



From the intersection of computational science and technological speculation, with boundaries limited only by our ability to imagine what could be.

DOI:10.1145/3303769

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Future Tense Hawking's Nightmare

Stephen Hawking warned us not to contact E.T.

YURI SHEKHOV WAS outside the lunar habitat in his space suit, preparing to watch the supply shuttle from Earth fire its retro rockets and land. The sun glinted off the windows of the boxy crew module, attached to its strange collection of spherical pressurized fuel tanks, rocket nozzles, and articulated cushioned footpads, as it hovered suspended atop its rocket exhaust, carefully lowering itself onto the landing pad. In the airless lunar environment, the shuttle did not need to obey any aerodynamic forms or compensate for more than lunar gravity.

Shekhov had talked with the pilot, who reported a nominal status during the shuttle's orbit and braking maneuvers just above the east edge of the lunar hemisphere that was visible from Earth. It looked to be a flawless landing near his optical-beacon habitat, located at 98 degrees east longitude, eight degrees around to the lunar far side in the crater named for American rocketry genius James H. Wyld. The pilot had deftly avoided the structure behind him that itself embodied the purpose of the billion-dollar lunar base—a giant 45-meter telescope financed and built by wealthy Russian fracking tycoon Oleg Volkov. The telescope pointed approximately 45 degrees southward, toward the nearest star, Proxima Centauri, and its planetary consort, Prox Cen b. A nuclear power plant buried 20 feet below the lunar surface nearby supplied a two-megawatt laser that pulsed with infrared light, round the clock, directed by the telescope with milli-arc-second accuracy, toward the exoplanet four light years away. It also supplied enough direct heat to make the human



quarters as comfortable as a Caribbean villa in tourist season.

When the shuttle was secured to the pad and its engines safely deactivated, Shekhov bounced over to it in the light gravity (one-sixth Earth equivalent) and pulled the latch that released the supply capsule from the shuttle. The capsule deployed its wheels and started to roll on a 100-meter roadway to the habitat. The process was automated, leaving him to turn his attention to the space-suited figure of a passenger exiting the airlock of the crew module. Giving a friendly wave, he radioed, "Welcome to Hawking's Nightmare. You're in time for lunch." After living here practically alone for six months to manage the base, he was glad to welcome a new crew member, any new crew member.

The supply capsule docked with the habitat, and the shuttle ignited its engines to propel it back to lunar orbit and where it was scheduled to

rendezvous with an orbiting booster for its return to Earth. Shekhov and the newcomer cycled through the habitat airlock and removed their helmets inside the habitat.

The newcomer's helmet came off and freed a glorious halo of curly red hair that expanded into the low-gravity environment. "Andrea Caruthers reporting for duty sir," she said.

"Welcome," said Shekhov. "Today we are having borscht and roast beef. Enjoy."

The food was surprisingly savory considering it included no naturally raised animal protein but was as nutritious as an Earthly steak and potato, along with an extra-nutritious dessert. As they dug into the dessert, with the taste and consistency of sherbet, chilled, as it was, in a sunless crater beneath the far side's Earthless skies, she said, "It was spectacular orbiting the Moon. Descending over the Neper and Jansky craters, the view was awesome."

"Awesome, indeed," Shekhov agreed. "But the crater walls keep me from seeing Earth. We always keep the laser from pointing directly toward Earth, but it has been a lonely six months. I am able to exchange messages with home only when the comsat flies over, but that is not at all the same as being in Moscow."

"I'm amazed the laser has been operating continuously for eight years! Most people on Earth have dismissed the project as Volkov's folly. Few know the light-travel-time for our messages to Prox Cen b has passed, plus enough time for a reply message to arrive at the speed of light. It's no wonder [CONTINUED ON P. 119]

[CONTINUED FROM P. 120] I had to compete with only a few other candidates to get this six-month detail. Do you think there are beings on Prox Cen b who can receive the message, as modulated in the infrared beam, and actually respond?”

Shekhov grinned, “Now you are testing my faith in the mission and the skills of its managers in mission control on Earth. I would not be here long if I doubted the mission’s scientific value and ultimate success.”

Caruthers said, “Stephen Hawking, the English professor, warned that if we contacted space aliens, we would inevitably risk some kind of attack. We’d be at such a disadvantage technologically and intellectually. We’d be overwhelmed in no time and decimated like the indigenous natives of the Americas at the time of the conquistadors. Our command of all the resources on our ancient but familiar Earth and Moon wouldn’t be enough to protect us.”

“Hawking was projecting his guilt for the sins of the European empires in the colonies, along with his own infirmities and impending mortality. Just a timid old professor, he was. I think aliens really might respond to the message in the laser beam. They might greet us as fellow intelligent beings in the endless Universe, but there is no chance they could harm us. For one thing, they are probably simply too far away, not only in distance but in the technological advancement we can expect from future human generations as they come and go many times over.”

Caruthers said, “Do you think they could decode the message in the laser modulation?”

“It’s complex,” Shekhov admitted. “If aliens really do exist, we probably will have to wait for them to decipher it and compose an intelligent reply we would be able to interpret.”

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Even as Shekhov gave Caruthers a tour of the habitat, the alien mother ship from the Prox Cen b node used its titanic antimatter engines to decelerate into an orbit 200 km above Earth’s equator and scanned the now-terrified population centers below. The primitives, in their view, were still using vulnerable electromagnetic technology so would be easily subdued into harmless members of the processor

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swarm in the Earth’s arm of the Milky Way Galaxy, compliant with the hive imperative to exploit Solar System resources.

The mother ship now disgorged several thermonuclear devices, detonating them in low orbits above major cities where the electromagnetic pulses would render human power and computer grids nonfunctional. The descriptions of human culture and technology the swarm received in the laser transmission back on Prox Cen b, and now on their mother ship, made the task straightforward. A few retaliatory ICBMs were launched by Russia, the U.K., and the U.S. but were quickly disabled by the mother ship’s high-energy particle cannons, doing no damage other than alert the Earth’s human population to the aliens’ overwhelming force.

It seemed Hawking would be proved right.

Pods filled with billions of minidrones entered the atmosphere and aerobraked until they reached the troposphere, then dispersed on wings like a swarm of attacking hornets. They flew through the night air, identifying humans and their structures through their infrared profiles and attached themselves with neural-connection electrodes to their brainstems, reducing them to compliant zombies. An alien global Wi-Fi network of neural commands and control quickly incor-

porated the now-networked humans into a new node of the swarm.

Once the alien swarm had assimilated them into its hive mind, it quickly assessed and identified the most advanced human technology it could exploit—blockchain.¹ The alien hive quivered with delight at the prospect of adding ironclad reliability to each transaction among network members in its Wi-Fi network by implementing distributed virtual ledgers. With blockchain, radio interference would never corrupt the network’s transactions, ensuring perfect command and control of its members and their collective will. The swarm thus converted *all* of its transactions to blockchain and sent a radio transmission back to Prox Cen b mission control propagating the blockchain technology to neighboring nodes in the Earthly galactic arm.

Power consumption skyrocketed as the networked humans on Earth and aliens aboard the mother ship burdened each transaction with cryptographic virtual ledger updates. Unsustainable heat built up in the circuits, the mother ship’s processors were overwhelmed and exploded, and the neural connectors to the humans shorted out, leaving only an eerie electric blue glow that briefly filled the Solar System, before winking out.

Shekhov, Caruthers, and the other humans still on the Moon heard panicked messages from the last free humans on Earth via the comsat. They feared for all humankind, but the exponential blockchain wave of networked destruction made short work of the aliens and their threat. The crew of the Hawking’s Nightmare facility then received another message from mission control in Moscow via the comsat: Shut the laser. It had fulfilled its purpose—establishing we are not alone but would probably prefer to be. C

Reference

1. Church, Z. *Blockchain, explained*. MIT Sloan School of Management, May 25, 2017; <http://mitsloan.mit.edu/ideas-made-to-matter/blockchain-explained>

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