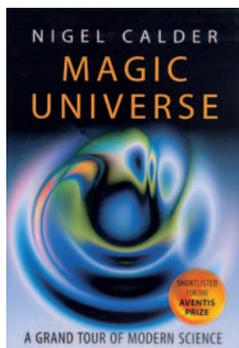


## Towards scientific literacy

**Suresh I.S. Rattan**

**Magic Universe: A Grand Tour of Modern Science**  
by Nigel Calder  
Oxford University Press, Oxford, UK  
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Given how readily politicians, celebrities and even media journalists unashamedly admit their lack of scientific literacy, one wonders whether they would ever show a similar insouciance

towards music, arts or literature. Part of the blame for widespread scientific illiteracy can be attributed to the scarcity of good books providing easily accessible and accurate information. It is in this context that Nigel Calder's *Magic Universe: A Grand Tour of Modern Science* deserves a hearty welcome and a much wider readership.

With 119 short scientific essays on topics spanning biology, chemistry, physics, geography and ethics, and ranging from

alcohol, the big bang, biological clocks, cell death and evolution to human origins, immortality, plant diseases, stem cells and volcanic explosions, *Magic Universe* fully justifies its subtitle. However, this tour cannot and should not be taken in a linear manner, as it is arranged alphabetically rather than chronologically, ideologically or, indeed, logically.

I took my first short tour of *Magic Universe* by starting from my topic of professional and personal interest, immortality. With its subheading, 'Should we be satisfied with 100 years?', Calder's simple, accurate and understandable discussion of the limited lifespan of normal cells, the role of telomeres and telomerase, and evolutionary constraints on the length of lifespan then led me to follow a zigzag route of topics including cell death, brain wiring, embryos, cell traffic, evolution and hopeful monsters. 'Hopeful monsters', as used by Calder, is an extension of the term coined by Richard Goldschmidt in the 1930s, and refers to the natural or experimentally induced appearance of deformed organisms, such as fruit flies with misshapen wings or eyes. Often such deformations have led to the discovery of unexpected and multiple gene pathways, such as those involving stress-response genes, which have been significant determinants during evolution. These 'monsters' are 'hopeful' because something 'better' can emerge from them.

My second trip through the book took me from sparticles (supersymmetric particles)

to dark matter, electroweak forces, superstrings and gravity. Considering my limited understanding of the complexities of high-level physics, Calder's short essays were definitely educating. Each time I started with a new topic, I could not stop without visiting at least three or four other related topics. The personalized and conversational tone of *Magic Universe* is both engaging and addictive.

Calder has done an excellent job of compiling this book from the hundreds of essays that he has contributed during his days at *New Scientist*—a reliable and influential science magazine. Since then, the author has ventured into a variety of written and visual media, such as making science documentaries for BBC television. He has won several prestigious awards and has gained the admiration of many for his efforts to popularize science. *Magic Universe* provides more proof of Calder's up-to-date knowledge and continuing commitment to enhancing scientific literacy among the public. I strongly recommend that you give this book as a present—to anyone who you think should have basic scientific knowledge and an insight into the magic universe in which we live.

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