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Volume



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DESIGN EARTH

THE SYSTEM

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THE SYSTEM *

'The system' is oft lamented to little effect. Aside from something out of our hands, what is 'the system', anyways? And how out of our hands is it, really? In this issue of Volume, we're collecting a series of definitions, maps and strategies for intervening in it.

* **leveraging** To position ones efforts within a system so that its outcomes are multiplied by the system itself.

* **short-circuiting.** To modulate resistance so that either excessive or insufficient current flows.

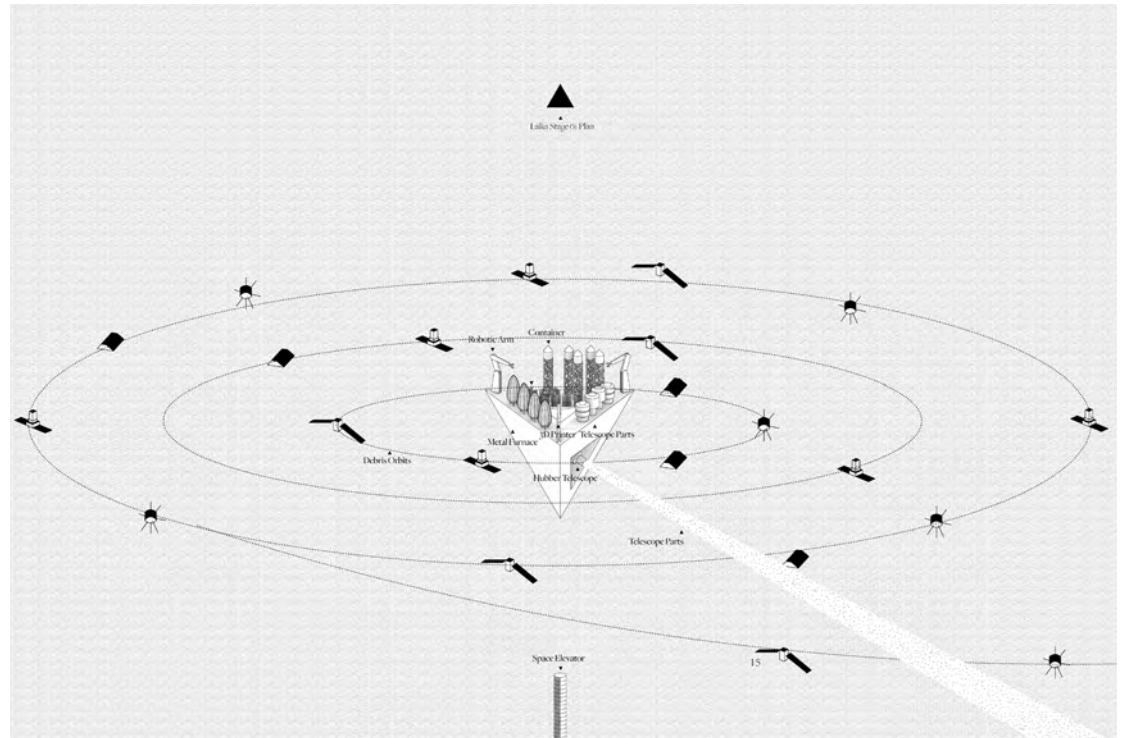
* **disrupting** To develop alternative processes and replace existing technologies.

* **infecting** To introduce an alien and viral presence.



PLAN AND SECTION DIAGRAM of the space elevator that connects Earth to the newly formed Planet Laika.

NEW STATION WITH ROBOTIC ARMS placed in geostationary orbit.



DESIGN EARTH

On the 4th of October 1957, the Soviet Union launched Sputnik 1, making the 58 cm diameter shiny metal sphere with four antennas the first artificial Earth satellite. The spaceflight mission also created our first piece of space junk: the carrier rocket body that launched the satellite in low orbit. In August 1966, *LIFE Magazine* published 'Planet Earth by Dawn's Early Light', a photo-essay from NASA's Gemini 10 shuttle flight. Capturing the earth from the most remote perspective to date, the final photograph of the series showed a single trash bag floating in space, a bag which contained objects that the shuttle intended to leave behind before the mission's return to Earth. At over a million feet above the planet's surface, the plastic bag and its contents seemed categorically unrelated to trash on Earth, more of a time capsule than litter. The short essay that closed the article alerted readers to the "growing clutter of space trash" and argued that the more than 1,200 large objects in orbit could someday "cause a serious traffic problem in space."¹ Not even the infinite volume of outer space was exempt from the perils of trash; as the editors of *LIFE* observed, just as cities had become clogged with animal waste and garbage, space trash could eventually become the proper concern of extraterrestrial street cleaners.

Over the last decades, thousands of satellites from more than forty countries have been launched into orbit around the Earth. A few hundred satellites are currently operational, whereas thousands of unused satellites, satellite fragments, and leftover rockets orbit the Earth

NO MATTER HOW MUCH IT'S TALKED ABOUT, AS A PLANET, WE STILL DON'T KNOW WHAT TO DO ABOUT ALL OF THE JUNK WE'VE SENT UP INTO OUR ATMOSPHERE OVER THE PAST FIFTY YEARS. BY REINTRODUCING THE IDEA OF A SPACE ELEVATOR AS AN UMBILICAL CORD BETWEEN THE SURFACE OF THE EARTH AND GEO-STATIONARY ORBIT, DESIGN EARTH HAS PROPOSED TO CONSOLIDATE THAT JUNK TO FORM A NEW GROUND PLANE UP IN THE HEAVENS: PLANET LAIKA.

as space junk. "Orbital debris poses a risk to continued reliable use of space-based services and operations and to the safety of persons and property in space and on Earth," observes NASA.² Such material byproducts of the space age and the information age pose collision risks with operational space objects. This problem is especially significant in geostationary orbits, where satellites cluster over their primary ground targets and share with space debris the same orbital path. At that height, orbital debris will normally continue circling the Earth for centuries or more. As new satellites continue to be launched at a growing rate of over a hundred per year, the risks and detrimental effects of Earth's orbiting junkyard are ever increasing as well.

We can respond to the large volume of space debris by casting the contemporary culture of information and technology as a 'space of flows'? Coined to capture the condition of the global political economy, the concept 'space of flows'³ rightly acknowledges the intensified flows of people, goods, money, information, and technology. However, the term's focus on unhindered steady circulation abstracts the underlying material infrastructures all while rendering the material dimensions of the world beyond the purview of designers and space archaeologists. Information, however, does not circulate across the globe without friction. Artificial satellites have neither annihilated nor depoliticized the Earth and its outer space. Rather, and as anthropologist Anna Tsing articulates, globalization can only be charged and enacted in the sticky materiality of practical encounters – through what she calls friction: "the awkward, unequal, unstable, and creative qualities of interconnection across difference."⁴ Tsing suggests that

NECK OF THE MOON

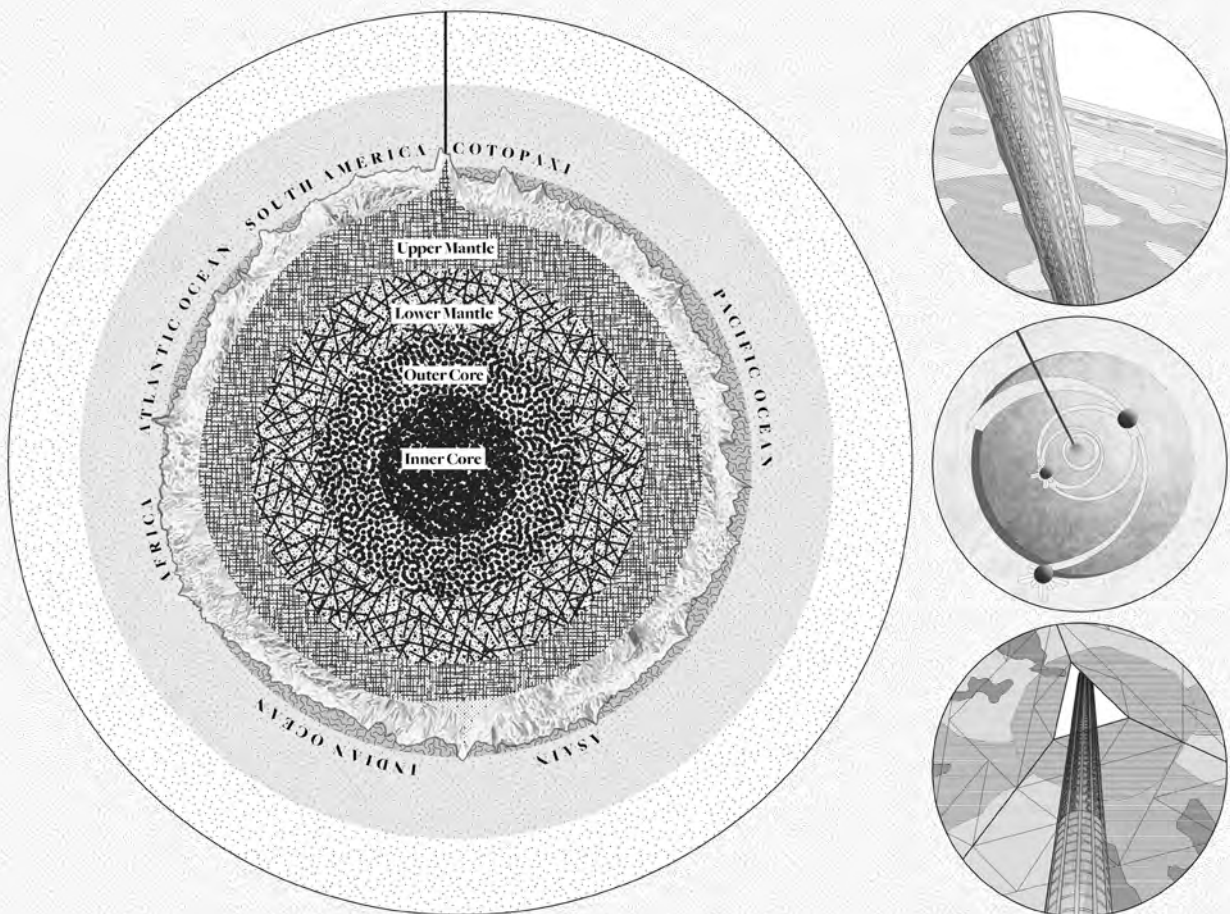
if we imagine the flow as a creek, we would notice not only what flows are but also the channels that makes the flow possible – the political and social processes that enable or restrict flows. From this perspective, space is understood as a constitutive dimension of global processes, a tool of governance, and a stake of contestation in itself. Space is thus reordered by information technologies rather than eroded by metabolic flows.

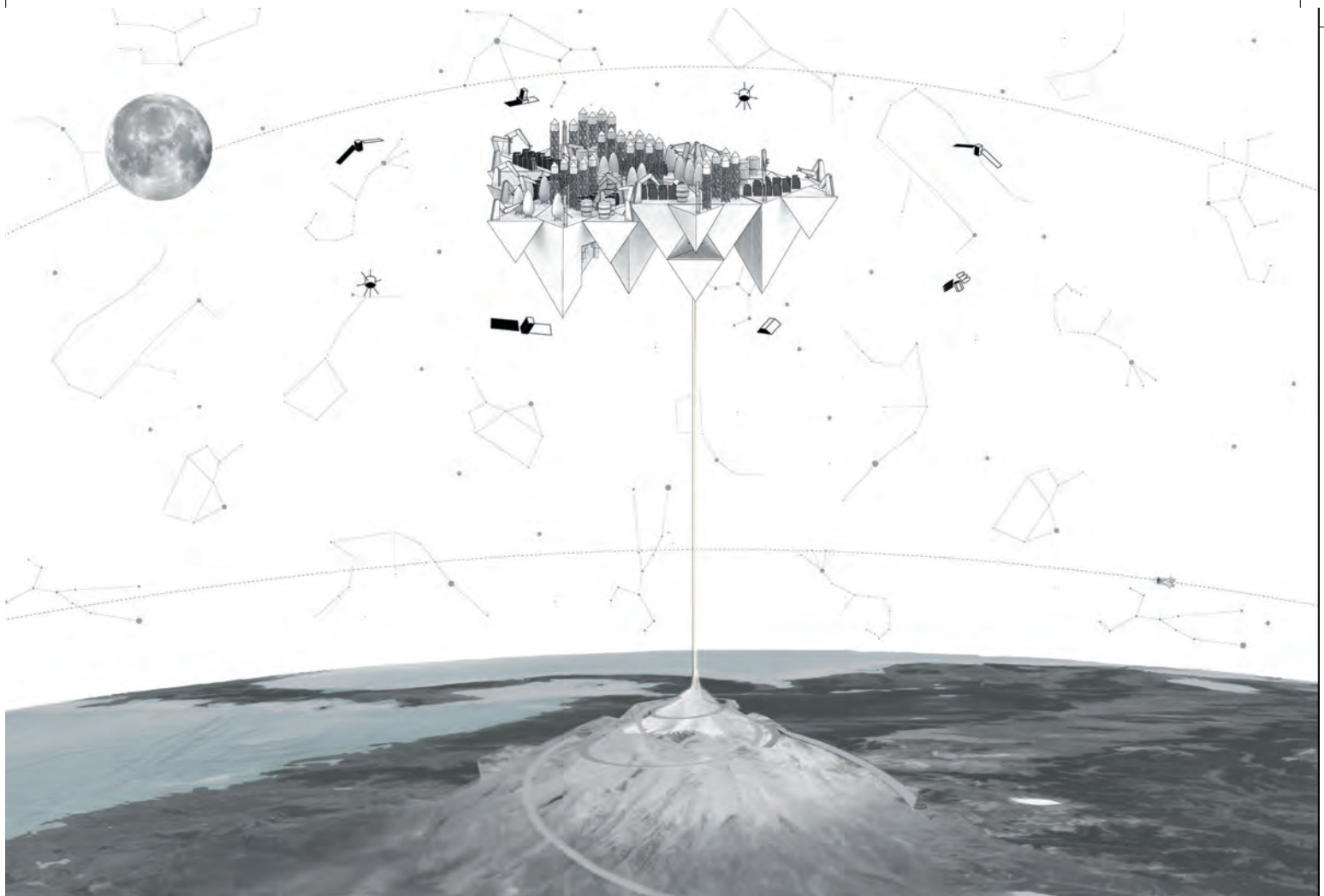
Neck of the Moon is a project that channels the geographical matter and imagination of artificial satellites. It cleans up the orbital environment by compacting targeted space debris into a new satellite planet that orbits the Earth. Rather than displacing the debris to a lower altitude, or pulverizing it into thin air, a large tug with a robotic arm approaches and compacts large objects at high altitudes. From atom to nebula, the compacted mass grows into planet Laika, the Earth's second moon. Its name-sake, a stray dog from the streets of Moscow, was the first creature to orbit the Earth. Both

Laika cyborgs share a vital generative role in humanity's journey through the space and information age. An umbilical line ties Laika to the Earth. The cordlike structure is a space elevator that connects the Earth to the newly formed planet and supplies it with materials, and also beams the solar energy captured by Laika back to Earth.

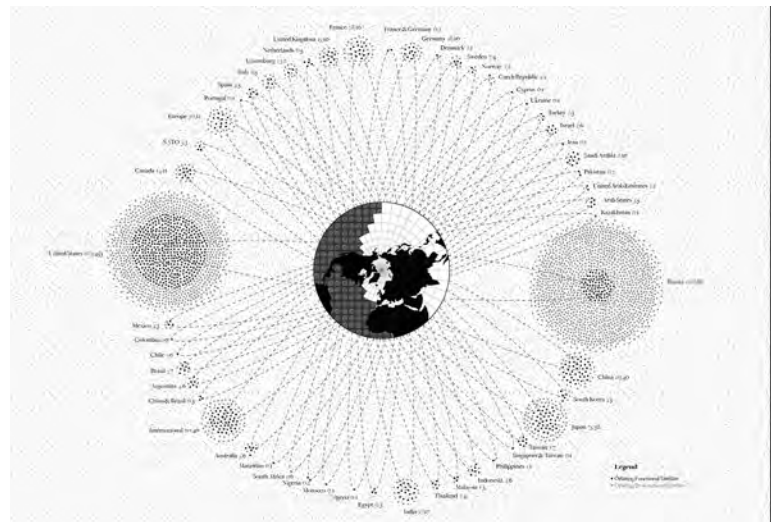
The space elevator ducks into the 250m deep crater of Cotopaxi, for many years the world's tallest active volcano. At some fifty miles from the equator, due to the oblate spheroid shape of the planet, the summit of Cotopaxi is of the farthest points from the Earth's center. Its landform is also distinct; the near-symmetrical cone-shaped volcano is topped with one of the few equatorial glaciers in the world. On a clear day, its snowcapped summit is visible from the skyline of Quito 60 km away. Shining with dazzling splendor at the sunset, the mountain detaches itself in the most picturesque manner from the azure vault above. Its name 'Coto-Paxi' is of

A SPACE ELEVATOR, THE PROJECT'S UMBILICAL CORD, carries people and resources between Planet Laika and Cotopaxi Volcano on Earth.





VIEW OF THE TOTALITY with the volcano's colossal landform and the Earth's two moons floating amidst space debris and starry constellations.



MAPPING PER COUNTRY of geostationary satellites both operational and decommissioned.

Quichua origin, an Incan language still being spoken among the natives of the Andes, and means 'Neck of the Moon.' During a full moon, the volcano crater appears to hold the planet.

The volcano's conical shape had impressed the geographer Alexander von Humboldt in his nineteenth-century travels to tropical America. He wrote: "We may consider this colossal mountain as one of those eternal monuments, by which nature has marked the great divisions of the terrestrial Globe."⁵ The figure of mountains plays a major role in Humboldt's scientific method and vision of the world. Equatorial mountains were of particular interest. "There," he noted, "the depths of the earth and the vaults of heaven display all the richness of their forms and the variety of their phenomena."⁶ In the introduction to a volume containing etchings of Andean volcanoes, the configuration of great mountain masses is constitutive of what he called "the physiognomy of nature", which includes, along with volcanoes, the different grouping of plants, species of animals, zones of the earth and "the nuance of the celestial vault."⁷ Humboldt's influential treatise *Cosmos*, which draws heaven and earth together, was born on the slopes of the Andes.⁸ As he wrote, "it was the discovery of America that planted the seed of the Cosmos."⁹ In an assem-

blage of scientific studies in astronomy, geography, and geology, his "portrait of nature" draws together a physical geography of the Earth together and that of outer space – the Milky Way, cosmic nebulae, and planets.

Neck of the Moon articulates a relational and integrative knowledge of the Earth that connects the internal, external and aerial layers of the Earth. The project embodies the will to articulate cosmic, topographical, climatic and vegetal features of the Earth's surface; and to analyze the interaction between landscape features and people's imaginations, from scientists to artists and beyond. We are Odysseus as we travel collectively from man-ape to starman. "It is not with rockets, Sputniks or missiles that modern man will achieve the conquest of space," observed Yves Klein. "It is by means of the powerful yet peaceful force of his sensitivity that man will inhabit space."¹⁰ Beyond the generic term for satellites, *спутник* – *sputnik* in Russian – also refers to the 'traveling companion' or the 'fellow traveler' (of Earth). And so does this story, exploring what it means for us cyborgs to be embodied in these high-tech space junk worlds.

Project Team: El Hadi Jazairy + Rania Ghosn, with Jia Weng, Mingchuan Yang, Shuya Xu, Hsin-Han Lee, Sihao Xiong.

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| <p>1 'Planet Earth by Dawn's Early Light,' <i>LIFE Magazine</i>, August 5 1966, pp. 28.</p> <p>2 'Orbital Debris Frequently Asked Questions,' NASA Orbital Debris Program Office, last updated March 2012. At: orbitaldebris.jsc.nasa.gov/faqs.html (accessed 8 February 2016).</p> <p>3 Manuel Castells, <i>The Rise of the Network Society, The Information Age: Economy, Society and Culture</i>, Vol. I. (Cambridge, MA, Blackwell 1996), pp. 412.</p> | <p>4 Anna Tsing, <i>Friction: an Ethnography of Global Connection</i> (Princeton, Princeton University Press 2005).</p> <p>5 Alexander von Humboldt, <i>Researches Concerning The Institutions and Monuments of the Ancient Inhabitants of America with Descriptions and Views of Some of the Most Striking Scenes in the Cordilleras</i> (London, Longman, Hurst, Rees, Orme & Brown, J. Murray and H. Colburn 1814), pp. 100.</p> | <p>6 Alexander von Humboldt, <i>Volcans des Cordillères de Quito et du Mexique</i> (Paris: Gide et J. Baudry 1854), pp. 6; quoted in Bernard Debarbieux, 'The various figures of Mountains in Humboldt's Science and Rhetoric', <i>Cybergeo</i>, 2012. At: cybergeo.revues.org/25488 (accessed 8 February 2016).</p> <p>7 Ibid.</p> <p>8 Alexander von Humboldt, <i>Cosmos: a sketch of a physical description of the</i></p> | <p><i>universe</i> (London: George Bell and sons 1883).</p> <p>9 Laura Dassow Walls, <i>The Passage to Cosmos: Alexander von Humboldt and the Shaping of America</i> (Chicago: University of Chicago Press 2009).</p> <p>10 Yves Klein, 'Truth Becomes Reality'. In Simon Morley (ed.), <i>The Sublime</i> (London: Whitechapel Gallery/ Cambridge, MA: The MIT Press 2010), pp. 72.</p> |
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