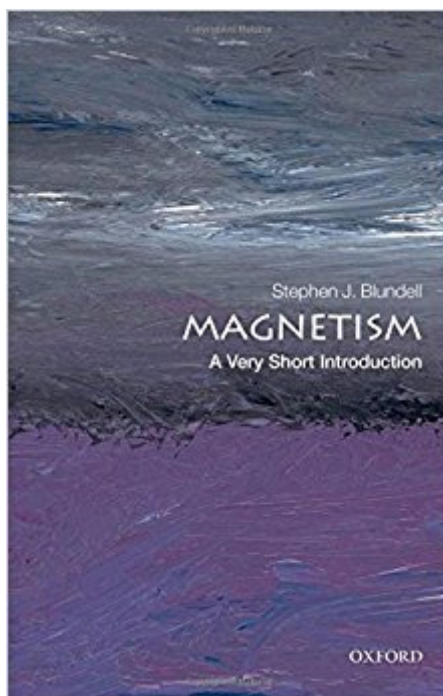


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# Magnetism: A Very Short Introduction



## Synopsis

In this Very Short Introduction, Stephen J. Blundell illuminates the mysterious force of magnetism. For centuries, magnetism has been used for various purposes--through compasses it gave us the ability to navigate, and through motors, generators, and turbines, it has given us power. Blundell explores our understanding of electricity and magnetism, from the work of Galvani, Ampere, Faraday, and Tesla, and describes how Maxwell and Faraday's work led to the unification of electricity and magnetism--one of the most imaginative developments in theoretical physics. Finally, he discusses the relationship between magnetism and relativity, quantum magnetism, and its impact on computers and information storage, showing how magnetism has changed our fundamental understanding of the Universe.

## Book Information

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## Customer Reviews

This quite amazing book covers practically everything there is to know about magnetism. Ten seconds after opening the book, having scanned the contents section, I knew I was going to read not only about the birth of magnetism as a branch of scientific study, but also about Maxwells equations, relativity, quantum magnetism and technology. Two pages into the book, and I knew that the book was written in a relaxed, engaging, easy-to-follow style, which the author maintains throughout. \* Paul van Kampen, Dublin City University, Contemporary Science \*

Stephen J. Blundell is Professor of Physics at Oxford University and a Fellow of Mansfield College.

This book is far too broad and thorough to be called a "very short introduction" to anything. It describes almost every aspect of magnetism I can think of, though almost entirely qualitatively. Everything from the history of "magnetic healing" and Benjamin Franklin's experiments to Einstein's proof that magnetism is a relativistic phenomenon is covered. And there is very little mathematics employed. Anyone wanting to obtain a deep and mathematical understanding of magnetism would still be pleased he started with this little book, just so he sees the complete "big picture", before diving deep into any of the mathematical aspects and details. Call it an overview. Some of the history given is not entirely accurate, however. James Maxwell, for example, never saw that succinct little set of four expressions we still call "Maxwell's equations". What Maxwell actually gave us was a set of 20 equations that were later boiled down to the famous four by the eccentric mathematical genius Oliver Heaviside. But Heaviside was modest about his accomplishments and gave all credit to Maxwell, insisting that his little set of four be referred to as Maxwell's equations. Overall, an excellent introduction to that phenomenon we call magnetism, but far from "very short".

This is a quick read, and is nicely written. I especially appreciated the intuitive explanations. This is a technical book, but doesn't have too many equations. Most people with just a little physics background should be able to follow it. The kindle version is good quality except that the few equations in the book are so tiny they are almost unreadable. Don't know why consistently puts out tech books with unreadable equations.

I'm a high school science teacher, and I downloaded this book to learn more for teaching magnetism, both at the novice and the advanced level. It's all here! I was able to pick up some ideas for explaining things to my 9th grade physical science students, while the section on the quantum mechanical basis for ferromagnetism was also perfect for AP Physics students. The book avoided math, but it still did a terrific job of explaining most aspects of magnetism for a broad audience. A great value.

One of the worst scientific treatises ever. Never answers questions like: What is alternating current? How does it differ from radio transmitters that are also supposed to be based on 'oscillations'? What are the geometrical angles involved when magnetic and electric fields interact, and what is their

origin on the atomic/subatomic scale (and consequently, why do electric motors work at all)? Why does the 'spin' property of elementary particles only manifest in unevenly strong magnetic fields? Adding only about 10 pages of appendices could have clarified these topics and made the main text understandable and enjoyable. So, because these omissions are so elementary mistakes, one star. One star doesn't mean I didn't learn anything from it, it just means the mistakes are severe beyond comprehension.

The Very Short Introduction series of books is a great way to get an overview of a subject. The authors are experts in the fields they write about and the books summarize the historical background, the major technical features and the current state of research in 100 pages or so. Don't expect in depth technical details but the introduction may whet your appetite to look into the subject further. There are good references for those wishing to learn more. I have read several of these books and they are excellent.

This is an excellent short description of a very complex and vast subject matter. The author is engaging and comprehensive in his treatment of the magnetic phenomena. The book accomplishes the task of making the reader feel "informed" about the subject of magnetism at the same time it avoids a mathematical dissertation. This book reaffirms my long lasted belief that only a person that knows a subject in depth can explain it in plain terms; hence the appropriate name for the book: A very short introduction...I enjoy reading the book very much.

I have always been confused by magnetism. I still am, but I have a far better set of reasons why. A fascinating read, bringing all sorts of hard, wonderful things together. I will enjoying re reading it.

The reader in reading this booklet will take an exciting trip through the world of magnetism. He will meet with a lucid representation of magnetism and quantum mechanics, which, to my surprise, popped up to be interrelated. I began to prefer the series of 'A very Short Introduction...' books before delving into more detail.

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