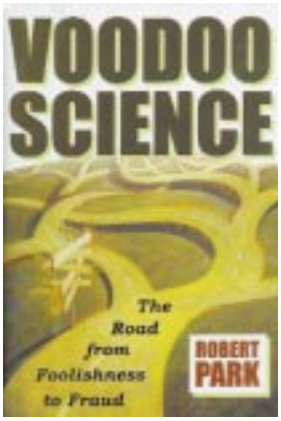
# The professional debunker




Voodoo Science: the Road from Foolishness to Fraud
by Robert L. Park
*Oxford University Press · May 2000*
*Hardback £18.99/$25*

Bob Goldstein

Seething below the surface of good science there lies a culture of voodoo science, in which academic scientists, weekend garage scientists, and get-rich-quick schemers make claims that are equally earth-shattering and impossible. Instead of appearing in scientific journals, their work is reported on television news, in newspapers, and on daytime talk shows. One thread unites this kind of work — it is all tragically in error.

Robert Park's term 'voodoo science' covers everything from simple foolishness, in which people trick themselves into accepting unwarranted beliefs, to fraud, in which people intentionally design scientific-sounding arguments to trick others. The book picks apart dozens of cases of voodoo science, including claims of cold fusion, homeopathy, perpetual-motion machines and healing magnets. Park refutes these stories with simple and consistently entertaining reasoning. For example, cold-fusion scientists Stanley Pons and Martin Fleischmann are debunked with: "At the power levels claimed by Pons and Fleischmann, their test cell would be expected to emit lethal doses of nuclear radiation. Yet here were the two beaming chemists, in a photograph that appeared on the front pages of newspapers around the world, in jackets and ties, proudly holding their cell up for the cameras."

Occasionally, Park's critiques lapse into wonderfully nerdy physicist's humour, as for example when discussing Dennis Lee, a man who claims to have invented a source of unlimited and free energy — "Dennis Lee has broken a lot of laws, but he hasn't broken the laws of thermodynamics."

Park has two aims in this book. The first is to help the reader to recognize voodoo science. This is achieved through the narration of dozens of bizarre claims made under the veil of science, interspersed with Park's pinpointing the classic errors of logic that have been made. The distinction between real science and voodoo science is articulated throughout.

Park's second aim is to help the reader to understand the forces that maintain the survival of voodoo science; the book implicates social and economic interactions between the scientists and others. Scientists, or those who pose as scientists, sell unworkable ideas to venture capitalists who are willing to gamble a small amount of money on high-risk investments, and to the press, who package the stories as infotainment, often with an uncritical eye. As a result, a disproportionate amount of the science seen by the public on TV and in newspapers will inevitably be voodoo science. This, the weakest part of an otherwise compelling string of arguments, smacks of voodoo social science, as the conclusions are never explicitly evaluated. Park's apparent use of anecdotal evidence to generate these ideas suggests that he may have fallen into one of his own traps.

The characters behind the cases of voodoo science are interesting, but the most interesting character to emerge is the author himself. Park, a professor of physics at the University of Maryland, is a counterpart to biologists like Richard Dawkins and Stephen Jay Gould. Each of these pop-culture scientific writers has a special talent for defending a view of the world that is perfectly rational and free of witchcraft and superstition. Park's special talent in this cadre is his fundamental understanding of physical laws. Before writing this book, his debunking platforms included 'op-ed' pieces in newspapers and appearances in TV and radio programmes. In 1997, as a witness to the US House Subcommittee on Space and Aeronautics concerning the International Space Station, Park followed testimony on the great value of a gravity-free environment for protein crystallography with his own opinionated characterization of the Space Station's objectives as "yesterday's technology" and "yesterday's science".

Park's work in Washington DC started in a 1982 sabbatical, during which he established an Office of Public Affairs for the American Physical Society. He continues to work part-time for the APS as their Director of Public Information, contributing a column, 'What's New, by Bob Park', to their web site (http://www.aps.org). The column reports on the peculiar interface between physics and Washington, and concludes each week with the note "Opinions are the author's and are not necessarily shared by the APS, but they should be."

Why would any serious scientist pay attention to bad science? These bizarre claims certainly make for a fun read, but Park's goal is greater. He aims to right upside-down views of the world, and to create a public that understands not so much the jargon of science, but the way that science is done. □

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