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BRAD TABAS

Are All Catastrophes Now Unnatural Catastrophes? A Historical and Critical Consideration—and Defense—of an Exaggeration

- 1 The objective of this paper is to think through post-naturalism about catastrophes. This is the idea that *natural catastrophes*—floods, droughts, crop failures, pandemics—are now, in the Anthropocene, *unnatural catastrophes*. To do this we discuss post-naturalism from a peculiar point of view: the exception and the extreme.
- 2 The exception that we have in mind are catastrophes that in no reasonable sense can be attributed to human causes: cosmic collisions. Thousands of space objects strike the Earth every year. They are the most salient material reminder of the connection between life on Earth and the broader cosmic system. Truly catastrophic cosmic collisions are rare, but these events have been geo-physically noteworthy. Asteroid strikes may be responsible for the formation of life on Earth and were responsible for the extinction of the dinosaurs ^[1]. Moreover, we are certain that other massive asteroids will strike the Earth ^[2]. According to a model developed by Collins, Melosh, and Marcus, a 10-kilometer diameter asteroid strike would hit the Earth with the force of ten billion Hiroshima blasts. It would smash a 30-kilometer-deep hole, produce an impact fireball hot enough to destroy everything within 1000 kilometers, throw up trillions of tons of superheated ash, which would descend as toxic rains, and block out the light from the sun ^[3]. This would fuel a massive wave of extinctions.
- 3 By extreme, we have in mind existential risk scenarios. Existential risk scenarios are hypothetical events (hypothetical because humankind still exists) which could wipe out the human species. Martin Rees, founder of the Center for the Study of Existential Risk at Cambridge University, claims that cosmic impacts, super-volcanic eruptions, ecosystem crashes and runaway climate change, out of control AI, biohazards and nanotechnology, and catastrophes linked to nuclear energy and weapons pose existential risks ^[4]. The interest of the extreme derives from the gravity of these events. Attending to these risks matters, and not only for scholars but for cultures

in general.

- 4 Our attention to this “natural catastrophe” in an age of post-natural catastrophes derives not from a desire to debunk the decisive human influence on the Earth system. Nor is our aim to diminish the importance of the unnatural catastrophe currently concerning to eco-critics: climate change. What we do want to do, however, is prompt reflection limits and risks of post-naturalism. To draw attention to the fact that it involves a foreshortening the real and a forgetting of extra-terrestrial reality. We also wish to explore why space has been forgotten by post-naturalist eco-critics, with the aim of re-integrating cosmic catastrophes, and the cosmos in general, into the eco-critical conversation. To do this we will first begin by assessing the arguments against acknowledging space by eco-criticism—and finding them wanting, we will then proceed to a historical and archaeological reconstruction of post-naturalist eco-criticism’s planetary bias, an effort that will both give concrete reasons for—and against—ignoring the persistence of nature in space, as well as the cosmic collisions that are its manifestation.

Avoiding the Uninhabitable Earth?

“Moving into space means closing down any chances for Earth [5].”

- 5 One of the distinguishing features of contemporary ecological discourse is a growing tendency towards a rhetoric of extremes. “Extinction,” “collapse,” and “uninhabitable” are popping up everywhere. In this context, one might argue that we should ignore cosmic catastrophes due to urgency of our current situation. Worrying about anything else is foolish: we will be dead before the comet hits. Moreover, the only evident response to the risks posed by cosmic catastrophes is becoming a multi-planetary species. Expanding into space will siphon funds away from fixing the climate, and it will encourage humankind to disinvest emotionally from the Earth.
- 6 These arguments are not as strong as they seem. It may make sense to *rhetorically* claim that climate change is an existential risk and so it should be our only concern, but it is wholly reasonable to anticipate that a resilient humankind will mitigate and hence survive climate change [6]. In fact, seriously arguing that we shouldn’t care about other risks because climate is the one and only relevant risk falls prey to the “universal stupidity fallacy:” it is a projection based on the unlikely assumption that we are all morons, despite knowing full well that climate change poses an existential risk, do nothing about it [7]. The idea that we will hate the Earth as soon as we become multi-planetary is also weak. There is little reason to believe that any near-term lifeboats in space will encourage us to intentionally destroy the Earth. Alice Gorman describes the International Space Station (ISS) as “smelly, noisy, messy, and awash in shed skin cells and crumbs.” She compares it to “a terrible share house, except you can’t leave, you have to work all the time, and no-one gets a good night’s sleep [8].” Why would other near-term space habitats be much different? Tunnel dwellings on Mars, Titan or the Moon, stations located at L5 (the gravitational balance point between the Earth and the Moon), all of these will no doubt be appealing to a small number of adventurers and scientists, but will they really be more alluring than Earth habitats for the majority of people? Only someone deeply confused about the differences between space opera and likely

future reality would think that habitats in space will prompt massive disinvestment from the Earth, no matter how attractive the visions of the future in space currently being pitched by the likes of Elon Musk and Jeff Bezos [9]. It is important to also emphasize that building habitats and hotels in space in no way distracts us from caring for the Earth. Efforts to engineer artificial biospheres and studying the habitability of other planets have made massive contributions to helping us to understand the functioning of our home planet [10]. Trying to create artificial ecosystems or find habitable planets in the cosmos has up until now affirmed the fragility and intrinsic value of the Earth system. In other words, there is plenty of reason to believe that we can both care about climate change and take preventative measures against cosmic collisions. This undercuts the value of rhetorically denying the existence of space nature.

Against the Technofix?

“But here, in the midst of our orgy of being lords of creation, texting as we drive, it’s hard to put down the smartphone and stop looking for the next technofix [11].”

- 7 Another potential argument for why we should ignore cosmic catastrophes in the Anthropocene has to do with technology. We could understand post-naturalistic rhetoric as intended to prompt reflection on the risks associated with the technofix. Our present condition would be as akin to the situation of Dr. Frankenstein, insofar as the Earth system that the Enlightenment drive to master nature has created has now become a monster ready to take its revenge. According to this line of thought, any response to cosmic catastrophes can only come to a bad end, since there is no possible response to cosmic catastrophes that does not rely on technology. There is some case here, but only if we overstate most eco-critics’ real resistance to technology. The political theorist Daniel Deudney has enumerated five differing “technopolitical attitudes [12]”. If all eco-critics fell into the category that is most technophobic—Techno-Luddites—then we could dismiss concerns about space out of hand as inconsistent with any eco-critical perspective. But most eco-critics actually fall into intermediate categories: Techno-Optimists, Cautious Soterians, and Friends of the Earth. They recognize the need for technology, but they feel that technological solutions need to be employed with caution and where appropriate. They recognize that we would know little about climate change were it not for technology. They believe that avoiding climate catastrophe will require cultural as well as technological adaptations. They embrace the development of innovative green technologies aimed at providing society with renewable power. In other words, most eco-critics are not Techno-Luddites like the Unabomber Ted Kaczynski [13]. Which does not mean that they are not right to associate the preparation for cosmic catastrophes with strongly technophilic, “Techno-Promethean” attitudes. But this association is not rooted in concepts and attitudes but in history. Factually speaking, the most vocal advocates for the colonization of other planets have had deeply uncritical attitudes towards technology. However, even those with maximally cautious but accepting views on technology—“Friends of the Earth”—could be open to the technology-enabled exploration of the risks posed by cosmic catastrophes.

History

“The dinosaurs became extinct because they didn’t have a space program [14].”

8 The conclusion of the two preceding sections is that there is no universal reason why eco-critics ought not to care about both climate and cosmic catastrophes. But what history demonstrates is that in particular cases the two concerns have not always been aligned. One such case was the struggle for funding priority among NASA projects over the last quarter of the 20th century. We will suggest that this clash was culturally important for forming broader attitudes regarding the opposition between these two catastrophes, among other things because it produced literature which led readers to imagine themselves as identifying with one, or the other, of these concerns.

9 It is well known that the Apollo moon missions marked a key moment in the history of the environmental movement. The momentousness of this moment was stated clearly by the authors of *Our Common Future*, one of the key documents in the history of sustainable development:

In the middle of the 20th century, we saw our planet from space for the first time. Historians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century, which upset humans’ self-image by revealing that the Earth is not the center of universe. From space, we see a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery, sod soils. Humanity’s inability to fit its activities into that pattern is changing planetary systems fundamentally. Many such changes are accompanied by life-threatening hazards, from environmental degradation to nuclear destruction. These new realities, from which there is no escape, must be recognized and managed [15].

10 From space, humankind saw—for the first time—the whole Earth. The effect of this extra-terrestrial vision on the environmental movement was massive. What this encounter initiated, was the dawn of the “age of limits”, and the emergence of a new era of sustainability [16]. Less well known are the effects of this shift on the politics of space exploration, and the role played by NASA technology, scientists, and data in shifting our view of the Earth as “dominated not by human activity and edifice” to its inversion with the proclamation of the Anthropocene.

11 NASA began as a vanity project intended to demonstrate US scientific, technological and economic superiority over Russian communism, but it has evolved into one of the leading sources of information on the Earth system [17]. One index of this vocational shift is the 1987 report, *NASA Leadership and America’s Future in Space*, authored by NASA administrator Sally Ride. The Ride report lists four priorities for NASA: the first, and highest was Mission to Planet Earth. The second mission was the exploration of the cosmos. The third and fourth on the list of priorities, those missions that would be funded last and least, were missions to colonize the Moon missions to Mars. Re-reading the description of Mission to Planet Earth demonstrates just how ecologically aware the mission was:

An initiative to understand our home planet, how forces shape and affect its environment, how that environment is changing, and how those changes will affect us. The goal of this initiative is to obtain a comprehensive scientific

understanding of the entire Earth System, by describing how its various components function, how they interact, and how they may be expected to evolve on all time scales. The challenge is to develop a fundamental understanding of the Earth System, and of the consequences of changes to that system, in order to eventually develop the capability to predict changes that might occur—either naturally, or as a result of human activity^[18].

- 12 Mission to Planet Earth has been wildly successful. As Harvard historian of science Erik Conway documents, NASA scientists and technologies developed the models and gathered the data responsible for establishing our current picture of the Earth system^[19]. The first person to testify before the United States Congress regarding the dangers of climate change was James Hansen, a NASA scientist. James Lovelock was pursuing comparative planetological studies for NASA when he invented the notion of “Gaia^[20]”. Today, remote sensing data continues to provide key information about the Earth system: tracking sea level rise, the shrinking of the arctic ice cap, desertification, habitat loss, information on changing weather patterns and shifting ocean currents, etc. If we know there is an Anthropocene it is because of missions into space.
- 13 The NASA turn back to the Earth also set into motion a partisan and politicized rivalry for congressional funding. Some Republican administrations, prompted by space enthusiasts such as Newt Gingrich, and inspired by the idea that space could be the next frontier for the free market, did press to fund space colonization missions^[21]. They mostly failed. This generated anger and hatred towards the environmental movement among space colonization advocates. In a weird perversion of perspective, at least when describing a group committed to gathering data for Earth system science, Mars Society President Robert Zubrin claimed that environmentalists were pseudo-scientists and anti-humanists^[22]. Prominent hard science fiction authors and space colonization advocates such as Ben Bova, David Brin, Larry Niven, and Jerry Pournelle consistently chose to depict environmentalists as benighted, unscientific, and irrational enemies of the common good. Searching for examples to illustrate the stupidity of the environmentalist perspective and to drum up public support for missions into space, they stumbled on the idea of the cosmic catastrophe.
- 14 The book that best illustrates this strategy at work is *Lucifer's Hammer*, a best-selling 1977 novel co-written by expansionist space advocate Larry Niven and National Space Policy Council chairman Jerry Pournelle^[23]. *Lucifer's Hammer* depicts the consequences that would follow from massive comet striking the Earth. The impact does not cause an extinction event, but it does kill billions of people. It also acts as a threat multiplier: it prompts a nuclear war, which in turn hastens a general dissolution social order, including the collapse of technological civilization, followed by a breakdown in moral and social norms culminating in widespread cannibalism and the re-emergence of a slave-holding society. The authors compellingly depict the misery that might (with some degree of scientific probability) result from a massive impact event. They write of “cars and trucks are dying like sterile beasts” and introduce us to parents contemplating their children's futures as “rat catchers and swineherds^[24]” (rats have become a staple food source). Less realistically, the work also contains parodies of the environmental movement's and reactions to the comet. Speaking to one of the first scientists to have grasped the danger confronting the Earth, Mabe

Bishop, an environmentalist character, claims that people “should be scared”—but not of “a damned comet!” She then goes on to list an array of environmental fears that—compared to the extreme risk posed by the incoming comet—do seem relatively anodyne: “spray cans ruining the atmosphere, destroying ozone, causing cancer. A new atomic power plant in the San Joaquin Valley making radioactive wastes that will be around for half a million years! The big Cadillacs and Lincolns are burning megatons of gasoline [25].” Bishop seems a fool, and environmentalists are portrayed as not attending to reality and the big picture, while the real scientists, fully aware of the risks and the consequences, were focused on the comet.

- 15 The scenario depicted by Niven and Pournelle was just fiction. There has never been any real urgency involved in protecting the planet from incoming asteroids. In fact (and due to their efforts), we now know that the risk of a massive comet striking the Earth anytime in the near future is low [26]. What writing like this did do was stoke divisions and foster alignments. It prompted people to feel that one must identify with one group or another, and that this alignment meant believing in one catastrophe or another. Fighting for scarce NASA funds, the pro-space advocates developed a kind of gigantomachy between two anticipated terrors struggling for dominance within our imaginations. Interestingly, this opposition between the two concerns and the violent hatred of space exploration projects did not find immediate resonance among environmentalists. This is doubtless attributable to several factors. First of all, the environmentalists had little need to get angry—they were the ones getting funding. Also, mainstream environmentalism barely perceived the importance of space to their project. Ecologists and eco-critics tended to want to imagine that understanding Earth system was something achieved through immediate perception and nature walks, not through models produced from massive volumes of satellite data analyzed and synthesized by extremely powerful supercomputers [27]. Nevertheless, the environmental movement was not unaware that the advocates of space exploration and colonization viewed them as opponents. This yielded a gradual fraying of the alliances that once existed between environmentalists and space advocates. In the early 1970’s, the two groups saw themselves as allies and imagined space could be a means of saving the Earth. Gerard K. O’Neill’s plans to establish space colonies were endorsed and popularized as eco-friendly by leading environmentalists including Stewart Brand and Paul Ehrlich [28]. Today the dominant strain in environmentalist rhetoric opposes efforts to colonize space. “There is No Planet B” has become a slogan of the environmental movement [29]. Sam Kriss, a particularly strong opponent of space, has even gone so far as to claim that to save the Earth we must “abolish the moon,” “overthrow the fascist institution of the sun,” “disestablish the planets one by one,” make “no more” the “comets, asteroids, and space dust,” as well as “low Earth orbit,” in sum, that we should affirm that “space doesn’t exist [30].” These claims are hyperbole: there is no real reason why we need to choose between space and Earth, worrying about climate catastrophes or cosmic catastrophes, any more than there is real reason to ignore space or to affirmatively claim that space doesn’t exist.
- 16 Yet historical context once again proves enlightening and offers support for resistance against the current wave of space colonization. After years of inaction, efforts are once again underway to send manned missions out into space. However, these efforts are no longer dependent upon US

government funding but rely extensively on the investments of private companies such as SpaceX and Blue Horizon. This has prompted a change in rhetorical cases being made for going to space. While some space advocates do still mention cosmic catastrophes, the dominant tenor in pro-space discourse is by and large economic. What is in danger of collapsing is the free market system, and the thing putting this market at risk is sustainable development aimed at staving off climate catastrophe. Space advocates promise a new space gold rush, they frame a future in space as an alternative to what is shaping up to be a miserable future on Earth. No one exemplifies this new rhetoric better than Jeff Bezos, the world's richest man. He promises that a future in space will be one of "abundance" rather than "rationing." He promises that future space cities will offer "ideal climates" free from any of the disagreements and catastrophes associated with living in the Anthropocene: that they will be like "Maui on its best day, all year long. No rain, no storm, no earthquakes ^[31]". Bezos' pitch for space is pure escapism. His reasons for going to space illustrate perfectly why Kriss says space "isn't a solution to any of our problems; it's not even running away from them. Exploring the galaxy just means giving the problem more room in which to expand ^[32]".

- 17 Going to space to get away from the unnatural catastrophes associated with Earth system change is a terrible idea. Going to space to save the market from sustainable development is even worse. But going to space to save humankind and other members of our biotic community against catastrophic death and destruction from natural catastrophes such as cosmic impacts? Looking towards the deep future, it still seems worth keeping in mind.
- 18 In a recent book studying the accuracy of various approaches to forecasting, Philip Tetlock and Dan Gardner oppose what they call the fox and the hedgehog. The fox is the forecaster "who knows many things" and the hedgehog is he or she who "knows one big thing" ^[33]. According to their study, foxes, those who take a non-ideological approach to forecasting, do much better than those who interpret all future events in light of one single theory. Most people writing about any one catastrophe—particularly ones that have existential risk potential—become hedgehogs who ignore other sources of concern. This makes them not only poor forecasters, but also dangerous. They invent narratives which give reasons for the unimportance of other risks. They do this because they are scared, and because their sense of fear drives them to instill a sense of urgency and fear in others. But in general fear hinders good judgment and critical thinking skills.
- 19 The greatest reproach that can be made against post-naturalism is along these lines. It encloses eco-criticism in a hedgehog's vision of history, overly simplistic and peculiarly inattentive to the totality of reality. Ecology in studies the relationships between beings—and not just beings on planet Earth. A truly ecological thinking should take into account the whole of the cosmos—despite the enormity of this proposition. An expansive ecology will have to deal with the fact that humankind is not the sole force worth fearing in the cosmos—despite the fearsome influence of human activity on the Earth system. That said, post-naturalism focuses attention on the potentially catastrophic effects that we ourselves are having on our terrestrial world—and this is important. More to the point, Timothy Morton's criticisms of the uses of the concept of nature, particularly the ways in which what is normative tends to be presented as natural and then used to justify

everything from racism to capitalism and space expansionism, remain valid—and concerning^[34]. Another incitation to place emphasis upon the increasing unnaturality of natural catastrophes has to do with a rhetoric of control. In effect, claiming that a catastrophe is natural tends to prompt us to either accept it, or to become paralyzed with fear inspired by our human impotence.

- 20 One solution to the ambiguities of post-naturalism is to embrace and reject the transcendence of nature in the present by assuming a post-planetary perspective. A post-planetary eco-criticism attends to post-natural state of the planet, but also recognizes that in the very moment when humankind discovered the planet, we were already an extra-terrestrial species, floating above the Earth in the wilds of space. A post-planetary eco-criticism would not focus only on the Earth and its system. It would attend to the ecological relevance of the rest of the cosmos with respect to the planetary system. It would not only imagine nature as a victim of human action, but also remind us of the autonomy of the universe with respect to the human technosystem. Yet a post-planetary eco-criticism is not a cosmic eco-criticism. Post-planetary eco-criticism remembers the local and planetary rooting of human life, the nature-negating power humankind over the Earth, while also keeping in mind the limits to this power, and so recalling to eco-critics the real ambiguity and complexity of thinking ecologically, both about existential risks, and about other areas of eco-critical concern.

NOTES

¹ On the links between impacts and the origins of life, see Yoshihiro Furukawa, Takamichi Kobayashi, Yuto Takeuchi *et al.*, “Impact-induced amino acid formation on Hadean Earth and Noachian Mars”, *Scientific Reports*, vol. 10, issue 1, 2020. On the role of comet impacts in the death of the dinosaurs see Luis Alvarez, Walter Alvarez, Frank Asaro *et al.*, “Extraterrestrial Cause for the Cretaceous-Tertiary Extinction”, *Science*, vol. 208, issue 4448, 1980, p. 1094-1108.

² The most significant known event will involve a 1 km asteroid expected in 29075, according to Jon Giorgini, Steven Ostro, Lance Benner *et al.*, “Asteroid 1950 DA’s encounter with Earth Physical limits of collision probability prediction”, *Science*, vol. 296, issue 5565, 2002, p. 132-136.

³ See Gareth Collins, Jay Melosh and Robert Marcus, “Earth Impact Effects Program: A Web-based computer program for calculating the regional environmental consequences of a meteoroid impact on Earth”, *Meteoritics & Planetary Science*, vol. 40, issue 6, 2005, p. 817-840.

⁴ Martin Rees, *Our Final Hour*, New York, Basic Books, 2003.

⁵ Sam Kriss, “Manifesto of the Committee to Abolish Outer Space”, *The New Inquiry*, 2 February 2015, online, URL: <https://thenewinquiry.com/manifesto-of-the-committee-to-abolish-outer-space/> [accessed March 08, 2021].

⁶ Eminent existential risk theorist Toby Ord argues that it is actually highly unlikely that human beings will go extinct due to climate change. His argument is quite simple: he doesn’t think that we are collectively stupid enough to do so. See Toby Ord, *The Precipice: Existential Risk and the Future of Humanity*, New York, Hachette, 2020, p. 110.

⁷ On the universal stupidity fallacy, see Gary Westfahl, *The Pitfalls of Prophecy* in Amyed Chand, Gary Westfahl and Won Yeun (eds.), Won,

Science Fiction and the Prediction of the Future: Essays on Foresight and Fallacy, London, McFarland, 2011 .

⁸ Alice Gorman, "How to live in space: what we've learned from 20 years of the International Space Station", *The Conversation*, 01/11/2020, online, URL: <https://theconversation.com/how-to-live-in-space-what-weve-learned-from-20-years-of-the-international-space-station-144851> [accessed March 08, 2021].

⁹ See, for example, Jeff Bezos' depiction of his expected future in space on *Youtube*, URL: <https://www.youtube.com/watch?v=GQ98hGUe6FM> [accessed March 08, 2021].

¹⁰ There is a great deal of literature on this. See Adam Frank, *Light of the Stars: Alien Worlds and the Fate of the Earth*, New York, Norton and Company, 2018; Leah Aronowsky, "Of Astronauts and Algae: Nasa and the Dream of Multispecies Spaceflight", *Environmental Humanities*, vol. 9, November 2017, p. 359-377; Valerie Olson, *Into the Extreme: U.S. Environmental Systems and Politics Beyond Earth*, Minneapolis, University of Minnesota Press, 2018; Mark Nelson, *Pushing Our Limits: Insights from Biosphere*, vol. 2, Tucson, University of Arizona Press, 2018 .

¹¹ Ursula Le Guin, "Deep in Admiration", in Nils Bubant, Elaine Gan, Anna Lowenhaupt Tsing et al. (eds.), *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene*, Minneapolis, University of Minnesota Press, 2016, Kindle Locs. 3254-3392, 3254.

¹² Daniel Deudney, *Dark Skies: Space Expansionism, Planetary Geopolitics, and the Ends of Humanity*, New York, Cambridge University Press, 2020, p. 47.

¹³ See Theodore Kaczinsky, *Technological Slavery*, Port Townsend, Feral House, 2008.

¹⁴ The statement is approvingly attributed to Larry Niven by fellow science fiction writer Arthur Clarke. See: Claudia Dreifus,

¹⁵ Gro Harlem Brundtland (ed.), *Our Common Future*, Oxford, Oxford University Press, 1987.

¹⁶ Alexander Geppert, *Limiting Outer Space: Astroculture After Apollo*, London, Palgrave, 2018.

¹⁷ On the dominant role of Cold War politics in the history of NASA see William Burrows, *This New Ocean*, New York, Modern Library, 1998 ; Walter McDougal, *The Heavens and the Earth: A Political History of the Space Age*, Baltimore, Johns Hopkins University Press, 1997.

¹⁸ Sally Ride, *Leadership and America's Future in Space*, NASA, 1987.

¹⁹ Erik Conway, *Atmospheric Science at NASA: A History*, Baltimore, Johns Hopkins University Press, 2008 .

²⁰ James Lovelock *Gaia, A New Look at Life on Earth*, Oxford, Oxford University Press, 1979.

²¹ On the political history of environmental funding at NASA, see Henry Lambright, "NASA and the Environment: Science in a Political Contexts", in Dick Launius and Richard Stephen (eds.), *The Societal Impact of Spaceflight*, Washington D.C., NASA Press, 2006, p. 313-330.

²² Robert Zubrin, *Merchants of Despair: Radical Environmentalists, Criminal Pseudo-Scientists, and the Fatal Cult of Antihumanism*, New York, New Atlantis Books, 2012.

²³ Larry Niven and Jerry Pournelle, *Lucifer's Hammer*, New York, Del Ray, 1977.

²⁴ *Ibid.*, p. 623-624.

²⁵ *Ibid.*, p. 156.

²⁶ Based upon the best recent estimates, the odds of a comet striking the Earth in the next fifty to a hundred years is vanishingly low. Vaclav Smil puts the odds of such a strike happening at 0.001%, or approximately one in a million, over the next fifty years. Ord places this probability even lower—one in 150 million over the next century. In Niven and Pournelle's defense, however, previous estimations of the dangers of cosmic catastrophes were much higher. As recently as the 1990's, Carl Sagan estimated that the odds of a newborn dying due to an incoming cosmic body were 2000:1, not so elevated as dying in a car crash (103:1), but much higher than their likelihood of dying in an airline crash (190,000:1). See Vaclav Smil, *Global Catastrophes and Trends*, Cambridge (Mass.), MIT Press, 2008; Toby Ord, *The Precipice: Existential Risk and the Future of Humanity*, New York, Hachette, 2020; Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*, New York, Random House, 1994.

²⁷ A fairly decent illustration of the way in which eco-critics have tended to favor direct perception as opposed to technological mediation in thinking about the Earth system is to be founded in Mitchell Tomashow, *Bringing the Biosphere Home: Learning to Percieve Global Environmental Change*, Cambridge (Mass.), MIT Press, 2002.

²⁸ Gerard O'Neill, *The High Frontier*, New York, William Morrow, 1977. On the endorsements of Ehrlich and Brand, see: Stewart Brand (ed.), *Space Colonies*, New York, Penguin, 1977.

²⁹ Mike Berners Lee, *There Is No Planet B: A Handbook for the Make or Break Years*, New York, Cambridge University Press, 2019.

³⁰ Sam Kriss, "Manifesto of the Committee to Abolish Outer Space", *op. cit.*

³¹ Jeff Bezos, "Going to Space To Benefit Earth", *YouTube*, 9 May 2019, online, URL: <https://www.youtube.com/watch?v=GQ98hGUe6FM> [accessed March 08, 2021].

³² Sam Kriss, "Think Twice About Escaping Earth to an Exoplanet Exploring the galaxy will only give our problems more room to expand", *The Atlantic*, 8 March 2017, online, URL: <https://www.theatlantic.com/science/archive/2017/03/space-travel-wont-save-you-from-capitalism/518853/> [accessed March 08, 2021].

³³ Philip Tetlock and Dan Gardner, *Superforecasting: The Art and Science of Prediction*, New York, Random House, 2015, p. 69.

³⁴ Timothy Morton, *Ecology Without Nature*, Cambridge (Mass.), Harvard University Press, 2007.

RÉSUMÉS

The objective of this paper is to think through post-naturalism about catastrophes. This is the idea that natural catastrophes—floods, droughts, storms, pandemics—are now, in the Anthropocene, unnatural catastrophes. To do this we discuss post-naturalism from a peculiar point of view: the exception and the extreme as manifested in the form of massive cosmic bodies striking the Earth. Our conclusion is that only a post-planetary eco-criticism can remain open to the expansiveness of reality while retaining all that is of value in the recent wave of post-naturalism.

Ce texte vise à penser les catastrophes d'un point de vue post-naturaliste. Il explore l'idée qu'à l'ère de l'Anthropocène, les catastrophes naturelles n'existent plus, et que les inondations, sécheresses, orages, pandémies, sont devenus des phénomènes dénaturalisés. À cet égard, nous abordons le post-naturalisme dans une perspective atypique : à partir de l'exception et de l'extrême, qui se manifestent sous la forme des corps célestes massifs qui frappent la Terre. Il s'avère ainsi que seule une écocritique post-planétaire peut rester ouverte à l'expansivité de la réalité tout en retenant les éléments les plus intéressants du post-naturalisme actuel.

PLAN

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POUR CITER CET ARTICLE

Brad Tabas, « Are All Catastrophes Now Unnatural Catastrophes? A Historical and Critical Consideration—and Defense—of an Exaggeration »,

Fabula / Les colloques, Partie 3 – Discours, figures, médiations / Discourses, Figures, Mediations, Écocritique(s) et catastrophes naturelles : perspectives transdisciplinaires / Ecocriticism(s) and Natural Catastrophes: Transdisciplinary Perspectives, URL : <http://www.fabula.org/colloques/document8001.php>, page consultée le 29 mars 2023.