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INTER ALIA

ALIENS AND AI

In the future, we are the ancient aliens.

—Trevor Paglen, *The Last Pictures*

In June 2018, we received the stark news that the inhabitants of Earth are alone in the universe.¹ Claims to the contrary, researchers from Oxford University’s Future of Humanity Institute (FHI) maintain, could only be guesswork because the odds of discovering extraterrestrial intelligent life are, at present, highly improbable. And yet, only months before this pronouncement, no less a luminary than Stephen Hawking offered a grave warning regarding our search for, and attempts to communicate with, alien beings.² The risk of exposing ourselves is too great, Hawking asserted, and indeed exposure would likely be tantamount to our annihilation because a technologically superior alien civilization would be far more interested in colonizing and commandeering our planetary resources than in a welcoming exchange of civilizations. An even more speculative account of the potential risks of contact with extraterrestrial entities came recently from researchers imagining how a hostile species might destroy us with a kind of inter-planetary malware: “It is cheaper for ETI to send a malicious message to eradicate humans compared to sending battleships,” they posit.³ The security-conscious approach to such messages should thus be, “destroy without reading.”

Dire predictions of the existential threat posed by extraterrestrial life contrast quite sharply with the technological exuberance of such non-governmental and community-based initiatives as the Planetary Society, the SETI League, and SETI@home. And the notion that any messages we receive on Earth should be regarded as potentially lethal is perhaps even more strikingly at odds with the growing interest in messaging extraterrestrial intelligence (METI or CETI). The Pioneer plaques and Voyager Golden Record are distinguished by their sincerity and the care with which they were crafted. The Golden Record is to be regarded as a “present from a small distant world,” wrote President Jimmy Carter, in a message that “represents our hope and our determination, and our good will in a vast and awesome universe.”⁴ There is perhaps no less expressive feeling behind a crowdsourced project such as NASA’s *We the Explorers*, which invited citizens to contribute artwork for a spacecraft journey to the asteroid, Bennu. If the Pioneer and Voyager efforts could be read as communications of hope in the shadow of political and economic malaise, so too the recent project, *A Simple Response to an Elemental Message* (which asks contributors to reflect on the determinative effects of our environmental actions), can be read as an affirmation in the face of the unfolding catastrophe of the Anthropocene.⁵ More philosophically and semiotically rigorous projects aside, however, messaging ETI in the twenty-first century appears rather more like pinging a channel. Although Frank Drake and Carl Sagan’s informationally dense Arecibo message in November 1974 inadvertently contained

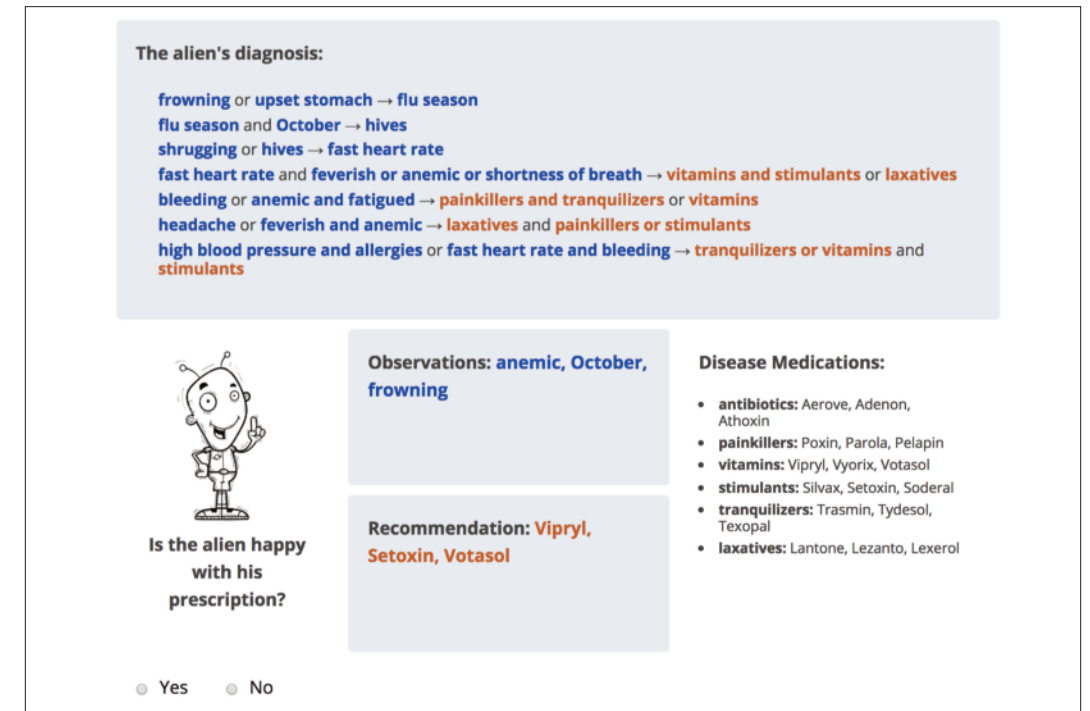
← Eduardo Kac, *Lagoogleglyph III* (May 2018). Drone image capture, Finsbury Park, London.
Photo: David McKenna and Furtherfield Gallery.

two characters of Morse code hailing its potential receiver with the basic greeting, “Hi,” in the contemporary moment our interstellar radio messages have seemingly become conditioned by the kinds of messages we bounce among ourselves, as in the phatic texts broadcasting a “Hello from Earth” to Gliese 581d in August 2009.⁶

The disquieting news that we are alone in the universe is unlikely perhaps to dampen the enthusiasm of Frank Drake, co-designer of the Arecibo message and author of a 1961 equation that both informed early SETI efforts and has now paradoxically served as the basis for the claim of our solitariness. Drake’s calculation of the probability of extraterrestrial life, the FHI researchers argue, suggests a certainty not backed by current evidence. Were Hawking still with us, one suspects he would be unlikely to find comfort in this study. Moreover, wary caution about the work to notify aliens of our presence is not his alone, and the increasing visibility of speculative extraterrestrial ventures—e.g., Elon Musk’s SpaceX and Yuri Milner’s Breakthrough Initiatives—has gone hand-in-hand with amplified expressions of hesitation and dissent. “We have no way of knowing” what the outcome of communication with an alien civilization would be, one astronomer rightly notes, while others more explicitly frame the exercise in terms of risk and call for a “worldwide scientific, political and humanitarian discussion” before further messaging attempts are made.⁷

What then accounts for the oscillations between optimism and alarm, made all the more remarkable by the fact that, aside from a few “false” signals (the excited but baffled detection of the first pulsar, for example) our search, and our messages, have been met with alien silence? To start, the oft-remarked pace of scientific and technological development has made the fantastic seem increasingly possible, and data from the growing research field of astrobiology, as well as Rover explorations and the detection of thousands of new exoplanets, are all improving the odds of our discovering extraterrestrial bacterial life. That the puncturing of a fantasy by an ever-more proximate actualization should result in anxiety will come as no surprise. But another answer to the question is to suggest that contemporary anxiety about alien communication ought to be understood in terms of the exponential advances in neural network research (so-termed “Artificial Intelligence”) and the probability that the *aliens* we encounter are more likely to be alien AI systems than organic beings.⁸ Or, to put this another way, the contemporary fear of the rise of AI and its threats to civil society as especially manifest in speculative fiction and journalistic discourse is also a projected displacement of this fear onto extra-planetary aliens. Elon Musk made the displacement explicit in his remarks at the World Government Summit in 2017. Asked if AI would in future be a benefit or threat for human communities, Musk remarked: “I think it’s both... one way to think of it is to imagine we’re going to be visited... by super-intelligent aliens, in let’s say 10 years or 20 years at the most.”⁹ Taking care to differentiate between general and narrow or task-based AI, such as that of autonomous vehicles, Musk deepened the analogy: “AI that is much smarter than the smartest human on earth” is, he warned, “a dangerous situation.... digital super-intelligence will be like an alien.”¹⁰ Strong AI, then, is alien AI.

The worry about computational sentience is of course not new—one has only to think of Isaac Asimov and Arthur C. Clarke—but it confronts us with greater material urgency as algorithmic decision-making grows ever more ubiquitous and machine learning systems become increasingly sophisticated. In fact, it is almost as if one cannot now think of machine learning without recourse to such an analogy, precisely because AI writ large in the popular imagination possesses, or is possessed of, an external intelligence, one that operates autonomously, unpredictably, and, in our deepest fears,



Screenshot of interface for Clinical Domain, Human Interpretability Study (2018).

mutinously. It is in this sense that AI is, indeed, alien (from Latin, *alienus* “belonging to another,” and *alius* “other”). Computational media has long been thought of in terms of alterity, from Alan Turing’s pioneering 1950 paper arguing for the difference of machine intelligence to Ian Bogost’s aptly titled articulation of *Alien Phenomenology*, a critical-philosophical perspective that emerges in part from his work within the “strange and unique world,” even “secret universe,” of the computational apparatus.¹¹ But even more pressing in the new context of AI, in the context of probabilistic rather than deterministic machine learning systems, are ethical, political, and legal questions about how and to what extent the rationale for decisions made by such systems can be interpreted and understood. To this end, researchers investigating the interpretability of machine learning systems recently devised an experiment in order to quantify what it is that makes a system’s decision or explanation interpretable by humans.¹² For their case study, they asked participants to assess the explicability of the rationale for recipe recommendations and clinical diagnoses ostensibly made by a machine learning system for aliens. The use of “alien” contexts is motivated by a need to present a neutral scenario, about which participants would have no preconceived notions. But perhaps we might consider the use of the cartoonish figure of a benign, friendly alien in the study interface to be unconsciously motivated in a different sense. As machine intelligence moves toward an eclipse of the human, the need to re-situate it as not-alien, not-other—belonging to us—becomes all the more acute.

To make the alien familiar, even to anthropomorphize it, is easy; actually recognizing the alien as such, however, may paradoxically be what is required for its discovery. Cultural theorists would

recognize the premise: to think in terms of universals is to risk the negation of difference, the failure to see what makes the alien *other*. At the World Science Festival in June 2018, a panel was convened to discuss the question of the search for extraterrestrial intelligence, which, the consensus held, may be even weirder than has previously been assumed.¹³ If life is defined in terms of Darwinian evolution, and SETI researchers accordingly seek out biosignatures such as molecules of oxygen and methane that are produced by organisms on Earth, might they miss alien signs of life? Accordingly, Sara Imari Walker, the astrobiologist on the panel, argued against the assumption that life is necessarily a chemical phenomenon and noted: “When I think about looking for life, I’m not really thinking about looking for cells on a planet or molecules in an atmosphere. I think about looking for an entirely new sector of physics.”¹⁴ Susan Schneider, the philosopher on the panel, agreed with the move toward thinking of life in terms of mathematical structures and information processing, suggesting that SETI might therefore be best oriented around the search for synthetic systems, the underlying mechanisms of which mirror neither human nor animal intelligence—in other words, “postbiological” entities rather than the fabled “little green man” or “ET model.”¹⁵ Noting that extra-terrestrial life may well function within a different substrate than silicon, she posited further that, “we might be looking for synthetic intelligences that are computroniums the size of a planet.”¹⁶ The “we” here encompasses not only human communities but also the alien AI systems deployed to seek out and make contact with other alien AIs, the programmable matter of speculative science.

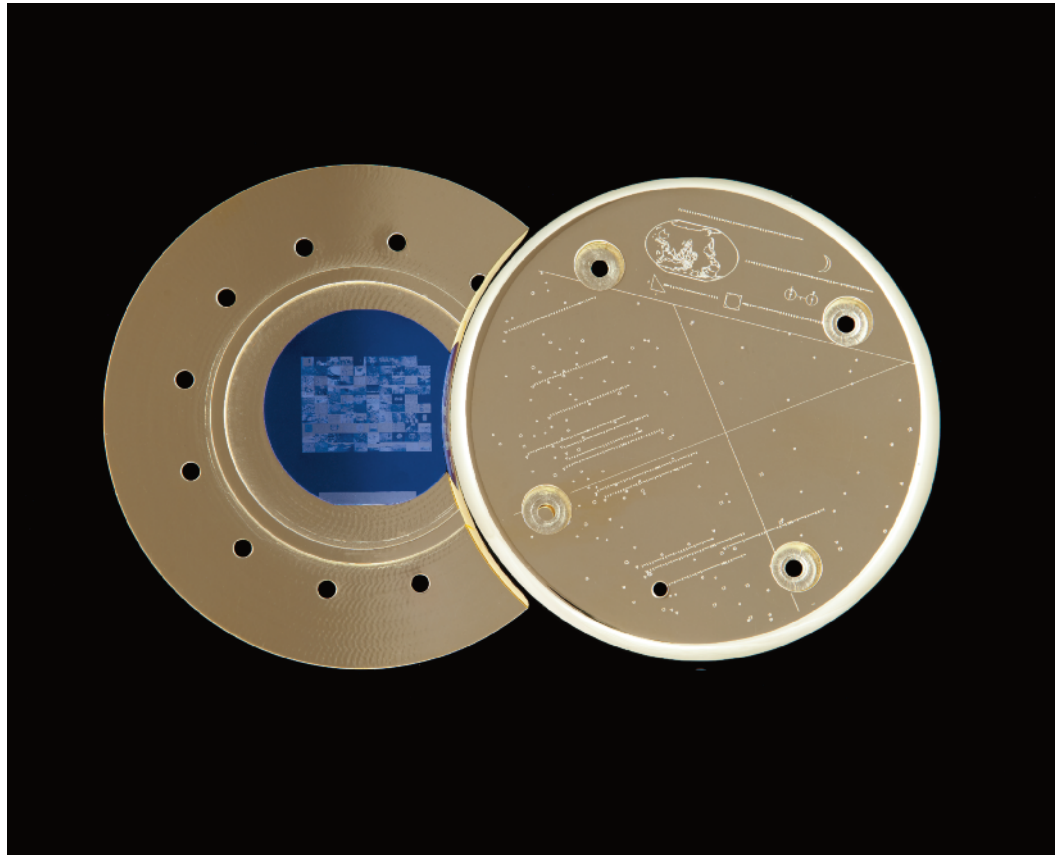
* * *

What does it mean to address an alien? What is the role of the work of art in that address? How does art that takes up this challenge also address us, as denizens of Earth in the time of the Anthropocene? As a way into these questions, we bring together works by two artists whose openness to the idea of alien communication offers a striking contrast with the apprehension of Hawking and other skeptics: Trevor Paglen, whose satellite project, *The Last Pictures* (2012), is at least partially informed by ethical questions about our hypothetical relationship to alien beings; and Eduardo Kac, whose *Inner Telescope/Télescope intérieur* (2017) and ongoing *Lagoogleglyph* series (2009-) claim a simultaneity of address, poetry for humans as well as aliens. These three works—a photographic archive, a delegated performance, and large-scale glyphs—might seem to differ at first glance in almost all respects: medium, duration, content, scale, and complexity. But what they do share, their site-specificity in orbit around the Earth, is the common material ground from which emerges the notion of an extra-terrestrial way of seeing—a way of seeing the art works themselves, as well as the world, from the possible perspective of an alien.

Paglen’s *The Last Pictures* has rightly received substantive critical attention as one of the highlights of his “experimental geography,” which largely concerns the topic of surveillance infrastructures.¹⁷ The project itself—a considered curation of images micro-etched on a silicon disc encased in a gold-plated container gesturing toward the Pioneer Plaque and Voyager Golden Record, and attached to the exterior of a communications satellite—has been well documented. There is, in other words, an archive for the archive: the collection of photographs on the Echo Star XVI that Paglen projects will “become one of the longest-lasting material artifacts of contemporary

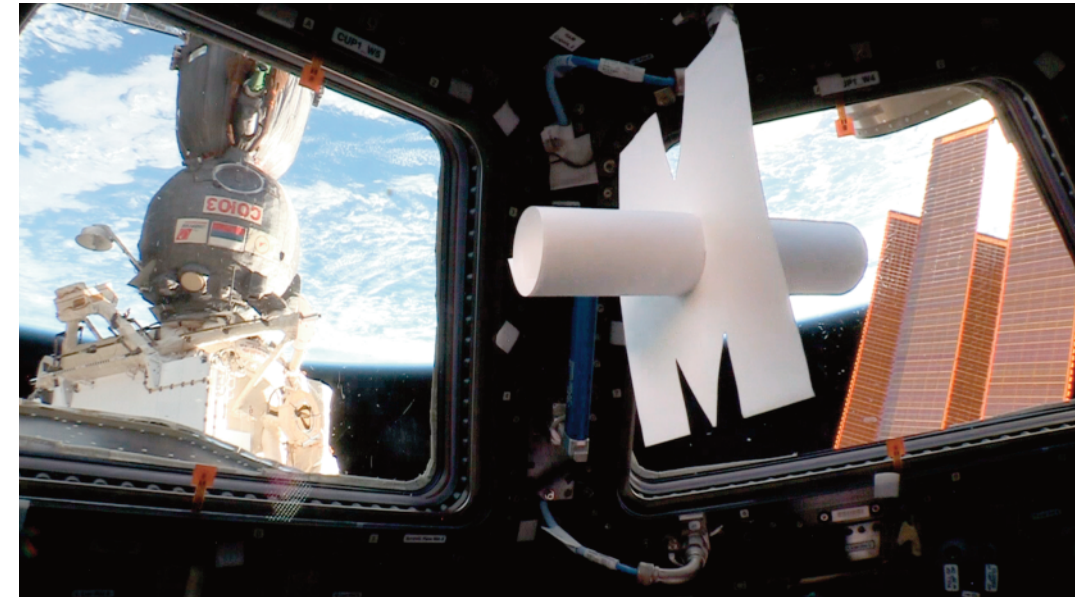


Trevor Paglen, *EchoStar XVI under construction* (2012).



Trevor Paglen, *The Last Pictures Artifact* (2013).

civilization”—an archaeological relic orbiting the Earth as space junk billions of years into the future, with “a slide-show for eternity.”¹⁸ Two aspects of this project are often discussed: its exploration of the geography and materiality of orbital space; and its engagement with philosophical and practical questions of modernity and deep time.¹⁹ What has been somewhat less remarked upon are the ethics of hospitality that inform it, particularly Paglen’s willingness to think sincerely about what it might mean to communicate with aliens who have come into Earth’s orbit. Echoing Derrida, in this case with regard to the alien other, he asks in a related article: “what relationship do we want to have to the cosmos, to the stranger, and to the future? Should our disposition be pregnant with the nihilism of silent indifference, or should we endeavour to develop an ethical relationship to those symbolic figures, and, by extension, ourselves?”²⁰ It is not that one needs to believe in our imminent contact with intelligent aliens, but that there is an ethical imperative to think about the alien as proxy. Doing so opens up questions about who we are and what we want to become in a cosmic moment that now holds out the distinct possibility of the discovery of the signs of alien life (at least in its bacterial form), a moment when it seems, as Drake puts it, “everything is going to change.”²¹



Eduardo Kac, *Inner Telescope* in the cupola, International Space Station (2017).

Paglen gave careful attention to the materials used to produce and house the disc created for *The Last Pictures*. The collection is “designed to transcend the Anthropocene” as a monument that will outlast us—a “future alien artifact” orbiting the Earth in perpetuity, but in the present fostering “sustained conversations around the question of ‘how the humans committed suicide.’”²² It is a “somber” project in this regard, as Creative Time curator Nato Thompson notes, one that will look “down at Earth when we’re gone.”²³ In contrast, Eduardo Kac’s *Inner Telescope/Télescope intérieur*, a poem he developed for realization on the French mission to the International Space Station, is self-consciously impermanent. Performed by the French astronaut Thomas Pesquet during his six-month posting to the ISS, the work requires only one pair of scissors and two sheets of paper to construct the word “moi,” the singular *moi* functioning like the grammatical royal *we*, embodying, Kac suggests, “the collective self: humanity.”²⁴ Notably, the zero-gravity, three-dimensional poetic sculpture resembles the telescope of its title, the second piece of paper rolled to form a tube with the letter “o” as an aperture through which one can look at the Earth. With an “inner telescope,” we look not outward to the stars but downward, looking at ourselves from a perspective that is, if not alien, at least not presently ours. The piece thus, as Kac suggests, indeed “speaks to a future that has yet to be invented” even as its material instantiation is necessarily temporary.²⁵

Kac’s *Lagoogleglyph* series similarly privileges the line of sight from space down to Earth. Kac, best known perhaps for Alba, the GFP bunny,²⁶ first devised a set of characters or “lagoglyphs” (from the Greek, λαγός, *lagos*, for “hare”) and has since inscribed some of them on rooftops and in London’s Finsbury Park, at a scale optimized for satellite viewing.²⁷ The resulting “lagoogleglyphs” can only be partially apprehended from the ground; for a complete picture, one needs the aerial perspective afforded by Google Earth—hence the portmanteau in the title of the series. On the face of it, there is

a certain ephemerality and processual quality inherent in these works as well: spray paint is impermanent, all the more so when applied to grass during a rainy English summer, which meant that Furtherfield Gallery staff had to continually refresh the glyph at the center of its show, *Poetry for Animals, Machines and Aliens*.²⁸ As of this writing, Google Earth shows a faded glyph in its satellite view of the park from May 2018, but this view will inevitably be updated with images captured after the glyph has disappeared entirely. Soon enough, accessing the Furtherfield installation will necessitate “rewinding” the date in the API, just as one has to do in order to view the first iteration of *Lagoogleglyph* in Rio de Janeiro in 2010.²⁹ The glyphs themselves will be “future alien artifacts” only insofar as Google’s data centers live on, but even now they are in a fundamental way not actually addressed to us but rather to machine readers—the alien artificial intelligences already among us.

While the *Inner Telescope* and *Lagoogleglyph* series both adopt an extra-terrestrial perspective that might be imagined as alien, and while *The Last Pictures* holds out the hope of being discovered by aliens or future generations with its “story about what happened to the people who built the great ring of dead machines around Earth,” none of these art works truly participates in alien communication.³⁰ Though they all try, to some degree, to imagine or evoke the position of the alien, there is, nonetheless, something not fully decodable about them from an alien perspective. Their openness notwithstanding, they all remain, in some respects, singularly legible only for us, for humans—a critical point that is more complex than it might initially appear. It is perhaps apparent that none of the messages themselves are especially encoded for an alien viewer or reader, and certainly the institutional contexts in which the art works are all embedded—particularly the curatorial framing, bureaucracy, and material support—mark them as belonging to human communities in the second decade of the twenty-first century (certainly the view of earth from the vantage point of space makes a claim to distinctly human achievement). Neither the glyphs nor the “last pictures” themselves were designed to be transparent, and Paglen, in particular, is self-conscious about his collection’s partial illegibility. While Pioneer and Voyager tried anthropologically to explain the world from which they were sent, *The Last Pictures* is far more circumspect about the presentation of a universal human that lies in wait of an alien decoding. “We’re making cave paintings for the future,” Paglen remarked in an interview.³¹ We might even push further to note that the project itself is founded on the paradox of its illegibility, which has among its effects (and perhaps, too, one of its purposes) the recuperation of the human, in that these pictures retain a particular and momentary legibility for us that fades as it drifts into the future—not in the material sense of *Lagoogleglyphs*, but in the hermeneutic sense of their horizon of interpretability.

But these works are also of and about our moment in a deeper way in the sense that they capture the alienness or alienation of the present: our living among computational apparatuses that derive from us but also inevitably become profoundly separate. Our suggestion that the anxious warnings about the search for alien intelligence is at least in part a projected worry about the rise of artificial intelligence is borne out by Hawking’s own stark projections about the threat of machine learning, which, he said, “could spell the end of the human race.”³² The threat of extinction—the end of the human, the end of the Anthropocene—haunts an AI that, under the guise of the colonizing alien, is really the fearful alien among us, both radically unpredictable and dangerously uncontrollable. While Paglen’s artifact may in some sense await discovery by aliens who are yet to come, following rather than precipitating catastrophe, it too engages the logic or illogic of the alien AI. Decommissioned satellites, “the great

ring of dead machines around Earth,” these too are things humans have created but that now live apart and will outlast us.³³ So, too, Paglen intimates, might we have produced the agents that will precipitate our demise: “perhaps the interactions of production, technologies, and forms of knowledge that allowed us to explore the heavens also enabled us to destroy our own island Earth.”³⁴

Musing on the prospect of the discovery of the orbital ring of dead machines in the distant future, Paglen speculatively transposes Earth and Saturn and asks: “what would happen if one of our own probes found a graveyard of long-dead spacecraft in orbit around one of Saturn’s moons?”³⁵ The analogy of the ring of dead satellites to Saturn’s rings becomes even more apt in light of the strong evidence derived from NASA’s Cassini mission revealing that Saturn’s distinctive rings are of much later origin than the planet itself. Before burning up in Saturn’s atmosphere, the probe sent back data that allowed scientists to determine the mass and, subsequently, the age of the rings, which are now said to have been formed between 10-100 million years ago, from the last 1% of the planet’s life and, if we assume the earlier date, from the time that dinosaurs walked the earth.³⁶ There is a further suggestive link: Walter Benjamin, who famously averred that he was born under the sign of Saturn, was the first owner of Paul Klee’s *Angelus Novus*, which is the first of the “last pictures.” The picture is not the iconic angel of history, however, but rather the backside of the drawing, which shows a label of the Israel Museum in Jerusalem and transmittal notice to MCA Chicago—its circulation between galleries evoking its famous passage from Benjamin to Georges Bataille, Theodor Adorno, and then Gershom Scholem. Paglen astutely pairs Benjamin’s ninth thesis reading of the angel staring toward the past with the ring of dead satellites as the debris of planetary catastrophe. But we would like to turn to another of Benjamin’s theses and tease out more from this last picture.

In his first thesis on the philosophy of history, Benjamin tells the story of the eighteenth century hoax, the Mechanical Turk, the chess-playing automaton that was actually operated by a human small enough to fit in the cabinet and guide the puppet’s moves. Many have remarked on the non-coincidental relation between the Mechanical Turk as a game system powered by invisible labour and Amazon’s Mechanical Turk platform, the online marketplace for so-termed Human Intelligence Tasks (cognitive piece work that cannot yet be performed by machines, such as data entry and CAPTCHA solving). Even more to the point: Mechanical Turk has been fundamental, and even radically transformative, for AI research. “Turkers” have hand-annotated images in the ImageNet dataset, which has been crucial for advances in deep learning. They are recruited from the platform to judge the visual quality of samples from generative adversarial networks and were even recruited to participate in the aforementioned human-interpretability study with the cartoon alien. Were we to update Benjamin’s theses in the age of digital reproduction, then, the human chess master would necessarily have to be not Deep Blue but AlphaZero, the general purpose adaptive algorithm that needed only a few hours of self-training before playing chess, go, and shogi at a higher level than all previous champion programs.

In selecting the image of the verso of Klee’s *Angelus Novus*, Paglen cunningly preserves the trace of the human—for while we readily conjure the drawing in our mind’s eye, the painting itself would long have disappeared after the time of our annihilation. It is then as if the verso picture were itself a satellite orbiting a stripped planet. A visiting alien archeologist would have no means of reproducing the image. However, just as we update Benjamin’s thesis to take account of the AlphaZero program, we ought now to think of some future alien archeologist as very possibly itself an AI. Satellites of the

near future will of course themselves be AI systems, which might very well prove legible in some form to our imagined AI archeologist. How would a neural network trained on the ImageNet database parse or otherwise make sense of the “last pictures”? What conceptions of cultural or art history will it have developed, or will history itself no longer be a means of bringing order to the wreckage of the past? Perhaps this future alien-AI archaeologist would classify these pictures through a determination of when, in the course of a civilization, a people is likely to produce a curatorial exhibit such as *The Last Pictures* itself. In this sense, the alien-AI archaeologist analyzing our antique space ruins will paradoxically corroborate Paglen’s pronouncement: “In the future, we are the ancient aliens.”

NOTES

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- 11 Ian Bogost, *Alien Phenomenology or What It’s Like to Be a Thing* (Minneapolis, MN: Minnesota UP, 2012), 9.
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- 14 Ibid.
- 15 Ibid.
- 16 Ibid.
- 17 Trevor Paglen, *The Last Pictures*, <http://www.paglen.com/lastpictures/main.php>; and Paglen, *The Last Pictures* (Berkeley, CA: University of California Press, 2012).
- 18 Paglen, “The Last Pictures Project,” Vimeo, November 16, 2012, video, 11:50, <https://vimeo.com/53655801>; Paglen, *The Last Pictures*, 12.
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- 35 Ibid., 6.
- 36 L. Iess et al, “Measurement and implications of Saturn’s gravity field and ring mass,” *Science*, January 17, 2019, <http://science.sciencemag.org/content/early/2019/01/16/science.aat2965>.