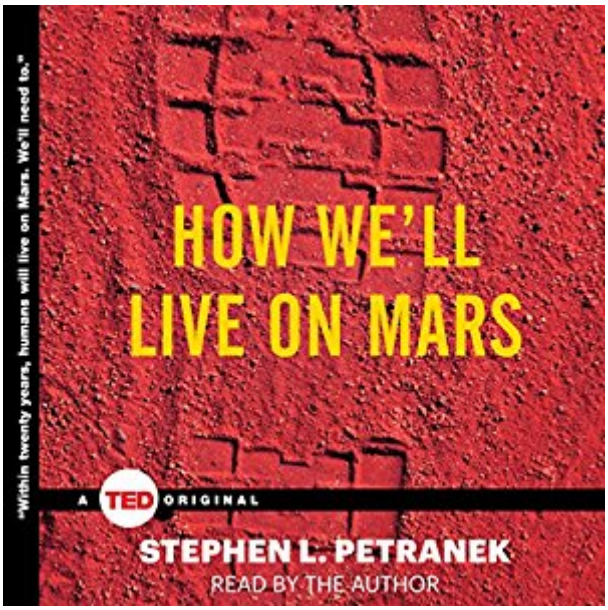
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How We'll Live On Mars



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Synopsis

Award-winning journalist Stephen Petranek says humans will live on Mars by 2027. Now he makes the case that living on Mars is not just plausible, but inevitable. It sounds like science fiction, but Stephen Petranek considers it fact: Within 20 years, humans will live on Mars. We'll need to. In this sweeping, provocative book that mixes business, science, and human reporting, Petranek makes the case that living on Mars is an essential back-up plan for humanity and explains in fascinating detail just how it will happen. The race is on. Private companies, driven by iconoclastic entrepreneurs, such as Elon Musk, Jeff Bezos, Paul Allen, and Sir Richard Branson; Dutch reality show and space mission Mars One; NASA; and the Chinese government are among the many groups competing to plant the first stake on Mars and open the door for human habitation. Why go to Mars? Life on Mars has potential life-saving possibilities for everyone on Earth. Depleting water supplies, overwhelming climate change, and a host of other disasters - from terrorist attacks to meteor strikes - all loom large. We must become a space-faring species to survive. We have the technology not only to get humans to Mars, but to convert Mars into another habitable planet. It will likely take 300 years to "terraform" Mars, as the jargon goes, but we can turn it into a veritable second Garden of Eden. And we can live there, in specially designed habitations, within the next 20 years. In this exciting chronicle, Petranek introduces the circus of lively characters all engaged in a dramatic effort to be the first to settle the Red Planet. How We'll Live on Mars brings firsthand reporting, interviews with key participants, and extensive research to bear on the question of how we can expect to see life on Mars within the next 20 years.

Book Information

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Customer Reviews

This book has plenty of good information and speculation with only a few errors. This is a topic that is extremely difficult to write about without making any mistakes at all. It’s quite possible to write accurately one day and have that accuracy destroyed by new developments and discovery before actual publication. It’s hard to explain to those who have not tried, the incredible breadth of knowledge required to discuss travel to and living on Mars unless that person has attempted it. As one who has essayed this effort in both fact and fiction (see ETCJournal.com and Mars Rhapsody), I can tell you it’s a tough job. This book does the topic reasonable justice.This book is designed to be read in a single sitting. As a result, it often does not plumb the depths of some topics. Quite a bit of the book details the history of the ideas of travelling to Mars, beginning with Wermer von Braun (pronounced: Verner fawn Brown).Petranek covers the psychological, economic, and physical issues involved in getting to and living on Mars rather completely. He spends some time on Mars One and Elon Musk, suggesting that the former is a very long shot due to funding issues (I agree) and that the latter is almost guaranteed to succeed for a variety of reasons (I agree again). He spends a bit too much space on slamming NASA, albeit with some good reasons. He even indicts Richard Nixon as the primary person responsible for us not reaching Mars already.As to the errors, they are relatively minor compared to the scope and thrust of the book. For example, the author writes, "When you run out of oxygen in a space suit, you can only breathe the carbon dioxide that you exhale for so long before you lose consciousness." In fact, you will die of carbon dioxide "poisoning" long before you use up the oxygen. Assuming that you are breathing regular air, oxygen is 20% of the content, and carbon dioxide is much less than 1%. By the time CO2 reaches 5%, O2 has dropped to just 15% because one CO2 molecule is produced for each O2 used. You have used up just 1/4 of the O2 available and are dead.Petranek is very correct about no animals on Mars. They are much too inefficient as a source of food. He remarks that early Martian settlers will be vegetrarians. They’ll actually be vegans, meaning that special attention must be paid to vitamins D and B12. These are available from sources such as yeast, lichen, and mushrooms. He also says that settlers are unlikely to produce more than ten percent of their own food. This pessimistic view contrasts strongly with some of his other optimism. Advances in genetic engineering, aeroponics, and fast hybridization should alter this forecast considerably. Self-suffciency is not just nice, it’s a necessity.The remarks on radiation are fairly accurate. Everyone should understand that radiation in space is about twice as harmful as that on Mars because cosmic rays come from all directions and

are shielded from half of the cosmic sphere by Mars itself. Solar radiation also is shield half of the time, nighttime, by the planet as well.Another pervasive issue is oxygen and atmospheric pressures. We have to have an oxygen partial pressure of around 150 millibars or so to survive. This is the pressure at the highest cities on Earth and is less than 1/6 of the pressure of the Earth's atmosphere at sea level. Even if the entire atmospheric pressure were this low, your blood would not boil. Other physiological processes may not be so amenable to low pressures. However, we should find out how low the pressure can go if we keep the partial pressure of oxygen constant at 160 millibars. Lower pressures mean lower construction costs and also have strong implications for terraforming Mars. In my book, Mars Rhapsody, I took the most optimistic view that you could live at 160 millibars of total pressure with all of it coming from oxygen.The suggestion that plants can convert the CO2 into O2 in adequate amounts is way off. Mars has maybe 8-10 millibars of CO2. Converting it all to O2 would produce only that amount of oxygen, which is 20 or so times to low. Bacteria, lichen, and plants cannot "fix" Mars alone. We must have a much greater souce of O2. However, genetic engineering humans may be possible to make tolerating high CO2 levels and surviving with low O2 levels possible, but not without lots more O2 than you can get from plants.The potential for genetic engineering humans to make them more radiation resistant, able to eat and metabolize plants that grow on Mars, making them able, perhaps by making them smaller, able to subsist on a limited diet, and allowing them to breathe much thinner air is explored in the book. The question not addressed is when these altered humans become a different species. What if we populate Mars to save our species but do so in such a way as to create an entirely different species? Earth humans, as we know them, may not be able to emigrate to Mars after all.More discussion would be nit-picking. There's plenty in this book to recommend it. No one, even me, gets this entirely right, and no one knows all of the answers or even all of the problems. For a quick overview of how we'll get to Mars and how we'll live there, this is a very decent essay.

The author itemizes the various challenges associated with humans inhabiting mars, and the best thinking (to date) on how we'll be able to tackle them. There is some attention paid to the relative difficulty, and readiness to achieve each one.My personal conclusion is that some of the proposed solutions are unlikely to happen as described. Example: terraforming in order to release oxygen stored in surface ice to create an atmosphere presumes we can control the outcome precisely enough. But we (humans) can't seem to control the greenhouse gas emissions enough to minimize impact on the planet we have; how are we going to be any better at hitting a target on Mars?But, this was an interesting read nonetheless.

Short. Very short. But a great read and highly informative. Your kids (and certainly grandkids) are going to be living on Mars if they are rich and privileged. This tells the rest of us how they are going to thrive while we sweat it out under global warming, global flooding, global pollution (tell your kids to get tech degrees - now). Petranek lays out the basic challenges and how they will be overcome - and soon. Most exciting is the thought that many of us will see this come to pass and the book makes it abundantly clear that colonization of Mars is a reachable goal. What is especially valuable about the book is that it is a great primer for further research. The pages lead to a host of disciplines that will make life on Mars sustainable.

How WeÃƒÂ¢Ã â ¬Ã â„¢ll Live on Mars is an engrossing book, albeit short. The beginning immediately hooks you in with a description of what could be, how we might land on Mars and the pressing concerns that astronauts would have upon landing. The book then backtracks and discusses much of our past history with the red planet, including von BraunÃƒÂ¢Ã â ¬Ã â„¢s The Mars Project and the current space industry, focusing on Elon MuskÃƒÂ¢Ã â ¬Ã â„¢s Spacex. He uses this history lecture as a platform to espouse anti-space shuttle arguments, something that I honestly do not have enough knowledge on to feel strongly one way or the other about. This diatribe does seem a little out of place is the book, especially because the rest of the book is very upbeat and enthusiastic about space travel, and I honestly donÃƒÂ¢Ã â ¬Ã â„¢t think that we could have made it safely to Mars without the experiences weÃƒÂ¢Ã â ¬Ã â„¢ve gained using the space shuttle and extended stays in space stations. He then describes what the obstacles will be when we reach mars: how weÃƒÂ¢Ã â ¬Ã â„¢ll find water, air, and shelter, before going into the feasibility of terraforming Mars or genetically modifying humans to live on Mars.Overall, the book was an encouraging look into the fourth planet. I have full faith in Mr. Musk and various space agencies around the world to bring us to Mars within my lifetime, and I enjoy reading books like this one to get a good idea of how weÃƒÂ¢Ã â ¬Ã â„¢ll be able to accomplish it. I could have read a much more dense and technical book than this one and been perfectly content, but if youÃƒÂ¢Ã â ¬Ã â„¢re looking for a good overview, this is your book. On the other hand, if you are looking for an in depth analysis, this will leave you wanting. If you already know the history of space exploration and Spacex, only about half of the book is new knowledge. Similarly, if you know about Mars landing plans, little of the second half will likely add to your knowledge base: extracting water and creating shelter from Martian soil are not the most revolutionary ideas. Two things that stood out to me, the author puts quite a bit of stock in the warming of Mars through a space mirror, which I imagine

would be too cost prohibitive, and reads almost like a Popular Science in the 1950ÃƒÂ¢Ã â ¬Ã â„¢s forecasting ÃƒÂ¢Ã â ¬Ã Å“the next big thingÃƒÂ¢Ã â ¬Ã Â• in technology ÃƒÂ¢Ã â ¬Ã â œ none of which ever came to fruition. Secondly, the authorÃƒÂ¢Ã â ¬Ã â„¢s talk of genetic modification of humans to fit better on Mars seems to care too much about our *ability* to genetically modify than our *desire* to genetically modify. IÃƒÂ¢Ã â ¬Ã â„¢m not confident that even in 100 years people will be comfortable with altering their genes significantly enough to be able to survive on Mars and not the Earth, but thatÃƒÂ¢Ã â ¬Ã â„¢s just me.I enjoyed the book and flew through it in one sitting. If youÃƒÂ¢Ã â ¬Ã â„¢re interested in Mars, itÃƒÂ¢Ã â ¬Ã â„¢s certainly worth reading, although I would wait until there is a sale due to its short length. If the topics discussed in this book interest you, I would recommend reading The Martian by Andy Wier to get more in depth and have an interesting story as well, I feel like I learned more from The Martian than I did from this, although it was a novel.

Very engaging for those of us who have wondered about space travel and visiting another planet. A mix of facts and reasoned speculation about how humans will begin to colonize another world. I enjoyed it and recommend it.

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