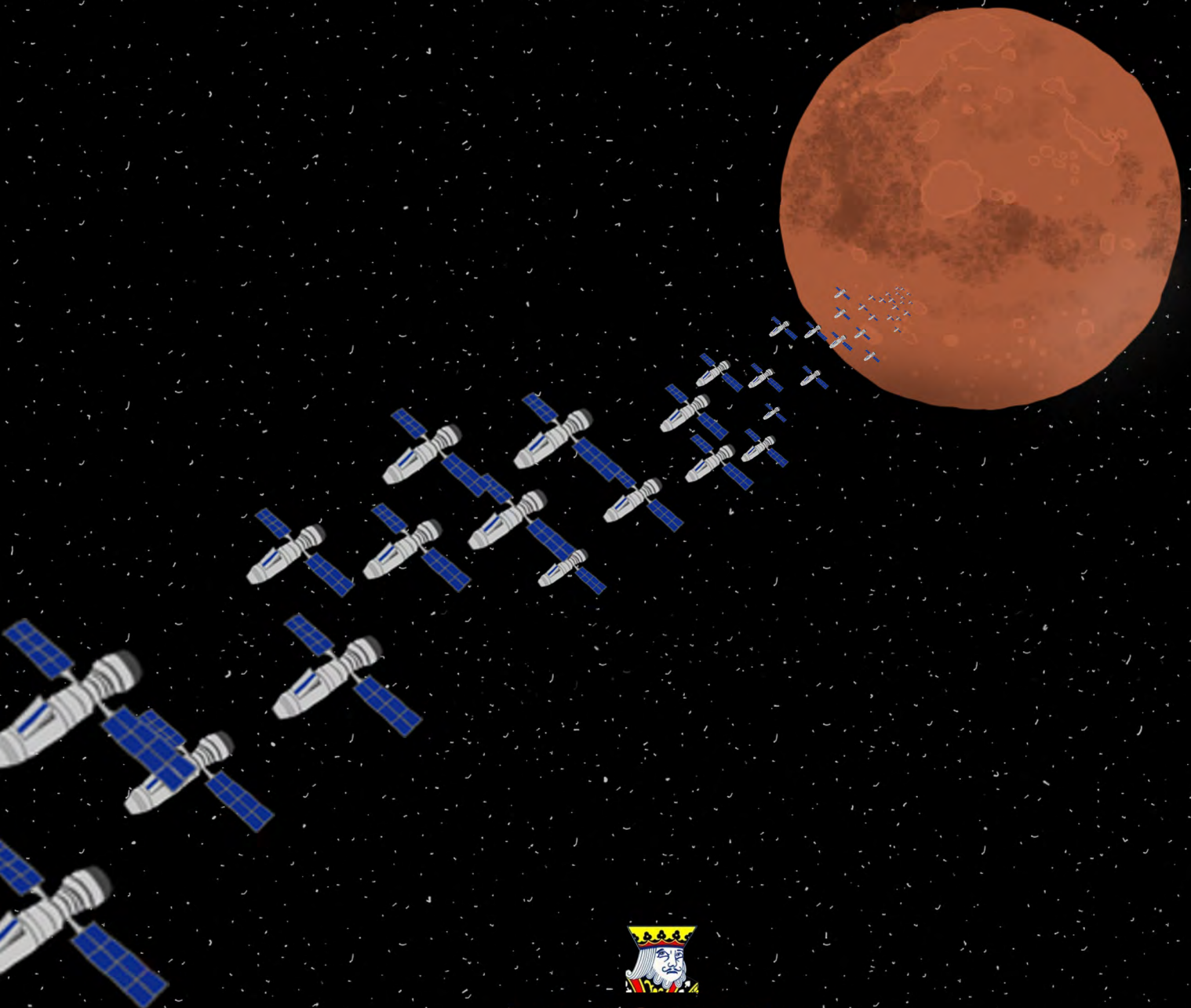


How (and Why) SpaceX Will Colonize Mars

By Tim Urban



WAIT BUT WHY

Introduction

This is Part 3 of a four-part series on Elon Musk's companies. For an explanation of why this series is happening and how Musk is involved, [start with Part 1](#).

Pre-Post Note: I started working on this post ten weeks ago. When I started, I never intended for it to become such an ordeal. But like the [Tesla post](#), I decided as I researched that this was A) a supremely important topic that will only become more important in the years to come, and B) something most people don't know nearly enough about. My weeks of research and discussions with Musk and others built me an in-depth, tree-trunk understanding of what's happening in what I'm calling The Story of Humans and Space—one that has totally reframed my mental picture of the future (yet again). And as I planned out what to include in the post, I wanted to make sure every Wait But Why reader ended up with the same foundation moving forward—because with everything that's coming, we're gonna need it. So like the Tesla post, this post became a full situation. Even the [progress updates](#) leading up to its publication became a full situation.

Thanks for your patience. I know you'd prefer this not to be a site that updates every two months, and I would too. The Tesla and SpaceX posts were special cases, and you can expect a return to more normal-length WBW posts now that they're done.

About the post itself: There are three main parts. Part 1 provides the context and background, Part 2 explores the “Why” part of colonizing Mars, and Part 3 digs into the “How.” To make reading this post as accessible as possible, it's broken into five pages, each about the length of a normal WBW post, and you can jump to any part of the post easily by clicking the links in the Table of Contents below.

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A SPACEX FUTURE 155

2365 AD, Ganymede

One more day until departure. It was so surreal to picture actually *being* there that she still didn't really believe it would happen. All those things she had always heard about—buildings that were constructed hundreds of years before the first human set foot on Ganymede; animals the size of a house; oceans the size of her whole world; tropical beaches; the famous blue sky; the giant sun that's so close it can burn your skin; and the weirdest part—*no Jupiter hovering overhead.* Having seen it all in so many movies, she felt like she was going to visit a legendary movie set. It was too much to think about all at once. For now, she just had to focus on making sure she had everything she needed and saying goodbye to everyone—it would be a long time before she would see them again...

Part 1: The Story of Humans and Space

About six million years ago, a very important female great ape had two children. One of her children would go on to become the common ancestor of all chimpanzees. The other would give birth to a line that would one day include the entire human race. While the descendants of her first child would end up being pretty normal and monkey-ish, as time passed, strange things began to happen with the lineage of the other. ¹

We're not quite sure why, but over the next six million years, our ancestral line started to do something no creatures on Earth had ever done before—they woke up.

It happened slowly and gradually through the thousands of generations the same way your brain slowly comes to in the first few seconds after you rouse from sleep. But as the clarity increased, our ancestors started to look around and, for the very first time, *wonder*.

Emerging from a 3.6-billion-year dream, life on Earth had its first questions.

What is this big room we're in, and who put us here? What is that bright yellow circle on the ceiling and where does it go every night? Where does the ocean end and what happens when you get there? Where are all the dead people now that they're not here anymore?

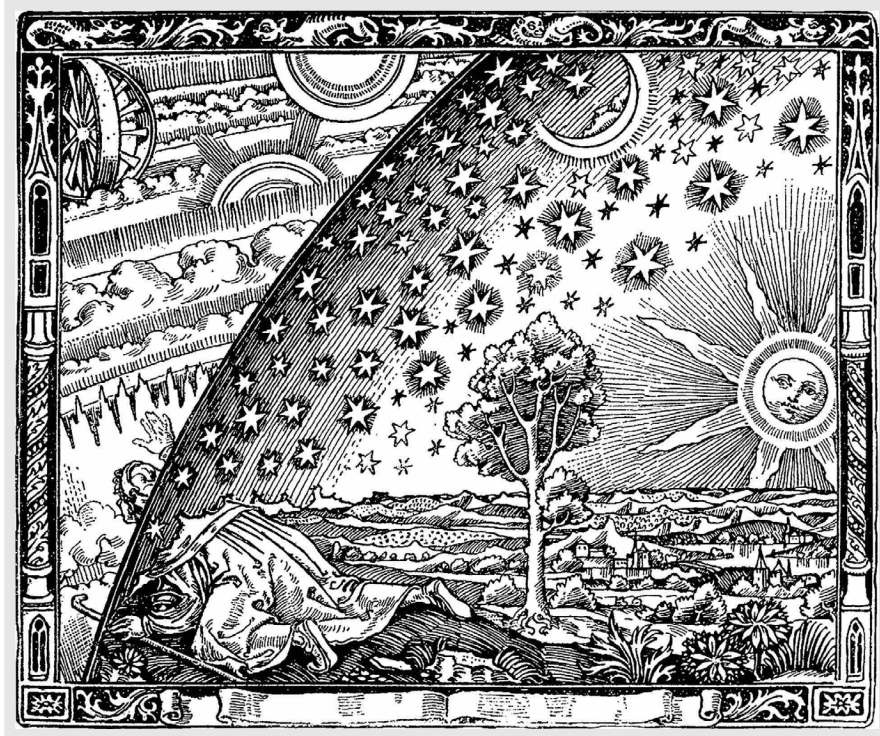
We had discovered our species' great mystery novel—*Where Are We?*—and we wanted to learn how to read it.

As the light of human consciousness grew brighter and brighter, we began to arrive at answers that seemed to make sense. Maybe we were on top of a floating disk, and maybe that disk was on top of a huge turtle. Maybe the pinpricks of light above us at night are a glimpse into what lies beyond this big room—and maybe that's where we go when we die. Maybe if we can find the place where the ceiling meets the floor, we can poke our heads through and see all the super fun stuff on the other side.²

1 Blue numbered notes like the **1** on the left are for fun facts, extra thoughts, extraneous quotes from my conversations with Musk, and further explanation. They'll appear in the margins. Orange numbered notes like the orange **1** on the left are for sources and citations—they'll appear at the bottom of each page.

¹ Small orange footnotes are boring and when you click on one of these, you'll end up bored. They're for sources and citations.

² Image: [Wikimedia Commons](#)



Around 10,000 years ago, isolated tribes of humans began to merge together and form the first cities. In larger communities, people were able to talk to each other about this mystery novel we had found, comparing notes across tribes and through the generations. As the techniques for learning became more sophisticated and the clues piled up, new discoveries surfaced.

The world was apparently a ball, not a disk. Which meant that the ceiling was actually a larger sphere surrounding us. The sizes of the other objects floating out there in the sphere with us, and the distances between them, were vaster than we had ever imagined. And then, something upsetting:

The sun wasn't revolving around us. We were revolving around the sun.

This was a *super* unwarm, unfuzzy discovery. Why the *hell* weren't we in the center of things? What did that mean?

Where are we?

The sphere was already unpleasantly big—if we weren't in the center of it, were we just on a random ball inside of it, kind of for no apparent reason? Could this really be what was happening?