectureship at Harvard University, Philip realised a snappy title was needed for the emerging field of computers exhibiting quasi-intelligent behaviour. The word 'intelligence' had already been agreed when Philip suggested prefacing it with 'artificial', to indicate the mimicking of mental processes.

Returning to his research base at the MOD's Royal Signals and Radar Establishment (RSRE), Philip gathered a mathematical team of exceptional talent to develop techniques for efficient computer usage in scientific work during the 1960s.

Philip retired from his role of Deputy Chief Scientific Officer in 1980, returning to his interest in horology and achieving notable success in this field. His masterpiece, W5, was acclaimed by Jonathan Betts, the Senior Curator of Horology at the Royal Observatory Greenwich, as "the nearest approach to perfection by any mechanical timekeeper not employing a vacuum chamber".

Philip received many honours for his work in both radar and horology. In 2000, a new building for information technology was named after him on the site of the former RSRE. In 2005, the Royal Academy of Engineering gave him its first Lifetime Achievement Award. In 2009, he received the Institute of Electrical and Electronics Engineers (IEEE), Dennis J Picard Medal for Radar Technologies and Applications.



Dr Philip Woodward DSc MIET standing by his masterpiece W5 clock

That same year he was awarded the Tompion Gold Medal from the Worshipful Company of Clockmakers, for services to precision mechanical horology.

In person, Philip was a kind and generous man with boundless enthusiasm for everything he did. It took only a few minutes of conversation for the power of his intellect to become apparent. He had that rare combination of charisma and intelligence which remained undimmed to the last.

Adapted from obituary provided by Suzette Woodward and Susan Bond.

Professor B.V. Jayawant CEng FIET

April 1930 - March 2018

The grandfather of Mag Lev

Professor 'Jay' Jayawant, who has died aged 87, will be remembered for his contributions to magnetic levitation.

Born Bhalchandra Vinayak Jayawant in Nagpur, India, he was an exceptional student, earning a place at the Victoria Jubilee Technical Institute to study Electrical Engineering. After graduating, Jay entered an apprenticeship at Higgs Motors in Birmingham. To English ears, Bhalchandra was a mouthful, so he adopted the name Jay.

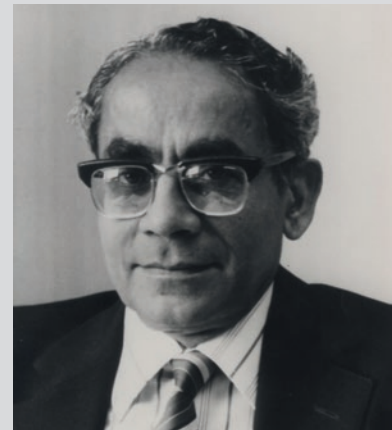
Jay moved to English Electric at Stafford, working with large motors and generators. Here, he was spotted by Gordon Rawcliffe, who suggested he do a PhD in Electrical Engineering at Bristol. He was then headhunted by Willis Jackson to work on the design of large motors and generators at Metropolitan Vickers in Trafford Park, Manchester.

Jay went on to take lecturing posts under John West at Queens University Belfast and the newly established engineering department at the University of Sussex in Brighton.

He remained at Sussex for the rest of his career, rising to Professor of Engineering and Dean of the School.

Outside of university, Jay's professional reputation was also developing. His interest in magnetic suspension took him to national and international prominence, including appearing on the popular TV programme, *Tomorrow's World*. He produced a series of significant academic publications in the field, most notably a book on magnetic levitation in 1981. The Chief Engineer of the 500Kmph Mag Lev Shinkansen, currently being developed in Japan, recently described Jay as 'the Grandfather of Mag Lev'.

Actively involved in the committees of the IET (then the IEE), Jay chaired the computing and control division. In 1990/91, he presented the Faraday lecture for children around the country. He brought a mischievous sense of humour to an interest in broader education and is remembered as a great family man, engineer and teacher.



Professor B.V. Jayawant CEng FIET

A note from Past President Jeremy Watson

"Professor 'Jay' Jayawant was my research leader and mentor at the University of Sussex. Always generous with wise advice, often delivered with wit, it was he who engaged me with the IEE, through membership of a Professional Group on Control. I shall always be grateful for his great contribution to my professional development."

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