A City on Mars: Reality kills space settlement dreams

Penguin Random House

reader comments

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Let me start with the TLDR for *A City on Mars*. It is, essentially, 400 pages of "well, actually…," but without the condescension, quite a bit of humor, and many, oh so many, details. Kelly and Zach Weinersmith started from the position of being space settlement enthusiasts. They thought they were going to write a light cheerleading book about how everything was going to be just awesome on Mars or the Moon or on a space station. Unfortunately for the Weinersmiths, they actually asked questions like "how would that work, exactly?" Apart from rocketry (e.g., the getting to space part), the answers were mostly optimistic handwaving combined with a kind of neo-manifest destiny ideology that might have given Andrew Jackson pause.

The Weinersmiths start with human biology and psychology, pass through technology, the law, and population viability and end with a kind of call to action. Under each of these sections, the Weinersmiths pose questions like: Can we thrive in space? reproduce in space? create habitats in space? The tour through all the things that aren't actually known is shocking. No one has been conceived in low gravity, no fetuses have developed in low gravity, so we simply don't know if there is a problem. Astronauts experience bone and muscle loss and no one knows how that plays out long term. Most importantly, do we really

want to find this out by sending a few thousand people to Mars and hope it all just works out?

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Then there are the problems of building a habitation and doing all the recycling. I was shocked to learn that no one really knows how to construct a long-term habitable settlement for either the Moon or Mars. Yes, there are lots of hand-wavy ideas about lava tubes and regolith shielding. But the details are just… not there. It reminds me of Europe's dark days of depositing colonies on other people's land. The stories of how unprepared the settlers were are sad, hilarious, and *repetitive*. And, now we learn that we are planning for at least one more sequel.

Even space law comes under the Weinersmiths' microscope. I certainly wasn't aware of the extent of the law with respect to space. But it's there and has a lot to say about what you can and can't do in space. The Weinersmiths discovered that most space settlement enthusiasts seem to think that, somehow, these laws won't apply to them, or that there is some loophole that they can exploit. Worse, they seem to think that such an exploit would be free of consequences. Apparently, nuclear weapons-wielding countries won't react negatively to private citizens claiming large bits of space.

The Weinersmiths treat all their experts rather kindly. But, frankly, reading between the lines, there is a thick streak of libertarianism running through the space settlement community. From these experts' position, they need a really big telescope to see reality. For instance, supposedly space will end scarcity… and yet, any habitat in space will naturally have only a single source of food, water, and, even more urgent, oxygen, creating (perhaps artificial) scarcity. The idea seems to be that everyone will go to space for profit, except for the necessities of life, where we will all be caring and sharing. The magical thinking is more apparent when you realize that it is believed that encountering the vastness of

space will make humanity ultra-altruistic, while still being good capitalists. I have my doubts that this philosophy will work out well for anyone involved.

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In a more realistic take on how societies function when there is only one source for the vitals of life, the Weinersmiths draw on the experiences (positive and negative) of company towns. It’s not all bad: Some company towns were very well run and fair, while others could have been dedicated as a shrine to tin-pot dictatorships. There is no reason, the Weinersmiths argue, to think we will not see the same in space, with the added benefit of not being able to escape from the company towns.

A City on Mars

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Even the idea that other resources, like ores, will not be scarce is overly optimistic. No one knows if you can turn a profit mining asteroids. The Moon holds absolutely nothing of value. And do you really want to create a group of hungry, disgruntled miners that are also able to sling very large rocks at the Earth?

A City on Mars ends with a kind of call to action. The point is that we have a tiny space station, and we have the potential to build a lot of experimental facilities on Earth where we can investigate some of the practical problems. Let’s get the biology and engineering right before we send people to Mars. While the technology is being worked out, clarify the law so that if (or when) we settle elsewhere, we do so in a way that is not going to start a war between angry, nuclear weapons-wielding nations.

I think the point that *A City on Mars* is making is that the

only clear evidence for how space affects humans is weighted quite strongly *against* going. That balance could be changed by doing the work to discover the answers to some of the questions posed in the book. However, it seems ethically dubious to chuck a bunch of people off the proverbial deep end to get those answers. So, maybe do the work beforehand?

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