

The Quantum Story: A history in 40 moments

By Jim Baggott

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The twentieth century was defined by physics. From the minds of the world's leading physicists there flowed a river of ideas that would transport mankind to the pinnacle of wonderment and to the very depths of human despair. This was a century that began with the certainties of absolute knowledge and ended with the knowledge of absolute uncertainty. It was a century in which physicists developed weapons with the capacity to destroy our reality, whilst at the same time denying us the possibility that we can ever properly comprehend it.

Almost everything we think we know about the nature of our world comes from one theory of physics. This theory was discovered and refined in the first thirty years of the twentieth century and went on to become quite simply the most successful theory of physics ever devised. Its concepts underpin much of the twenty-first century technology that we have learned to take for granted. But its success has come at a price, for it has at the same time completely undermined our ability to make sense of the world at the level of its most fundamental constituents.

Rejecting the fundamental elements of uncertainty and chance implied by quantum theory, Albert Einstein once famously declared that 'God does not play dice'. Niels Bohr claimed that anybody who is not shocked by the theory has not understood it. The charismatic American physicist Richard Feynman went further: he claimed that nobody understands it.

This is quantum theory, and this book tells its story.

Jim Baggott presents a celebration of this wonderful yet wholly disconcerting theory, with a history told in forty episodes -- significant moments of truth or turning points in the theory's development. From its birth in the porcelain furnaces used to study black body radiation in 1900, to the promise of stimulating new quantum phenomena to be revealed by CERN's Large Hadron Collider over a hundred years later, this is the extraordinary story of the quantum world.

Oxford Landmark Science books are 'must-read' classics of modern science writing which have crystallized big ideas, and shaped the way we think.

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Editorial Review

From Publishers Weekly
Starred Review. "The reality of scientific endeavour is profoundly messy, often illogical, deeply emotional, and driven by the individual personalities involved...," writes Baggott, and his wonderful history of the scientists and ideas behind quantum mechanics offers ample entertaining proof. Science writer Baggott (A Beginner's Guide to Reality) tells the tumultuous story through 40 key events, beginning at the start of the 20th century, when Lord Kelvin, a British physicist, announced that scientists now knew everything about how the world worked. That triumphalism soon disappeared with Einstein's groundbreaking papers on relativity, which upended that understanding and defined the battleground that would occupy physics for the next century. Baggott hits all the usual high points, from Niels Bohr's work on atomic structure to the "uneasy alliances" and outright battles between proponents of different theories. Baggott's narrative stands out for its parallel exploration of the tenacious, all-too-human side of things: Schrödinger's unorthodox sex life and his loathing of academia; Richard Feynman's intuitive problem solving with all its "enthusiastic handwaving." The basic history behind the quantum revolution is well-known, but no one has ever told it in quite such a compellingly human and thematically seamless way. 16 pages of b&w illus. (Apr.)
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Review

"I have never come across a book quite like Jim Baggott's 'The Quantum Story.' He has done something that I would have thought impossible in a popular book. He manages to present the full ambit of the theory, starting with the introduction of the quantum--the basic unit of energy--by the German physicist Max Planck in the beginning of the 20th century, and ending with the search for the Higgs particle at the collider at CERN in Geneva. In doing this Mr. Baggott navigates successfully between the Scylla of mathematical rigor and the Charybdis of popular nonsense. He also manages to get the people right. I know this because for many of the scenes he describes I was there."--Jeremy Bernstein, The Wall Street Journal

"The history is as complex and involved as the theory itself, and Jim Baggott's history-through-vignettes approach brings out a wealth of fascinating detail about the personalities, philosophies and rivalries that guided its course...there are many good moments to be had." - New Scientist

"The basic history behind the quantum revolution is well-known, but no one has ever told it in such a compellingly human and thematically seamless way." - Publishers Weekly

..".engrossing." - Booklist

"Baggot shines...Those with a jones for physics will not be disappointed...Quantum theory may deny us the possibility of properly comprehending physical reality, but Baggott's account is smart and consoling." - Kirkus Reviews

"An accessible and informative history" - Science

"Intellectually gratifying." --The Economist

About the Author

Jim Baggott, *Freelance science writer*

Jim Baggott is a freelance science writer. He was a lecturer in chemistry at the University of Reading but left to work with Shell International Petroleum Company and then as an independent business consultant and trainer. His many books include *Origins: The Scientific Story of Creation* (OUP, 2015), *Higgs: The Invention and Discovery of the 'God Particle'* (OUP, 2012), and *A Beginner's Guide to Reality* (Penguin, 2005).

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