

John David Barrow

John David Barrow was a distinguished cosmologist, an original and creative thinker, and a brilliant communicator. His work addressed fundamental questions about why our universe is the way it is and whether it could have been otherwise. Always smartly turned out and brimming with energy, he was an eloquent speaker and a prolific scientist who published several hundred papers and wrote or cowrote 20 books.

Born in the north London suburb of Wembley on 29 November 1952, John went to Ealing Grammar School for Boys, where he was an accomplished sportsman as well as a scholar. He had a trial for Chelsea as a youth footballer, and in a junior middle-distance race he beat Steve Ovett, who went on to become an Olympic champion.

John earned a degree in mathematics and physics from the University of Durham in 1974. For his doctorate, he went to the University of Oxford and worked under the supervision of the legendary Dennis Sciama. In 1977 John completed his DPhil thesis on nonuniform cosmological models, one of many investigations he made into anisotropic and inhomogeneous spacetimes that lie beyond the more restricted class of cosmologies usually considered to describe our universe. He pioneered the use of dynamical systems techniques to describe and classify the rich and sometimes chaotic behavior of generalized cosmological models.

John won a junior research lectureship at Christ Church, Oxford University, and earned postdoctoral scholarships to study at the University of California, Berkeley. There he collaborated with Joseph Silk; in 1983 they wrote what would become John's first popular science book, *The Left Hand of Creation: The Origin and Evolution of the Expanding Universe*. At the University of Sussex, he joined the Astronomy Centre

in 1981 as a lecturer; he became a professor in 1989 and its director in 1995. I was a student of John's, and my abiding memory of that time is sitting at a table in the coffee room listening to him, then the young professor, swapping tales about astronomy and astronomers with William McCrea, Roger Tayler, and Leon Mestel, the great old men of the department. John loved to tell a story. He had a remarkable memory and was able to recall and recount facts and humorous anecdotes for any occasion.

In 1999 John moved to Cambridge University to become a professor of mathematical sciences and director of the Millennium Mathematics Project, an outreach program for students and the general public. His interest in the mathematics of sport led to the project's partnership with the London 2012 Olympic and Paralympic Games education program.

John was fascinated by initial conditions in the very early universe. He studied the dynamics of cosmic inflation, an accelerated expansion at ultrahigh energies that could smooth out early inhomogeneities and anisotropies. His work classified and extended studies of inflationary dynamics. He championed the study of inflation in generalizations of Einstein's theory of gravity, which lead to a time-dependent effective gravitational "constant." John was intrigued by whether apparently fundamental constants could change in time. He argued that "although we can measure the constants of nature to a great degree of accuracy in experiments, we have no idea why they take the values they do." In *The Anthropic Cosmological Principle*, written with Frank Tipler in 1986, he explored the many aspects of our universe that are intimately connected to the very existence of intelligent life.

John's popular writing reached a huge audience, and he was a frequent guest on radio programs. He valued his privacy, however, and declined invitations to appear on TV. He also was an inspirational lecturer. At Gresham College in London, John was appointed professor in both astronomy and geometry; he is the only person since the 17th century to be appointed in two subjects. John spoke to prime ministers and popes, and he liked to say that he had dared to lecture Margaret Thatcher on inflation—cosmic inflation, of course.



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Such was his versatility that he even wrote an award-winning play, *Infinites*, which premiered in Milan in 2002.

Among John's numerous prizes were the 2016 Gold Medal of the Royal Astronomical Society and the 2015 Paul Dirac Medal and Prize of the Institute of Physics. In 2006 he was awarded the Templeton Prize for his "writings on the relationship between life and the universe."

Like his mentor, Sciama, John attracted and nurtured many bright, curious young minds as a PhD adviser. He supervised 30 doctoral students, many of whom have gone on to become faculty in the UK and around the world.

John kept working right up to the end, completing several scientific papers and a book in the final months of his life. He died of cancer on 26 September 2020, at age 67, in Cambridge, UK.

David Wands

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