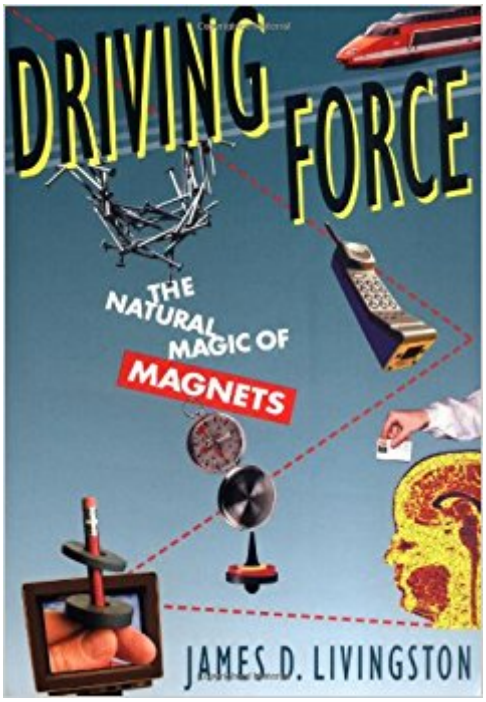
Driving Force: The Natural Magic Of Magnets



Synopsis

Driving Force unfolds the long and colorful history of magnets: how they guided (or misguided) Columbus; mesmerized eighteenth-century Paris but failed to fool Benjamin Franklin; lifted AC power over its rival, DC, despite all the animals, one human among them, executed along the way; led Einstein to the theory of relativity; helped defeat Hitler’s U-boats; inspired writers from Plato to Dave Barry. In a way that will delight and instruct even the nonmathematical among us, James Livingston shows us how scientists today are creating magnets and superconductors that can levitate high-speed trains, produce images of our internal organs, steer high-energy particles in giant accelerators, and--last but not least--heat our morning coffee.From the "new" science of materials to everyday technology, Driving Force makes the workings of magnets a matter of practical wonder. The book will inform and entertain technical and nontechnical readers alike and will give them a clearer sense of the force behind so much of the working world.

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Customer Reviews

Here’s one you may not have thought about in a while: Magnets, how do they work and what do they do? Well, James D. Livingston, a former specialist in magnetic research for General Electric, has answers for you in this look at the technological marvels performed by the power of magnets. "Very few of the teenagers listening to the latest rock or rap through their earphones today," he writes, "realize the debt they owe to improved permanent magnets." No doubt. But as Livingston points out, magnets are at the core of videocassette recorders, telephones, radios, cassette

recorders, washers, dryers, vacuum cleaners, clocks, printers and television. And you thought they were just something you stuck on the refrigerator door. --This text refers to an out of print or unavailable edition of this title.

Magnets and magnetism are seldom thought about, but their quiet contribution to our lives in appliance motors, VCRs, cars, and medical equipment is truly astounding. Livingston, currently at MIT and previously a physicist in materials development at General Electric, deftly explains the uses of magnets, the properties of magnetism, and how modern materials science uses both. Writing succinctly and enthusiastically, he probes a varied list of subjects (geoscience, motors, biomagnetism, magic tricks and toys, trains, superconductors, etc.), with history and definitions included. Informative, well laid out, and enjoyable, this is highly recommended for all collections.?Michael David Cramer, Virginia Polytechnic & State Univ. Libs., BlacksburgCopyright 1996 Reed Business Information, Inc. --This text refers to an out of print or unavailable edition of this title.

The author starts this book by the story of Albert Einstein at the age of four or five, when his father showed him a compass needle. The behavior of the needle gave a deep and lasting impression on young Einstein. Then the author describes ten facts about the magnetic force in earlier chapters. Using these facts, he gives detailed explanations on the workings of various magnetic devices and the modern technologies of magnets in plain words. The topics covered includes superconducting magnets, magnets in motors, speakers, TVs, toys, fiction, magic and weapons, magnetic recording, magnets in medicine, biomagnetism, and so on, namely everything about magnets. The book is also interspersed with humorous comments. In the last chapter the author goes back again to young Einstein’s wondering at a compass needle. The reader notices here that the title of the book has the triple meaning. This is one of the most educational and well written books I have ever read in the genre of science for laypersons.

This book is pure entertaining, covering a really interesting subject like magnets and electromagnetism. The descriptions are for the layman and although I have a previous knowledge of magnetism and physics, these pages capture your attention with the right mixture of knowledge, history, passion in the writing, good figures and interesting chapters, like the one that deals with "Superconducting Magnets" and "MRI". Higly commendable.

Interesting book.

This book is very good at stating the principles of magnetism and how they apply to modern technology. I found it very easy to understand, yet not "dumbed down". It is an enjoyable read and the author has a subtle sense of humor. I would recommend it for HS and college freshman physics students when they are studying electricity and magnetism.

This book is easy to read and easy to understand. I love it. I am glad to have it in my personal bookshelf

The book was sent to a different address. The person who received it decided to forward it to us! We had ordered two books. One copy was fine. The other had printing issues. Certain pages appeared twice. Other pages were missing. Since we got two. We decided to copy the missing pages rather than return the bad copy.

Did you know that Einstein got his start in science from a fascination with the compass? Did you know that Columbus' magnetic compass was his most prized possession on his transatlantic voyages? Did you know that some bacteria contain lined up magnetite chunks in a form of primitive backbone that also provide crude directional guidance? Did you know that the geographic north pole of the earth is actually a magnetic south pole? Did you know that the most celebrated innovation presented at the Paris Exposition of 1900 was a crude magnetic recording device utilizing a steel wire as the recording medium? Did you know that the black ink used in printing US currency is faintly attracted to strong magnets? Did you know that magnetic rocks hold the key to charting continetal drift? Did you know that water possesses a property that causes it to repel a strong magnetic field with enough force to levitate a live frog?James Livingston's book is loaded with fascinating bits of information about a technology that pervades virtually all of modern technology. In fact, modern life as we know it would come to a screeching halt if not for the weird properties of magnets.Written in a lively, non-technical style, Driving Force covers the history, tremendous range of technical uses, and the fun, entertaining side of magnets. This highly readable book will not enable you to design motors, MRIs, or maglev trains, but it might just make you better on trivia tests, lead to a great science fair project, or help you educate or entertain the children in your life. For anyone with an interest in technology or the history of science, this book is highly recommended.

Thank you.

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