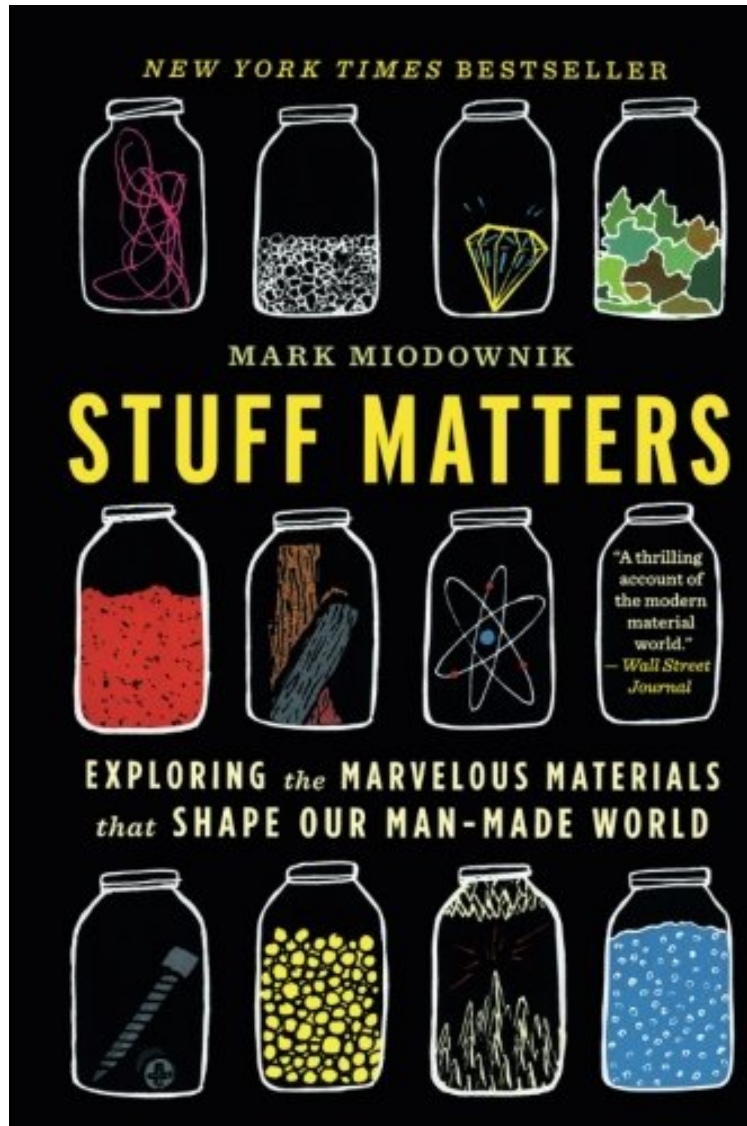


Stuff Matters: Exploring the Marvelous Materials That Shape Our Man-Made World

Mark Miodownik

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#28522 in Books Miodownik, Mark 2015-03-17 2015-03-17Original language:EnglishPDF # 1 8.00 x .71 x 5.311, .0 #File Name: 0544483944272 pagesA thrilling account of the modern material world. --Wall Street Journal?Written by Mark MiodownikA perfect gift for anyone interested in everyday scienceSeller SKU: 201600010739Stuff Matters | File size: 45.Mb

Mark Miodownik : Stuff Matters: Exploring the Marvelous Materials That Shape Our Man-Made World before purchasing it in order to gage whether or not it would be worth my time, and all praised Stuff Matters: Exploring the Marvelous Materials That Shape Our Man-Made World:

40 of 41 people found the following review helpful. Profound, funny, and exhilarating
By kingmidasreverseI purchased this book because it's my first year teaching 5th-grade science and I wanted to flesh out my curriculum with some interesting facts. What I encountered was so much more. Dr. Miodownik writes beautifully, explaining complex scientific processes in entertaining, humorous, and even deeply touching ways. I never conceived of the poetry behind the manufacture of steel, concrete, and glass. Plastic, which is so terribly maligned (justifiably, in many cases), nevertheless has an utterly fascinating and dramatic history. The chapter on chocolate is nothing short of a love letter to one of mankind's most sophisticated and delicious engineering achievements (make sure you have some on hand while you're reading trust me). I can't wait to share my newfound knowledge and appreciation for chocolate with my students complete with a tasting, of course. You'll also learn the story behind aerogel something I hadn't heard of two weeks ago and which now sits on my shelf, where it induces slack-jawed wonder in whoever happens upon it. What Dr. Miodownik has accomplished is very special. He's composed something that can't help but awaken his readers to the extraordinary world that surrounds us, one we so often take for granted.

24 of 24 people found the following review helpful. Engaging introduction to many of the critical materials we use in everyday life
By A. Menon Stuff Matters gives the reader a glimpse into the engineering and properties of many of the critical materials that we encounter in day to day life. Mark Miodownik is professor of material and society at UCL and introduces the reader gently to his expertise leaving them with a newfound appreciation for physics, engineering and chemistry. The book is highly readable and engaging and gives an excellent introduction to a subject we should all know about. Stuff Matters picks several materials that are all contained in the surroundings of the author while he drinks coffee on his roof. He starts by discussing steel and the properties of metal. He discusses how we moved from the bronze age to the iron age and what was required to jump to the steel age. The author discusses the atomic structure of metals and how simple metallurgy can fundamentally change the strength of metals due to the crystal structures. The author moves on to paper and where it comes from (plants) and how it is both made and its properties. He discusses different forms of paper including glossy, newspaper, receipt paper and money as well. The author then moves on to concrete and how it enables modern construction. Concrete has been with us from Roman times but was forgotten for millennia and was rediscovered only recently. The physics of the material are described and the properties of reinforced steel are detailed. The author moves on to a totally different kind of item, chocolate. He discusses the history and the properties and the reader is left with a newfound appreciation for chocolate making. The next subject tackled is foam. This topic takes the reader on a slightly less immediately observable material but is a fascinating tale. The reader is introduced to a material called aerogel which sounds remarkable. The author then moves in to plastic and discusses it through the story of the inventor of plastic, it is really interesting and plastic was first being focused on commercially to fill the supply demand imbalance for billiard balls. The author then discusses glass. We are shown how it is made and where it comes from. We are introduced to both modern and ancient glassmaking and the material properties of glass. The author also talks about carbon and discusses how graphite and diamond are the same material. He discusses the crystal and molecular structure of carbon atoms and how they can form together in different structures. The author discusses pottery and introduces the reader to both clay and basic pottery but extends the discussion to modern porcelain and ceramics. The author ends the topics with a story of how he broke his leg and some aspects of materials in modern medicine. He discusses plaster and how it is a simple yet incredibly important material that has changed the nature of life and death injuries for many. He also discusses teeth and organs in reference to the 6 million dollar man to discuss what we can rebuild using today's technology. Stuff Matters introduces the reader to the basic properties of many of our most important materials used in day to day life. It does so engagingly and by the end the reader will feel like they understand a little bit more about the materials we use. Definitely recommend the book and the audience is very wide.

3 of 3 people found the following review helpful. When getting backstabbed works out for the best
By Mr. Joe As I stood on a train bleeding from what would later be classified as a thirteen-centimeter stab wound, I wondered what to do (The incident) was the birth of my obsession with materials starting with steel. from STUFF MATTERS As a schoolboy in 1985, STUFF MATTERS author Mark Miodownik was stabbed while in the London Tube by an assailant wielding a razor blade. Later, seeing a razor's edge glinting in the fluorescent lights of the local police station, Mark was launched into a life-defining raptness with the make-up of Stuff. He became a materials scientist. In the eleven chapters of this book in the popular science genre, the author delves into the nature of steel, paper, concrete, chocolate, aerogel, nitrocellulose plastic, glass, carbon, ceramic, and engineered body part replacements the lack of which would put Man back into the Stone Age. Mark shares his vast knowledge in an engaging and informal style. The book includes several of his hand-drawn sketches such as he might produce on a cocktail napkin over a pint with you in a pub near his South Bank home in London. Only once does he try too hard; when his discussion of nitrocellulose is presented as a film screenplay. Perhaps he shouldn't give up his day job just yet. For me, the best thing about popular science presentations, including STUFF MATTERS, is that I learn cool facts that will stay with me. For instance, I always thought concrete dried. But it actually traps all the internal water as it cures, i.e. when the calcium silicate fibrils in the cement crystallize. And the author's description of the classic way in which porcelain tea cups are produced was more fascinating than it seems it should be. It's all good stuff.

New York Times Bestseller New York Times Notable Book 2014 Winner of the Royal Society Winton Prize for Science Books A thrilling account of the modern material world. Wall Street Journal "Miodownik, a materials scientist, explains the history and science behind things such as paper, glass, chocolate, and concrete with an infectious enthusiasm." Scientific American Why is glass see-through? What makes elastic stretchy? Why does any material look and behave the way it does? These are the sorts of questions that renowned materials scientist Mark Miodownik constantly asks himself. Miodownik studies objects as ordinary as an envelope and as unexpected as concrete cloth, uncovering the fascinating secrets that hold together our physical world. In *Stuff Matters*, Miodownik explores the materials he encounters in a typical morning, from the steel in his razor to the foam in his sneakers. Full of enthralling tales of the miracles of engineering that permeate our lives, *Stuff Matters* will make you see stuff in a whole new way. "Stuff Matters is about hidden wonders, the astonishing properties of materials we think boring, banal, and unworthy of attention...It's possible this science and these stories have been told elsewhere, but like the best chocolatiers, Miodownik gets the blend right." New York Times Book Review

From Booklist University professor Miodownik accomplishes a bit of a miracle here by making a discussion of materials science not only accessible but witty as well. Spinning out of a surprisingly personal introduction, this Bill Brysonesque study of steel, paper, chocolate, and more takes readers deeply inside the history of the 11 common materials captured in a photograph taken of the author relaxing on his outdoor deck. Miodownik has a genial style as he dives into the science of chemical compositions with aplomb, then pivots into thoughtful considerations of wine glasses, wrapping paper, joint replacements, and the concrete construction of the John F. Kennedy International Airport. With boundless enthusiasm, he turns considerations of the most mundane of topics into dazzling tours of ancient Rome and Willy Wonka's factory, along with a look at the intricacies of Samurai sword making. At a time when science is maligned, first-rate storyteller Miodownik entertains and educates with pop-culture references, scholarly asides, and nods to everyone from the Six Million Dollar Man to the Luminre brothers. A delight for the curious reader. --Colleen Mondor *Stuff Matters* is about hidden wonders, the astonishing properties of materials we think boring, banal and unworthy of attention...Its possible this science and these stories have been told elsewhere, but like the best chocolatiers, Miodownik gets the blend right." The New York Times Book "[Ordinary objects] have found their poet in Mark Miodownik...A thrilling account of the modern material world...Though I blush to recall it, once I had the impression that materials science was dull and pedestrian. *Stuff Matters* has changed my mind; now I find myself running my fingers along things and sighing. Mr. Miodownik's lively, eloquent book changes the way one looks at the world." Wall Street Journal "Miodownik dives into every detail...[with] joyous curiosity." Entertainment Weekly "Miodownik, a materials scientist, explains the history and science behind things such as paper, glass, chocolate and concrete with an infectious enthusiasm." Scientific American "Materials scientist Miodownik intertwines humorous vignettes of daily life in London with subatomic behavior to explain the feats of engineering that brought us samurai swords, skyscrapers, pool balls and even chocolate. From concrete in Roman architecture to atom-thick graphene, Miodownik builds on a historical framework to give readers an idea of future applications. Clever in every sense of the word, *Stuff Matters* may leave you looking at windows rather than through them." Discover "Stuff Matters makes the seemingly banal objects of our everyday lives into an endless source of wonder, dreams and possibility." Salon "Superb storytelling...fascinating...a delightful book on a subject that is relatively rarely written about." Popular Science "Entertaining and informative...[*Stuff Matters*] delivers on both the scientific and personal levels. Its anecdotes, inviting prose and unusual chapter titles introduce both the author and his field of research, materials science." Dallas Morning News "I stayed up all night reading this book. Miodownik writes with such knowledge, such enthusiasm, such a palpable love for his subject." Oliver Sacks, author of *Hallucinations* "Concrete, chocolate, paper, porcelain; this is a fascinating and informative account of the stuff of our everyday lives." Penny Le Couteur, coauthor of *Napoleons Buttons: How 17 Molecules Changed History* "It is a rare thing for a true scientist to be able to explain how things work so clearly to the layperson and even rarer to do so in such an entertaining fashion. No one who reads this book will look at the world quite the same again." Kate Ascher, author of *The Works, The Heights, and The Way to Go* "[A] wonderful account of the materials that have made the modern world Miodownik writes well enough to make even concrete sparkle." Financial Times "A deftly written, immensely enjoyable little book." Observer (UK) "[Miodownik] makes even the most everyday seem thrilling." The Sunday Times (UK) "Enthralling... a mission to re-acquaint us with the wonders of the fabric that sustains our lives." Guardian (UK) "Entertaining...These materials make fascinating reading." Materials Today (UK) "A great look at the science and stories behind the seemingly mundane substances that make up almost everything." Physics Central "A compact, intense guided tour through a handful of physical materials, from concrete to chocolate, revealing what makes them profoundly affect our lives...[Miodownik] writes with enthusiasm, empathy and gratitude, making us care for concrete or foam as much as for Mr. Darcy or the Artful Dodger...[*Stuff Matters*] puts the wonder and strangeness back into all the truly magical stuff that comprises our everyday reality." Kirkus "A fascinating introduction to materials science...Miodownik's infectious curiosity and explanatory gifts will inspire readers to take a closer look at the materials around them." Publishers Weekly, starred review "Ever wonder how concrete is made? Why chocolate gets

white spots when it heats up then cools down again? What makes diamond and graphite, two allotropes of carbon, behave so differently? Miodownik (materials and society, Univ. Coll. of London; Computational Materials Engineering) answers all of these questions and more through relating his personal experiences with each type of material. The author explores the worlds of the grandiose as he watches the construction of the Shard in London, Europes tallest building; and the miniscule, as he examines how small pores can lead to fractures in terra cotta, but similar fractures can be stopped in plaster (like that in a cast) by applying it over cloth. Miodownik introduces enough chemistry to explain, as his title suggests, the stuff that matters, but relates the science in such a way that the book should be accessible to all readers. VERDICT Recommended for anyone who wants to learn more about the materials that make up the world around them." Library Journal, STARRED