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Crash as Trash

When should we start thinking about cleaning up our space junk on Mars?

NASA / JPL-CALTECH

▲ The Perseverance rover's "backshell" lies where it fell in early 2021 on the surface of Mars's Jezero Crater.

SHARDS OF ALIEN METAL lie strewn about the crash site of a derelict contraption from another planet, the remains of an intricately machined saucer sent by a strange and distant civilization. . . .

Ours.

In April, NASA's Ingenuity helicopter, which is tagging along with the Perseverance rover, returned hauntingly surreal photographs of the rover's own discarded "backshell," the cover of its entry vehicle. As the rover descended to the Martian surface on February 18th of last year, the backshell was jettisoned and came to rest, largely intact but smashed around the edges, atop the shifting red sands.

My first thought on seeing the image above was "Cool!" It's still very hard to fly something to Mars, and now to finally fly something *on* Mars, not to mention use it to survey our own wreckage from the air — that is next-level cool. It's also useful: The forensics of the crash can help us improve future landing craft.

My second thought was "Beautiful!" If Mars has never had life (open question) or, as seems likely, any of its own cultures to create art or technology, then arguably there's something wonderful about finally bringing these to the planet.

But my third thought was to wonder when we will start picking up after ourselves. Some readers will consider it ridiculous to ask. Others will consider it ridiculous not to ask. They're both right. It's just a question of time scale and perspective.

To worry about this right now seems silly. It's like asking the first sea creatures that wriggled onto a shoreline of Earth's barren continents billions of years ago to erase their tracks. Mars is so vast, unexplored, and utterly empty of artifacts, and our efforts are so tentative and puny. But a few thousand years ago, our own planet seemed so huge compared to any of our creations or influences that it would have seemed silly then to think we could meaningfully perturb or pollute it.

In a later era that I've called the "immature Anthropocene," we started to significantly alter our planet but remained ignorant of the fact that we could. Finally, as our numbers and influence grew, we learned that there was no throwing things "away," that we inhabit a finite and mutable world.

Our maturity as a species is tied to our recognition that we are a *planet-changing* species and must learn to act accordingly. Integrating this realization into our global-scale activities will be at least as essential to our long-term survival as becoming a multi-planet species might someday be.

We are obviously a long way from filling up Martian craters with our debris, bacteria, and effluence. I bet it will be many generations before humans live on the Red Planet in sufficient numbers to have a self-sustaining presence and make our mark to any significant degree.

But at what point in the future should we concern ourselves with this? If we imagine that someday we'll build cities and civilizations there, then clearly "never" is the wrong answer.

Mars is not an escape hatch for a ruined Earth. It could, however, serve as a model for how we engage with a planet from the beginning, with a long-term plan and ourselves in the picture. Perhaps interacting thoughtfully with Mars, as opposed to inadvertently and haphazardly, can even help us care for our home world both before and after some of us do eventually leave our comfortable blue-and-green Earth for the challenging lands beyond.

Ad astra cum conscientia.

■ Astrobiologist **DAVID GRINSPOON** is author of *Earth in Human Hands: Shaping Our Planet's Future.*