



Future Monumentality

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FUTURE MONUMENTALITY

A DISSERTATION PRESENTED
BY

EVANDER LEWIS PRICE

TO

THE COMMITTEE ON HIGHER DEGREES IN AMERICAN STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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DOCTOR OF PHILOSOPHY
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“Tell Me a Story”
Robert Penn Warren

Tell me a story.

In this century, and moment, of mania,
Tell me a story.

Make it a story of great distances, and starlight.

The name of the story will be Time,
But you must not pronounce its name.

Tell me a story of deep delight.

DISSERTATION ABSTRACT**FUTURE MONUMENTALITY**

Future monuments are monuments built with the express purpose of remembering the future. They are most easily understood by example. This dissertation focuses on three: Carl Sagan's Golden Record, Stewart Brand's "Clock of the Long Now," and Robert Moses' 1939 New York World's Fair, called the "World of Tomorrow." Categorically, future monuments envision and manifest an imagination of the future, and impel mindfulness of it. They show us how much future there is imagined to be. They inherently betray the aspirations and anxieties of the cultures that built them. They are useful tools for remembering that the future isn't what it used to be.

The future monuments analyzed here span the twentieth century. The first chapter focuses on the 1939 New York World's Fair, which provided millions of wide-eyed fairgoers the exuberant experience of peering into the future. The second monument is Carl Sagan's *Golden Record*, a literal LP made of gold, strapped to NASA's Voyager 1 and 2 which, slipping through the erosionless vacuum of space, will outlast all humankind, and perhaps the planet itself. The third future monument is a colossal clock designed by Stewart Brand, Danny Hillis, Brian Eno, and funded by Jeff Bezos, dubbed "The 10,000 Year Clock," or "The Clock of the Long Now," which is meant to inspire an ethics of ten-thousand-year thinking.

At the core of this research is an assumption: How people imagine the future affects how they act in the present—perhaps even more so than how people imagine the past. Van Wyck Brooks, in his canonical essay, "On Creating a Usable Past," (1918) argued that, if the past, as currently imagined, is not of direct use to Americans in the present, why not simply imagine a different one? What precisely that past is or ought to be, well, that is up for discussion. I propose that, in the intervening century since Van Wyck Brooks, we flip this manifesto on its head: What would it mean for Americans to create a usable future? What did the usable future look like in the past? Future monuments are my vehicle for this analysis.

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CHAPTER 1: ON CREATING A USABLE FUTURE MONUMENT

"If we need another past so badly, is it inconceivable that we might discover one, that we might even invent one? Discover, invent a usable past we certainly can, and that is what a vital criticism always does."
—Van Wyck Brooks¹

“REMEMBER THE FUTURE”

How we imagine the future affects how we act in the present. When Van Wyck Brooks argued in *The Dial* (1918) for the need to create a past helpful to the present, he was referring to the narrower context of American historical and cultural criticism. His essay, “On Creating a Usable Past,” is a staple in the American Studies canon. If the past, as currently imagined, is not of direct use to Americans in the present, why not simply imagine a different one?² A “usable past” might provide a more fruitful root for American culture to grow from. This collective historical imagination contours our self-understanding and self-fashioning, as well as our ethical processes of decision-making. What precisely that past is or ought to be, well, that is still up for discussion. I would like to propose that, in the intervening century since Van Wyck Brooks, we flip his manifesto on its head: What would it mean for Americans to create a usable future?

Can imagining an optimistic future preclude the fatalism of imagining a pessimistic one?³ How have Americans imagined the future in the past? Who is or isn’t included in that future?

¹ Van Brooks, ‘On Creating a Usable Past’, *The Dial*, 64 (1918), 337.

² Brooks is arguing for a more freethinking, creative play with history—a consideration for the literary-historical past that focuses less on the rigorous establishment of a plodding series of facts beholden to European academe. His essay is something of a culturally nationalist project, an effort to separate American academic criticism from its perpetual, self-negating subservience to the European scene.

³ Incidentally, and not unrelated to the concerns of this research, this very question is the subject of a recent Disney film, *Tomorrowland* (2015).

When and where does that future end? And how does that measurement shape individual and collective actions in the present? Are there normative claims on futurity? What sort of principles ought to frame an ethical imagination of the future? What sorts of practices or inventions are possible to divert an unethical future-ideation? Just how much future was there? How much is there now?

These questions are broad, but I would like to posit them here to open a discussion on an alternative category of analysis: the future monument. Future monuments are an excellent lens for asking these questions. Unlike conventional monuments, which commemorate the past, future monuments are built explicitly to manifest an imagination of the future. They commemorate the future. They are often complex, temporally speaking, as they are subject to a medley of temporal metaphors jockeying for prominence. They show us how much future there is imagined to be. They betray the aspirations and anxieties of the cultures that built them. They simultaneously highlight both the creativity and the myopia of their makers. When the future puts pressure on the present, artists, intellectuals, and entrepreneurs produce future monuments. And though they frequently invoke utopian visions of the future and attempt to bring them into existence, they rarely succeed.

When the future does not come to pass as expected, future monuments become tombstones to alternate histories, to parallel worlds that were imagined, but never realized. These foregone futures still haunt the present; they survive not only in cultural memory but also in the physical ephemera which, like temporal boa constrictors, ever squeeze the present with the parallel pressure of what could have been. Cultural theorist Andreas Huyssen calls this squeeze the “palimpsest of space,” an idea visited in [Chapter 2](#) via William Gibson’s “Semiotic

Phantom.”⁴ This irony is, perhaps, among the most “usable” qualities of future monuments: they shed light on the gap, on the tension between ideological imaginations and material realities. It is this contradiction between potentials and outcomes, between foresight and myopia, between anticipations and realizations, that future monuments refuse to leave unreckoned.

This dissertation analyzes three future monuments: The 1939 New York World’s Fair, the Golden Record, and the Clock of the Long Now. Each of these monuments offers a different vision of how the future has been conceived over the course of the twentieth century. What becomes apparent from reading these case studies is that the imagination of the future is bound to the imagination of the past, that useable pasts are inseparable from usable futures. The myths that Americans tell themselves about their origins foreground the futures they dream up.

In her recent survey of American history, Jill Lepore writes about what could rightly be called an early 19th century “usable past”: George Bancroft’s *History of the United States from the Discovery of the American Continent to the Present* (1834). She notes that Bancroft deliberately begins the story of America with Columbus.⁵ In doing so, his goal was to anchor the history of America to a past three centuries older than the country itself, thus deemphasizing America’s roots to England and instead grafting American history onto deeper, wider, cosmopolitan roots. “For Bancroft,” Lepore observes, “the nation’s fate was all but sealed the day Columbus set sail. By giving Americans a more ancient past, he hoped to make America’s founding appear inevitable and its growth inexorable, predetermined, God-ordained.” In

⁴ Andreas Huyssen, *Present Pasts: Urban Palimpsests and the Politics of Memory*, Cultural Memory in the Present (Stanford, Calif.: Stanford University Press, 2003), p. 7.

⁵ Incidentally, Lepore also starts her history with Columbus.

essence: Bancroft invented a usable past to serve *his* Manifest Destiny vision of a usable future.⁶

Andreas Huyssen locates this need for usable pasts in nineteenth century nationalism:

...the main concern of nineteenth-century nation-states was to mobilize and monumentalize national and universal pasts so as to legitimize and give meaning to the present and to envision the future: culturally, politically, socially. This model no longer works.⁷

The compression of time and space, which Huyssen approximates is a result of modernism, “may well be an indication that our ways of thinking and living temporality itself are undergoing a significant shift.”⁸ This idea of the compression of time and space rhymes with what climate scientists starting with Paul Crutzen have dubbed “the Great Acceleration”—a series of exponential graphs illustrating various sorts of consumption that all rocket exponentially towards—presumably—a Malthusian limit ([Fig 1](#)).⁹ All three of these future monuments grapple with the anxiety of what this compression of time and space, what Crutzen called the “Age of Acceleration,” and what I suggest might be better called the “End of the Age of Deferral”—by which I mean to acknowledge the ever-increasing feeling that there is less and less elsewhere or otherwhile to displace the problems arising from massive worldwide capitalist expansion. Huyssen, though interested in the overlap of history and memory, is more concerned, as I am, with responsibly “discriminating” among better and worse collective memories:

⁶ Jill Lepore, *These Truths: A History of the United States*, First edition. (New York: W. W. Norton & Company, 2018), p. 10.

⁷ Huyssen, p. 2.

⁸ Huyssen, p. 6.

⁹ John Robert McNeill, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge, Massachusetts: The Belknap Press of Harvard University Press, 2016).

It is all the more important that at a time when an avalanche of memory discourses seem to have overwhelmed an earlier activist imagination of the future, we actually do remember the future and try to envision alternatives to the current status quo.¹⁰

“Remember the future” indeed. However, in activating the utopian tendencies inherent in future-thinking, future monuments often reflect the problem that Huyssen sees is the essential paradox of memory:

Memory as re-presentation, as making present, is always in danger of collapsing the constitutive tension between past and present, especially when the imagined past is sucked into the timeless present of the all-pervasive virtual space of consumer culture. Thus we need to discriminate among memory practices in order to strengthen those that counteract the tendencies in our culture to foster uncreative forgetting, the bliss of amnesia, and what the German philosopher Peter Sloterdijk once called 'enlightened false consciousness.'

That is precisely what future monuments purport to do. The goal of the ethical—or usable—future monument, then, is to “strengthen and counteract those tendencies” that perpetuate injustice.

The flipside of creative unforgetting is what Lauren Berlant calls a “cruel optimism,” inherent “when something you desire is actually an obstacle to your flourishing.”¹¹ In other words, cruel optimism is an attachment to an unattainable, or unsustainable idea of the good life. Berlant outlines many flavors of cruel optimism, but for the purposes of future monuments, this useful concept is part and parcel of what I call *deus ex machina*: the faith implied by these future monuments that somehow, someday, just in the nick of time, human beings will save themselves from the impending crash of the Great Acceleration, the reckoning of the Age of Deferral—from themselves—through the sheer power of ingenuity, science, and technology.¹² Historian

¹⁰ Huyssen, p. 6.

¹¹ Lauren Gail Berlant, *Cruel Optimism* (Durham: Duke University Press, 2011), p. 1.

¹² Berlant, pp. 23–24.

Naomi Oreskes defines what could be called a subset of cruel optimism, “human adaptive optimism”:

(1) The belief that there are no limits to human adaptability—that we can either adapt to any circumstances, or change them to suit ourselves. Belief in geoengineering as a climate 'solution' was a subset of HAO. (2) The capacity of humans to remain optimistic and adapt to changed circumstances, even in the face of daunting difficulties, and even if the form of 'adaptation' required suffering.¹³

This paradox—that the future a culture imagines explicitly forecloses that future—is one that future monuments, which Berlant might call “objects of cruel optimism,” illustrate (Chapter 2, The 1939 World’s Fair), flee (Chapter 3, The Golden Record), or, somewhat darkly, anticipate (Chapter 4, The Clock of the Long Now).¹⁴

FUTURE(S) STUDIES, FUTUROLOGY, FUTURE MONUMENTS

Future monuments overlap with the field of inquiry interested in studying the future, which has many names.¹⁵ Of course, people have been interested in the future since the beginning of time, from the predictions of shamans and oracles, to the utopian visions of Plato’s just *Republic*, to Aristotle’s idea of entelechy (ἐντελέχεια)¹⁶, to Saint Augustine’s eternal *City of*

¹³ Naomi Oreskes, *The Collapse of Western Civilization: A View from the Future* (New York: Columbia University Press, 2014), p. 58. Oreskes’ definition recalls Voltaire’s/Pangloss’s definition of “optimism” in *Candide*:

—‘What is that, optimism?’

—‘Why it is the madness of maintaining that all is well, even when you are feeling bad.’

¹⁴ Berlant, p. 43.

¹⁵ Though there has been much debate about what exactly to call this field, be it “futurology,” “future studies,” “futures studies,” “futurible,” “prospective analysis,” “strategic management,” or simply “futuring,” I am less concerned with sussing out the connotative details of each of these terms because I consider the field to be a subset of the greater field of Time Studies.

¹⁶ S. Marc Cohen, ‘Aristotle’s Metaphysics’, in *The Stanford Encyclopedia of Philosophy*, ed. by Edward N. Zalta, Winter 2016 (Metaphysics Research Lab, Stanford University, 2016) <<https://plato.stanford.edu/archives/win2016/entries/aristotle-metaphysics/>> [accessed 4 April 2018].

God, and Edward Bellamy's socialist science fiction *Looking Backward*. However, it was not until the twentieth century that concerted efforts were made to construct an academic, institutionalized discipline focused on the study of the future.¹⁷ The *World Future Studies Federation* defines four predominant traditions of futures studies that have evolved since the mid-twentieth century:

- the *empirical tradition*, which focuses on trend analysis and prediction, originated in the USA. It was supported by the formation of the World Future Society in the 1960s;
- the *critical tradition* originated in Europe and grew out of a critique of what was perceived as an overly empirical approach to futures in the USA. This led to the foundation of the World Futures Studies Federation in the early 1970s;
- the *cultural tradition* arose in large measure from the work of those WFSF members who sought to include non-Western cultures and to invoke a deeper consideration of civilisational and planetary futures;
- the *empowerment-oriented*, prospective, action research approach began in Europe in the nineties and has been taken up by some Australian researchers;
- the *integral/transdisciplinary* futures approach is newly emerging and appears to have potential for authentic multiperspectival and planetary inclusion, providing it remains open.¹⁸

The effort to explicitly *predict* the future in a quantifiable manner was primarily an American post-War endeavor epitomized by Hermann Kahn, the head of the RAND foundation, and later the Hudson Institute.¹⁹ The RAND ('**R**esearch **A**nd **D**evelopment') foundation is a thinktank that sprung from the American military in 1948 to assess probabilities, likely outcomes, and provide guidance for American domestic and foreign policy.²⁰ Today RAND draws a revenue stream of three hundred and fifty million dollars and has several smaller sibling organizations,

¹⁷ Utopias are inherently future-oriented.

¹⁸ Qtd in the World Future Studies Foundation: <<http://wfsf.merlot.org/studies>>.

¹⁹ Kahn, rather infamously, is inspiration for the character of Dr. Strangelove in the eponymous film from 1964.

²⁰ Qtd in RAND's website: <<https://www.rand.org/about/history.html>> [accessed 1 October 2018].

such as the Hudson Institute and Cato Institute.²¹ It is a direct result of American military imperialism in the wake of World War II, growing fears about nuclear war, and the threat of the Soviet Union.²²

RAND was known for thinking through the unthinkable: what should be done in the event of an asteroid strike; how to effectively contain an unknown biological agent released in a metropolitan area; what would be the results of a war with China. These were the scientists and thinkers who advised policy on space exploration and invented the doctrine of nuclear determent and Mutually Assured Destruction (MAD). This foundation figures prominently into the anxieties that lead to the creation of certain future monuments.²³ There is something hubristic in the empirical tradition's positivist belief in the capacity of human beings to predict the future. Predicting the future is an effort to explicitly effect a specific future, to choose a single future from a myriad of options.

The critical tradition was a response by French philosophers to the American school. Where the American tradition thought of the field as “futurology,” the ‘-ology’ imbuing the field the gravitas of the sciences, the European school thought in terms of multiplicities of possible futures.²⁴ Gaston Berger, the French industrialist and philosopher, founded the journal *Prospective* in Paris, the name implying possibility rather than certainty, and the study of it

²¹ Qtd in RAND's website: <https://www.rand.org/about/clients_grantors.html> [accessed 1 October 2018].

²² Jenny Andersson, ‘The Great Future Debate and the Struggle for the World’, *American Historical Review*, 117.5 (2012), 1411–30 <<https://doi.org/10.1093/ahr/117.5.1411>>. Jenny Andersson has since written a book on this subject, *The Future of the World* (2018).

²³ The Golden Record especially.

²⁴ The scientism of RAND reflected in the degrees they confer: only 3% are awarded to the humanities: <<https://www.rand.org/about/glance.html>> [accessed 1 October 2018].

emphasizing that “foresight is an attitude.”²⁵ Perhaps the most important voice from the critical tradition is Bertrand de Jouvenel, who published *The Art of Conjecture* (1967).²⁶ De Jouvenel’s title is meant to directly contrast with futurology, the so-called “science of the future.” Instead, he coined the term *futurable*, a “descendent from the present to which we attach a genealogy.” For de Jouvenel, *futuribles* emphasize the possible; they simply do not come in the singular and are likely inexhaustible in enumeration. The act of generating them is no mere feat of scientific positivism, it is a creative act, an art.²⁷ De Jouvenel would go on to become the first President of the *World Futures Studies Federation* in 1973.²⁸

Futures studies has moved away from the business of prediction, in part because the future has proven itself again and again to be unpredictable. There are too many variables.

Hannah Arendt notes the essential contingency of futures:

The main characteristic of any event is that it has not been foreseen. We don’t know the future but everybody acts into the future. Nobody knows what he is doing because the future is being done, action is being done by a “we” and not an “I.”

For Arendt, this “act[ing] into the future” leads to the essential paradox of history, articulated by Walter Benjamin in his “Theses on the Philosophy of History”; that is, “how is it possible that in

²⁵ The journal still survives today: Nadmine, ‘Gaston Berger, Conception, Prospective, Avenir, Présent, Souhaitable, Temporalités, Configurations, Responsabilité, Prospectiviste’, *PROSPECTIVE*, 2014 <<http://www.prospective.fr/lattitude-prospective/>> [accessed 5 April 2018]. It’s noteworthy that Michael Shanks also characterizes his philosophy of archaeology as an “attitude.”

“Avant d’être une méthode ou une discipline, la prospective est une attitude. C’est dire que l’adjectif doit ici précéder le substantif.”

“Before being a method or discipline, foresight is an attitude. This is to say that the adjective ought to precede the substantive here.”

²⁶ Bertrand de Jouvenel, *The Art of Conjecture* (London: Weidenfeld & Nicolson, 1967).

²⁷ “Man is fortunate when the desirable and the probable coincide!” Jouvenel, pp. 16–19.

²⁸ Ziauddin Sardar, ‘The Namesake: Futures; Futures Studies; Futurology; Futuristic; foresight—What’s in a Name?’, *Futures*, 42.3 (2010), 177–84 <<https://doi.org/10.1016/j.futures.2009.11.001>>.

retrospect history always looks as though it couldn't have happened otherwise?"²⁹ Certain Future Monuments nonetheless channel aspects of the empiricist tradition. General Motors and Ford both explicitly tried to both predict and affect the future by reifying it in miniature at the 1939 New York World's Fair with their car-filled utopian exhibitions. Other monuments respond to anxieties resulting from the threat of a specific future that seems likely, or even inevitable—be it global nuclear war (Carl Sagan's Golden Record) or global warming (The Long Now Foundation's 10,000 Year Clock). Contingency, however, does not mean there is no value in the empiricist tradition, so much as it teaches the importance of humility to the project. As futurist James Dator puts it:

Instead of predicting the future, futures studies [or monuments] help people envision and invent the future not as though one were creating an inevitable blueprint, but in order to give a sense of direction and control (not the reality of such) on the assumption that soon after you start heading towards your preferred future, you will experience new things, develop new ideas about a preferred future, and want to discard the old one.³⁰

Aspects of both empirical and critical traditions are present in Future Monuments. The creation of an object that manifests an imagination of the future is bound to ethical, political, and utopian ambitions. A given future monument will be both predictive and effective in the sense of trying to compel or fix a given future (empirical tradition), as well as creative, artistic, and attitudinal. And we will see that the American future monuments fare poorly under the scrutiny of the integral, cultural, and empowerment traditions.

²⁹ Hannah Arendt, 'Hannah Arendt: From an Interview', *The New York Review of Books*, 26 October 1978 <<http://www.nybooks.com/articles/1978/10/26/hannah-arendt-from-an-interview/>> [accessed 14 April 2018].

Walter Benjamin. *On the Concept of History*. Gesammelten Schriften I:2. Suhrkamp Verlag. Frankfurt am Main, 1974. <<http://members.efn.org/~dredmond/ThesesonHistory.html>>.

³⁰ Qtd in James Dator, 'Futures studies: today and tomorrow', (*Futuribili*, 1993) 12-13.

TIME AS METAPHOR

Future monuments ask us to think differently about time, thus situating them squarely in the broader field of Time Studies, or chronocriticism. The term “chronocriticism” refers to any critical methodology that focuses primarily on how time is conceived, assumed, or imagined in a given work or medium. The term is borrowed in part from what Bakhtin called the *chronotope* (хронотоп, literally ‘time-place’), a neologism he coined to refer to how time is conceived in language and narrative.³¹ Chronocriticism widens the scope of this concept beyond the bounds of written language to works of art, film, material culture, performance—anything touched by time.

Part of the challenge of the field of chronocriticism is no one knows what time is precisely. Time: it’s that thing that keeps everything from happening at once.³² Ask Tom O’Brian, the atomic physicist currently in charge of running the world’s most accurate atomic clock at the National Institute of Standards and Technology (NIST), Boulder, Colorado, and he will tell you time is what his clock measures. Press him further, and he might explain that time is a measurement of the regular transition states of caesium-133. Press him still further for an answer that is not circular, and he will be forced to admit: “Time is a human construct. It’s a way that we as humans have developed to try to understand and put some order in this very

³¹ “Формы времени и хронотопа в романе” (1937)
<<http://philologos.narod.ru/bakhtin/hronotop/hronmain.html>>.

³² Ray Cummings, *The Girl in the Golden Atom* (1922), 46. Commonly misattributed to many other authors.

fascinating and complex universe around us.”³³ Strange as it might seem, the foremost expert responsible for the most technologically complex and precise instrument does not seem certain what precisely it is his machine measures.

In the realm of theoretical physics, Lee Smolin at the University of Waterloo feels that the next major breakthroughs in physics will come from the reconceptualization of time. In his words:

I used to believe in the essential unreality of time. Indeed, I went into physics because as an adolescent I yearned to exchange the time-bound, human world, which I saw as ugly and inhospitable, for a world of pure, timeless truth... I no longer believe that time is unreal. In fact I have swung to the opposite view: Not only is time real, but nothing we know or experience gets closer to the heart of nature than the reality of time.³⁴

Pending a clear definition of the concept, and likely a subsequent revolution in the field of physics, there is a convenient way to sidestep the issue. Whether time is an essential reality at the “heart of nature” as Smolin describes it, or a human construct, as O’Brian asserts, everyone lives with an assumption about what time is. To the extent that time is a construct, the study of time is the study of fictions. To the extent that time is an essential reality, the study of time is a science. In either case, chronocriticism is the study of metaphor.

And what an important metaphor—Time flies like an arrow. It flows like a river. It crawls like a baby. It can be saved, invested, bought, and spent. You can be *on* it, *out* of it, *over* it. You can *do*, *make*, *have*, and *kill* it. It is exceedingly difficult to conceive of time without spatial metaphors, most often circles or lines segmented in one way or another. Professors tend

³³ Geoff Brumfiel, ‘New Clock May End Time As We Know It’, *NPR.org* <<http://www.npr.org/2014/11/03/361069820/new-clock-may-end-time-as-we-know-it>> [accessed 23 April 2017].

³⁴ Lee Smolin, *Time Reborn: From the Crisis in Physics to the Future of the Universe* (Boston: Houghton Mifflin Harcourt, 2013) xiii.

to think in semesters, tenure track discussion sections, and deadlines. Harvard undergrads think that the hour begins seven minutes after it.³⁵ Wall Street thinks in business quarters.³⁶ Politicians think in election cycles. Parents often struggle to reconcile their clocks with their children's. Children must learn a sense of it and be taught to "tell" it. Archeologists dig through thousands of years into it. Geologists plumb millions of years. Cosmologists split stars across billions. Each of these frameworks structure how far into the future one imagines, which in turn implies an assumption about how much future there is in the first place. The historian, the archeologist, or the geologist, each imagines the past at tremendously larger scales, and brings those pasts to bear on the present. Both pasts, known or unknowable, and futures realized or imagined, put pressure on the present—an individual's consciousness of those pressures tremendously impacts how he or she interacts with the world around. And the present, however imagined, be it the ephemeral, biological present of the individual, or the thick, stratigraphical present of the archeological, enjoys a privileged exceptionalism that relegates the past and the future to ancillary importance.

Nor is the time-problem simply a matter of scale or segmentation. There are many ways of problematizing temporality that do not rely on the prevailing past → present → future timeline, which in and of itself is a historically situated metaphor that both structures and predetermines how one imagines oneself as existing in the world. Who says a timeline has

³⁵ Until 2018, when the administration did away with the "Harvard Hour." Alexis J. Ross and William L. Wang, "Students Lament Loss of 'Harvard Time,'" *The Crimson*, April 6, 2017 <<https://www.thecrimson.com/article/2017/4/6/students-react-harvard-time/>>.

³⁶ Anthony F. Aveni, *Empires of Time: Calendars, Clocks, and Cultures*, Mesoamerican Worlds, Rev. ed. (Boulder, CO: University Press of Colorado, 2002). (First printing 1989) – I owe credit to Anthony Aveni, whom I've imitated in this paragraph, but with emphasis on different temporal metaphors.

anything to do with time at all?³⁷ Einstein himself mused on the death of his friend Michele Besso, not a month before his own passing, “People like us, who believe in physics, know that the distinction between past, present, and future is only a stubbornly persistent illusion.”³⁸ Here he is echoing the ancient argument between Heraclitus—*everything changes, permanence is an illusion*—and Parmenides—*change is an illusion*—at the core of chronocriticism.³⁹ Indeed, as I will demonstrate, future monuments can be mapped on a time line. But this is to restrict both what future monuments attempt to do, and what they can do. Contemporary art historian Amelia Groom has what I consider the best metaphorical grasp on the slipperiness of time.

While useful in certain situations, the notion of autonomous, linear, future-oriented time is a culturally and historically specific construct that remains ideologically grounded. Once the twentieth century's fetishization of teleological progress is abandoned, history's time reveals itself as a concoction of chance encounters, arbitrary inclusions, systematic exclusions, parenthetical digressions, abrupt U-turns, inherited anecdotes, half-remembered facts, glossed over uncertainties and forgotten back-stories.⁴⁰

Groom throws down the gauntlet: history, she would tell us, is a mere “concoction of chance encounters,” brewed up like a potion. Or perhaps time might be better understood as a shoddy coffee maker, as Michel Serres does:

How can we not feel that time *percolates* rather than flows? Far from flowing in laminar and continuous lines, like a well-behaved river under a bridge, upstream to downstream, time descends, turns back on itself, stops, starts, bifurcates ten times, divides and blends, caught up in whirlpools and countercurrents, hesitant, aleatory, uncertain and fluctuating, multiplied into a thousand passes, it does so as if through

³⁷ One book that does an excellent job of problematizing the timeline is Daniel Rosenberg, *Cartographies of Time*, 1st ed. (New York: Princeton Architectural Press, 2010).

³⁸ Einstein's claim is at odds with Lee Smolin on the question of the essential reality of time.

³⁹ History in flux, or in a state of liquidity, is an idea I borrow from Michel Serres. Michel Serres, *The Birth of Physics*, Groundworks, (London; New York: Rowman & Littlefield International, 2018). See also: Stephen Clucas “Liquid history: Serres and Lucretius” in Niran B. Abbas, *Mapping Michel Serres*, Studies in Literature and Science (Ann Arbor: University of Michigan Press, 2005).

⁴⁰ Amelia Groom, *Time*, Whitechapel: Documents of Contemporary Art (London: Cambridge, MA: Whitechapel Gallery; The MIT Press, 2013), p. 12.

a colander. *Colander* comes from the Latin *colare*, to filter, and this filter or percolator supplies the best model for the flow of time. Sudden explosions, quick crises, periods of stagnant boredom, burdensome or foolish regressions and long blockages, but also rigorous linkages and suddenly accelerated progress, meet and blend in scientific time as in the intimacy of the soul, in meteorology as in river basins... If the time of a planet and the time of a river can have such subtly, what about historical time?⁴¹

To be sure, future monuments tend to demand a reconceptualization of time beyond the normative frameworks assumed by cut-and-dried historical timelines. Future monuments eschew a timeline. They are temporally squiggly. There are better ways to understand these monuments by applying alternative temporal metaphors, or, alternatively, analyzing the temporal metaphors they invoke.

SYMMETRICAL ARCHAEOLOGY

The Stanford archaeologist Michael Shanks employs a chronocritical framework in his field that is useful for future monumentality. As an archaeologist, he theorized the concept of “symmetrical archaeology.” Symmetrical archaeology is a way of acknowledging the reciprocal construction of past and present in archaeology. For Shanks, the concept of a fixed, incontrovertible past that archeologists uncover or rediscover is bunk. He describes it as an “attitude” towards archaeology.⁴² In his words,

Archaeologists... do not discover the past... Archaeology is a process of mutual self-constitution, under this attitude. Working on the past makes us who we are. This is a dynamic process because there is no resolution; it just keeps on going. The process is iterative.⁴³

⁴¹ Michel Serres “Science and the Humanities: The Case of Turner” *Substance*, vol. 26, no. 2 (1996) 15-16.

⁴² Note: The of an “attitude” toward archaeology, or an “attitude” towards the future, very much rhymes with the critical tradition of futures studies.

⁴³ Michael Shanks, ‘Symmetrical Archaeology’, *World Archaeology*, 39.4 (2007), 589–96.

Michael Shanks attitude towards archaeology as a constructed negotiation between past and present is an interesting echo of Van Wyck Brooks' 'useable past.' However, I question just how symmetrically any particular past is balanced, given the inherent primacy of the present over the past and the future. Michel Serres describes this tyranny of the present as an essential fallacy of anthropocentric conceptions of space and time:

Just as in space we situate ourselves at the centre, at the navel of the things in the universe, so for time, through progress, we never cease to be at the summit, on the cutting edge, at the state-of-the-art development. It follows that we are always right, for the simple, banal, and naïve reason that we are living in the present moment. The curve traced by the idea of progress thus seems to me to sketch or project into time the vanity and fatuousness expressed spatially by the central position.⁴⁴

The primacy of the present is assumed, fleeting, illusory, and yet a difficult box to think one's way out of. Symmetrical archaeology, then, is right in its acknowledgement of the dialogue that takes place between past and present. But the conversation is lumpier than it is symmetrical. The present is perpetually reframing the past, is ever selecting and re-selecting useable pasts from which to construct the present. Could the same be said about the relationship between the present and the future? Art critic Boris Groys thinks so:

The future is ever newly planned... And the past is also permanently rewritten—names and events appear, disappear, reappear, and disappear again. The present has ceased to be a point of transition from the past to the future, becoming instead a site of the permanent rewriting of both past and future—of constant proliferations of historical narratives beyond any individual grasp or control.⁴⁵

Just as I suggested flipping the concept of the "usable past" on its head to consider the idea of a "usable future," so too might we do so with symmetrical archaeology. In this mode of thinking,

⁴⁴ Michel Serres, extract from 'Science and the Humanities: The Case of Turner,' *Substance*, vol. 26, no. 2 (1997) 15-16. One hears an echo of John Berger, "perspective makes the eye the center of the visible world." Perspective also has that effect on the temporal world.

⁴⁵ Boris Groys, "Comrades of Time," *e-flux journal*, no. 11 (December, 2009) <<http://www.e-flux.com/journal/11/61345/comrades-of-time/>>.

the future (rather than the past) becomes the resource from which people in the present construct their identity. What that future is, who is in it, how far it goes, is the essential rubric which frames the actions people choose to take in the present. Those futures can vary widely from individual to individual, and those futures can conglomerate into massive intentional trajectories across cultures or nations. The future, thus imagined, is the averaged vector of a turbulent spaghetti of individual strings of intentionality. At a rate of one second per second, these futures are perpetually compared to what is uncovered or revealed in the future. What will be is compared to what is. To use Shanks' words, the present and the future are symmetrically negotiated and renegotiated in an "iterative," "dynamic process," for which there is "no resolution; it just keeps going."

THE FUTURE

What I have described here, to borrow again Michael Shanks' word, is an attitude towards history. It is an attitude that recognizes the reciprocal constructedness of the past and the future. And it is an attitude that suggests—perhaps not in a quantitative manner—that *how* a given culture imagines the future at a given moment has greater import than how a given culture imagines the past. The notion that the past has less effect on the present than the future has on the present might seem radical at first, but it is intuitive when considered at the level of the individual. Plenty of people go about their day-to-day affairs with little or no attention to the invisible tendrils of history that shape the surrounding world and bind them to it. But very few people go through their day-to-day affairs without some sort of imagination of what the future will bring, be it a family, a career, or simply the next meal. People are ever-becoming the thing they expect to be, and ever-comparing that expectation to what they have become. Future-

orientation holds primacy, perhaps also in the very biology of the brain as an engine of anticipation, prediction, and comparison.⁴⁶ A historian might stake their profession on the old Shakespearean adage that “what’s past is prologue.” The turn of phrase is a bit more cumbersome for the chronocritic: what is imagined to be is prologue. It is this sense of American future-orientation, perhaps, that inspired de Tocqueville’s observation in *Democracy in America* that

Democratic nations care but little for what has been, but are haunted by visions of what will be; in this direction, their unbounded imagination grows and dilates beyond measure.⁴⁷

What is not intuitive is how to extrapolate from the analysis of individual future-orientation (a task, perhaps, for psychology), to an assessment of the broader, collective imagination of the future. The following chapters are an effort to try out this attitude towards the future by looking at a set of case study future monuments, objects built at specific points in American history to explicitly reify a collective imagination of the future, and through the lens of the future monument, see what can be gleaned from past and contemporary collective future-ideation.

METHOD: WHO CARES ABOUT THE FUTURE?

The audience for this research likely hails from interdisciplinary fields such as American Studies, or cultural studies. However, the uses for this research extend to those who are interested in time theory (chronocriticism), the philosophy of history, literature, and material

⁴⁶ There are a number of books in Cognitive Science that make this assertion: Dean Buonomano, *Your Brain Is a Time Machine: The Neuroscience and Physics of Time* (New York: W.W. Norton & Company, 2017); Jakob Hohwy, *The Predictive Mind* (Oxford: Oxford University Press, 2014); Jeff Hawkins, *On Intelligence*, 1st ed. (New York: Times Books, 2004).

⁴⁷ Alexander de Tocqueville, *Democracy in America*, Chapter 17
<http://xroads.virginia.edu/~hyper/detoc/ch1_17.htm>.

culture studies. For all these fields, future monuments demonstrate an alternative way of examining an object—in particular, the way a material object (such as a future monuments) can rupture normative assumptions about temporality and compel audiences into a state of cognitive estrangement in relation to time. It is no mere intellectual exercise to think differently about time. Some objects demand it. The meaning they generate is stanced when constricted by the tourniquet of normative temporality. To think *future monumentally* is to look at any object with an eye for discerning “what is the future assumed or implied by this thing?”

Another methodological technique unique to this dissertation is how science fiction is employed to analyze monuments. Science fiction is no stranger to time warps, time travel, and vast swaths of strange temporality.⁴⁸ The flexibility of the genre lends itself to the study of future monuments. With every monument, I bring in a science fiction story (or two) as a direct bridge between theory and object. Science fiction is, for this research, a lens through which to look at the monuments—theory is translated via science fiction onto a material object. This translation operates differently for each object, but the overall effect is science fiction serves as an effective mediator that makes understanding these uniquely strange objects easier to understand. Andreas Huyssen thus provides us the academic theory that problematizes history, memory, and palimpsest. William Gibson, however, gives us a parable of the theory. And then the object itself (the World’s Fair), the real-world manifestation of the idea. So too with Vergil (whom I treat as a science fiction writer) and the Golden Record. So too with Langdon Jones and the Clock of the Long Now.

⁴⁸ See: James Gleick, *The History of Time Travel* (2016) and Istvan Csicsery-Ronay, *The Seven Beauties of Science Fiction* (2008).

CASE STUDIES

MONUMENT 1: [THE 1939 NEW YORK WORLD'S FAIR](#)

Future monuments can be ephemeral or permanent, conceptual or concrete, and are probably best understood by example. Take the 1939 New York World's Fair in Flushing Meadows Corona Park, which was both concrete and fleeting. The Fair attracted some forty-four million visitors to wander its acres of exhibitions over the course of two seasons. A six-hundred-foot needle, the Trylon, was readily visible from Manhattan. It was paired with a two-hundred-foot sphere, the Perisphere. Together, they comprised the symbolic heart of the fair. The pair beckoned to visitors, inviting folks far and wide to visit the utopian *Democracity* exhibition housed inside the Perisphere.⁴⁹ Almost as popular was General Motor's utopian *Futurama* exhibition, GM's bid at a car-filled streamlined utopian future.

The World's Fair was built on what was originally a sprawling natural swamp, where five million New Yorkers had, for decades, daily dumped the fly ash from their coal burning furnaces by the ton. It was this landscape that inspired F. Scott Fitzgerald's description of an existential hell on earth, the so-called "valley of ashes" in *The Great Gatsby* (1925). And it was Fitzgerald's description that compelled Robert Moses, sometimes called the "master builder" or "Baron Haussmann" of New York, to lasso together funding to replace this dump with the World's Fair. Fitzgerald would have been surprised to see the very landscape he imagined was the hellish end of the Jazz Age rebranded under the theme "Your World of Tomorrow," a testament to pre-World War II technophilia and an orgasmic faith in a future of streamlined highways and chromed cars. The *Official Guidebook* to the Fair explained the theme:

⁴⁹ The very *Futurama* that inspired Matt Groening's eponymous cartoon.

The eyes of the Fair are on the future... presenting a new and clearer view of today in preparation for tomorrow; a view of the forces and ideas that prevail as well as the machines.⁵⁰

The Fair was a gargantuan festival to the future, a place where one would come to marvel at all the promise and wonder of what surely would be. But Moses's vision did not last: His colossal Modernist monuments to the future were soon thereafter dismantled for the war effort. Yet the dream of the World's Fair persists in Flushing, in Fitzgerald's fictional description of the valley of ashes, in the material remains of those millions of tons of fly ash, still simmering beneath ten inches of topsoil. This chapter employs fictional descriptions (Fitzgerald), memoirs (E.L. Doctorow), film adaptations (Luhmann), fairgoer's experiences (various newspapers), comic books (Fies), video footage (Prelinger Archive), museum artifacts (Queens Museum), and a small amount of archaeological field research (I dug a hole) into Flushing Meadow's Corona Park to tell a cultural and environmental history of the Valley of Ashes and the multiple competing visions that have vied to define what its future is, or ought to be. The future monument of the World's Fair, however fleeting, fictional, ambitious, and hopeful, reveals how past visions of the future can still haunt contemporary spaces, often despite concerted efforts to erase or revise these many palimpsests.⁵¹ From the perspective of 2019, this chapter tries to see

⁵⁰ *Official Guide Book of the New York World's Fair, 1939*. (New York: Exposition Publications, 1939), 46.

⁵¹ I'm indebted to Andreas Huyssen's concept of cityscapes as "palimpsests of space":

"After the waning of modernist fantasies about *creatio ex nihilo* and the desire for the purity of new beginnings, we have come to read cities and buildings as palimpsests of space, monuments as transformable and transitory, and sculpture as subject to the vicissitudes of time. Of course, the majority of buildings are not palimpsests at all... An urban imaginary in its temporal reach may well put different things in one place: memories of what was there before, imagined alternatives to what there is. The strong marks of present space merge in the imaginary with traces of the past, erases, losses, and heterotopias." (*Past Presents*, 7).

the future through the eyes of the 1939 World's Fair in all its wonder, technophilia, hubris, and its bold declaration: "*I HAVE SEEN THE FUTURE.*"⁵²

⁵² I'm particularly indebted to the research of Joseph Corn, Terry Smith, and the collections at the Queens Museum in Flushing Meadows Corona Park: Joseph J. Corn, *Yesterday's Tomorrows: Past Visions of the American Future*, (Baltimore: Johns Hopkins University Press, 1996); Joseph P. Cusker et al., *Dawn of a New Day: The New York World's Fair, 1939/40* (New York: Queens Museum; New York University Press, 1980); Terry Smith, *Making the Modern: Industry, Art, and Design in America* (Chicago: University of Chicago Press, 1993).

MONUMENT 2: THE GOLDEN RECORD

Carl Sagan's Golden Record is an LP made of gold strapped to NASA's Voyager 1 and 2 space probes, which launched in 1977 and promised to be the first human-made objects to leave the solar system. The Golden Record comprises images and music from earth, greetings in hundreds of languages, and music—J.S. Bach, Chuck Berry, Javanese Gamelan, Navajo Night Chants, even humpback whale songs.⁵³ NASA even included a record player aboard the Voyagers.⁵⁴ Sagan and his team had selected what he hoped would be a representative sampling of human culture; it was, in the words of one member of his team, “a mix tape of the gods.”⁵⁵

Because there is very little to damage the Golden Record in space, and because it is free from the erosive forces of wind, water, and human beings, it promises to be the most lasting monument to humankind yet made. Some estimate that the Golden Record will be recognizable for billions of years. By temporal comparison, the pyramids of Egypt look like melting mounds of butter in the desert. Even if human beings obliterate all vestiges of life on earth, the Golden Record will preserve some slice of our memory into cosmic perpetuity.

Though this Cold War artifact might seem a conventional monument to the past, Sagan intended it as a gift for some alien civilization, which—in some far future—might retrieve it and, indeed, play it. In its immortality, the Golden Record takes on mythical proportions. The Golden Record is as eternal and inaccessible as the Golden Fleece or the Golden Bough, retrievable only

⁵³ For technical specifications of the Voyager mission and the Golden Record, see: Christopher Riley, Richard Corfield, and Philip Dolling, *NASA Voyager 1 & 2: Owners' Workshop Manual* (Newbury Park, CA: Haynes Publishing, 2015).

⁵⁴ Sagan and his team concurrently published a book describing the scope of their project: Carl Sagan, *Murmurs of Earth: The Voyager Interstellar Record*, 1st ed. (New York: Random House, 1978).

⁵⁵ Timothy Ferris, ‘Opinion | The Mix Tape of the Gods’, *The New York Times*, 5 September 2007, section Opinion <<https://www.nytimes.com/2007/09/05/opinion/05ferris.html>> [accessed 28 February 2018].

by some chosen hero like Aeneas or Jason. NASA, through Sagan, has effectively repurposed and converted a mythological symbol into a material object—the hero’s quest is no longer defined by gods who conjure golden goals for heroes to achieve, but by some cosmic equivalent. What, then, would it mean to retrieve the Golden Record? What does it mean that human beings can make objects that exist on immortal-cosmological timescales? What does it mean to project a collective image of humankind into a near-infinite future? What sort of image should be collectively presented to the cosmos? Is it hopeful in imagining that someone or something might receive this golden gift? Or is it rather nihilistic, a kind of cosmic cenotaph acknowledging our galactic loneliness? What do we do with the humbling reality that the most lasting vestiges of the human species will ultimately be our space trash?

Despite its invisibility and inaccessibility, this far-flung future monument remains fast in the public imagination even forty years after its launch into space, which is part of what makes it so effective. To this day, the golden record elicits a common thought experiment: what would *I* put on the Golden Record, were I to make one? What isn’t on it? What should have been on it? A group that calls itself SETI-X, for example, remixed the record into a seventy-minute concept album that imagines what aliens “flirting with copyright violation on an interstellar scale” might send back to us.⁵⁶ This thought experiment is self-reflective; it compels people to seriously consider what about themselves, their group, or culture, (or most broadly, their species), is universal, good, and most worthy of sharing.

The Golden Record highlights the mythic ambitions of future monumentality—though some future monuments predict the future, or endeavor to manifest a future, the Golden Record demonstrates how mythological dimensions can unintentionally intertwine a future monument.

⁵⁶ ‘Scrambles of Earth - about’ <<http://earthscramble.com/>> [accessed 14 April 2016].

The effort to imagine a future is both an effort to effect a particular future, but also to claim that a particular future is favorable. When the dimensions of that future extend in to cosmological timeframes, the claims such a monument make on the future overstep mere historical, short-term futures, and stretch into the realm of eternity, improbability, and, importantly mythology. In the same way Romans invented mythological stories to connect themselves to a deep past, so too can future monuments invent mythic futures, in which the identity of a culture is not just defined by a usable (mythical) past, but also defined by acting into a usable mythical future.

MONUMENT 3: [THE CLOCK OF THE LONG NOW](#)

A third example: The Long Now Foundation is a nonprofit organization currently working on their flagship future monument—a colossal clock designed by the writer Stewart Brand, the engineer Danny Hillis, the musician Brian Eno, and funded by the CEO of Amazon, Jeff Bezos.⁵⁷ The clock is hidden away in a desert cave, meant to measure time at the scale of ten thousand years. The clock ticks slowly. Ticks once a century. Cuckoos a chime (designed by Eno) every millennium. It sounds like something out of a science fiction story, yet it is astoundingly real. Construction is underway.⁵⁸

The clock is meant to inspire ten-thousand-year thinking, a temporal ethics that insists on considering the ramifications of decisions over a timespan roughly equal to human history. What decisions—individual, political, cultural—would you, or wouldn't you, make if you considered

⁵⁷ For some primers on the Clock of the Long Now see: Stewart Brand, *The Clock of the Long Now: Time and Responsibility*, 1st ed. (New York: Basic Books, 1999); Danny Hillis and Alexander Rose, *The Clock of the Long Now: Mechanical Drawings of the First Prototype* (Lexington, KY: The Long Now Foundation, 02010); 'Introduction - 10,000 Year Clock - The Long Now' <<http://longnow.org/clock/>> [accessed 27 February 2018].

⁵⁸ '10,000 Year Clock under Construction', *BBC News*, 21 February 2018, section Technology <<http://www.bbc.com/news/technology-43143095>> [accessed 27 February 2018].

the ramifications of those choices ten thousand years into the future? The clock asks us to think like a glacier. It measures time in units fit for radioactive decay. It recalls the Doomsday clock.⁵⁹ It highlights the temporal problem at the heart of Global Warming—that is, the temporal limitation of human perception to perceive changes invisible on the scale of human timeframes, yet astoundingly clear when seen on a planetary timescale.⁶⁰ It is an object in conversation with what geologists, ecologists, and environmentalists call the “Anthropocene,” the period of time after which human beings began to have an influence over the planet comparable to and measurable on the scale of geology. Will the Anthropocene last for an epoch, an age, or an era? What exactly is the post-Anthropocene?⁶¹ What does it mean if the clock stops? The Clock is an ambitious attempt to grapple with all these questions at once.

Stewart Brand has his own answers to these questions. He and a team of eighteen professors, scientists, and technophiles have penned a manifesto urging a capitalist reimagination

⁵⁹ The Doomsday Clock is monitored by the *Bulletin of Atomic Scientists*: ‘Read the 2018 Doomsday Clock Statement’, *Bulletin of the Atomic Scientists*, 2018 <<https://thebulletin.org/2018-doomsday-clock-statement>> [accessed 27 February 2018].

⁶⁰ For this point, I have Timothy Morton’s works in mind: Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World*, (Minneapolis: University of Minnesota Press, 2013); Timothy Morton, *Dark Ecology: For a Logic of Future Coexistence*, Wellek Library Lecture Series at the University of California, Irvine (New York: Columbia University Press, 2016).

⁶¹ There has been no shortage of conversation about what this new geological era ought to be named. Jason Moore and others have suggested that “capitalocene” might be better, in the interests of wresting the term “anthropocene” from climate scientists. Moore’s law, in this context, no longer refers to the doubling of technological capacity every two years (a law that rhymes with the belief in technology to solve all the self-inflicted environmental problems that make up Global Warming)—redefined, Jason Moore’s law is a mix of Marx (capitalist critique) and Malthus (anti-cornucopian / Club of Rome acknowledgement of the limited carrying capacity of the planet). For the purposes of the dissertation, I will use the term “anthropocene” to refer to any discourse interested in the idea of human beings grappling with, or causing effects that will be measurable on geologic time scales.

Jason W. Moore and Christian Parenti, *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism*, Kairos (PM Press (Firm)) (Oakland, CA: PM Press, 2016) and Benjamin Kunkel, ‘The Capitalocene’, *London Review of Books*, 2 March 2017, pp. 22–28.

of the climate crisis—suggesting, in the spirit of the 1939 World’s Fair, that technology can turn back the clock of global warming “to re-wild and re-green the Earth.”⁶² In another project, Brand proposes—in all seriousness—the resurrection of extinct species (Woolly mammoths, passenger pigeons, and more) from tattered DNA remains archived in museums or frozen in glaciers.⁶³

Is there a point at which technophilia becomes technomania? How are we to reconcile the idea that Jeff Bezos is funding this ten-thousand-year clock with its ten-thousand-year ethics, when his greatest gift to the planet so far has been Amazon two-day prime? It is worth asking to what extent such Long Now thinking is a privilege and pastime of the wealthy. It is also worth considering to what degree this future monument merely memorializes its builders. But what if Brand’s optimistic vision of human survival ten thousand years into the future—his colossal ticking clock—is precisely the sort of mindset necessary to stave off the environmental apocalypse?



Future monuments are temporally strange by definition. They show us what could be, and what might have been. They highlight the ways in which various and distinct historical forces competed to compel specific imaginations of futurity. They provide a vehicle through which it is possible to ask what it would mean to imagine an ethical, or unethical, future. Returning briefly to Van Wyck Brooks’s essay, we might note that at each instance he employs the word “past,” we might just as well interchange the word “future” to impart the same wisdom:

⁶² The full manifesto is available here: ‘A Manifesto for a Good Anthropocene’, *An ECOMODERNIST MANIFESTO* <<http://www.ecomodernism.org/>> [accessed 24 April 2017].

⁶³ ‘Revive & Restore’, *Revive & Restore*, 2013 <<http://reviverestore.org/>> [accessed 29 April 2017].

The past [future] is an inexhaustible storehouse of apt attitudes and adaptable ideals; it opens of itself at the touch of desire; it yields up, now this treasure, now that, to anyone who comes to it armed with the capacity for personal choices.⁶⁴

In other words, if we need another *future* so badly, is it inconceivable that we might discover one, that we might even invent one? There is an old saying of uncertain origin that quips, “The future isn’t what it used to be.” Future monuments surely demonstrate as much. But they also suggest that the future probably shouldn’t be what it used to be.

⁶⁴ Brooks, 339.

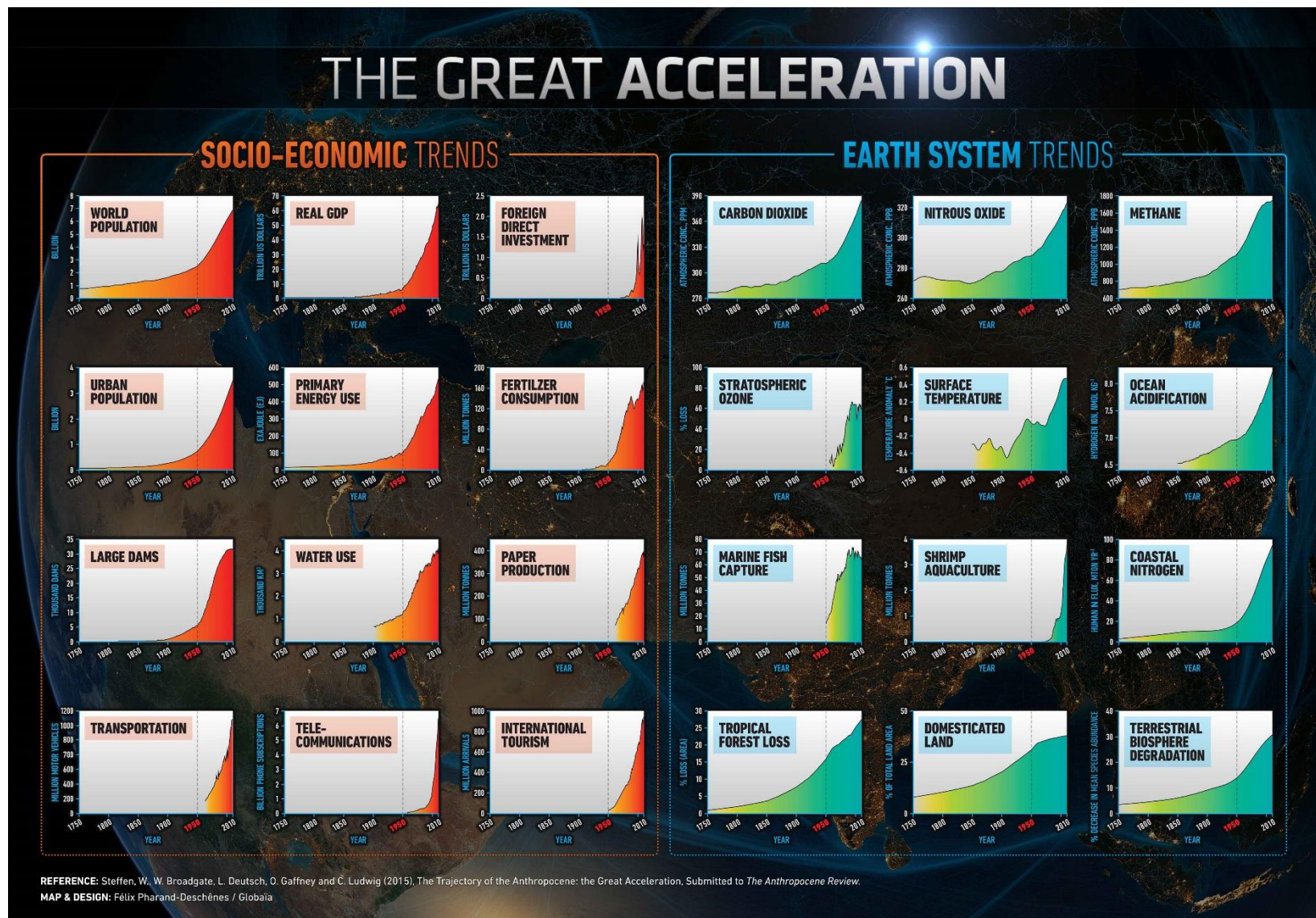


Fig 1 - “The Great Acceleration” ([back to page](#))

CHAPTER 2:
THE WORLD OF TOMORROW
FICTION, FUTURE MONUMENTS & SEMIOTIC PHANTOMS

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*"Your impatience for Monuments, America,  
Is largely your charm"*  
—Joan O. Harvey, "The World of Tomorrow.." <sup>1</sup>

*"She saw these things as segments of a dream world, abandoned in an uncaring present."*  
—William Gibson, "The Airstream Futuropolis: The Tomorrow that Never Was" <sup>2</sup>

*"Prior forms, he reflected, must carry on an invisible, residual life in every object. The past is latent, is submerged, but still there, capable of rising to the surface once the later imprinting unfortunately—and against ordinary experience—vanished. The man contains—not the boy—but earlier men, he thought. History began a long time ago."*  
—Philip K. Dick, *UBIK* <sup>3</sup>

Every future monument is, in some sense, fictional. Imagining the future is a story-telling task. Future monuments share this narrative property with regular monuments. The following chapter describes a future monument that is entirely fictional: the billboard in F. Scott Fitzgerald's *The Great Gatsby* (1925). The billboard, painted with the eyes of T.J. Eckleburg, looms large over a symbolic hellscape, the "valley of ashes," which was Fitzgerald's imagination of the inevitable end of the Jazz Age. The future was bleak. The billboard was inspired by a real place in Queens, New York named Corona Dump. In this case, a real landscape inspired a fictional future monument which, in turn, inspired a series of competing future monuments, (the

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<sup>1</sup> Joan O. Harvey, "The World of Tomorrow.." in Academy of American Poets, *The Official Poem of the New York World's Fair, 1939, and Other Prize Winning Poems* (New York: Printed for the Academy of American poets by Bowne & co, inc, 1939) 24-28.

<sup>2</sup> William Gibson, "The Gernsback Continuum," edited by Terry Carr, *Universe 11*, (Garden City, NY: Doubleday & Co, Inc, 1981) 82. For the purposes of the epigraph I use Gibson's original title for the short story.

<sup>3</sup> Philip K. Dick, *Ubik*, (Garden City, New York: Doubleday & Company, Inc, 1969) 122.

1939 and 1964 World's Fair), each built one atop (and in some cases nested within) the other over the course of the twentieth century. This chapter aims to show how past imaginations of the future, in particular, a fictional future monument, can still persist, even haunt a place, despite deliberate efforts to bury or bulldoze them.

## THE SEMIOTIC PHANTOM

Semiotic phantoms are a common symptom of someone who has studied too much microhistory—the historian begins to lose grip of the lines defining what was, what is, and what could have been; the historian begins to feel the opposite of nostalgia, a longing, not for the past, but for a past future.<sup>4</sup> A semiotic phantom haunts in a peculiar way. William Gibson describes the semiotic phantom in his short story, “The Airstream Futuropolis: The Tomorrow that Never Was,” as “Fragments of the Mass Dream...bits of deep cultural imagery that have split off and taken a life of their own, like the Jules Verne airships that those old Kansas farmers were always seeing.”<sup>5</sup> When a fictional past imagination of the future persists in manifesting itself in the present, as the 1939 World's Fair does in Gibson's short story, the semiotic ghost ruptures the

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<sup>4</sup> The opposite of *nostalgia* would be *mellalgia*: a sentimental longing or wistful affection for the future, typically for a period or place with happy personal associations. Etymology: μέλλο: “future” + ἄλγος: “pain.” Inspired by Svetlana Boym's book, *The Future of Nostalgia* (2001). C. J. Cherryh experiments with the idea of mellalgia in her short story, “The Threads of Time,” in which she describes her time traveling protagonist experiencing such a feeling: “He lived scattered lives in ages to come, and remembered the future with increasing melancholy.” *Mellalgia* is also the topic of Proust's unfinished book, *Remembrance of Things to Come*.

<sup>5</sup> Gibson, 86.

boundary between past and present, demanding a reckoning between the possible future and the realized present.<sup>6</sup>

Gibson leaves his narrator desperate, searching for an escape, a distraction, an amnesiac anodyne to the semiotic ghostly visions from the 1939 World's fair, the "mad-doctor chrome...[the] shark-fin roadsters...[the] gleaming eighty-lane monsters" and the "relentlessly tacky ephemeral stuff extruded by the collective American subconscious of the Thirties" that haunt him.<sup>7</sup> This chapter expands Gibson's science fiction into the historical, though the boundary between the two might be slipperier than expected; some, such as the French historian Marc Bloch, have argued that thinking about the present and future is always in some sense science fictional.<sup>8</sup> As sci fi scholar Istvan Csicsery-Ronay notes, "to be aware of future possibilities means looking backward at the imaginary unfolding of the present's lines of force."<sup>9</sup> This is precisely what this chapter endeavors to do by widening the temporal scope beyond Gibson's haunted visions of the 1939 World's Fair, pushing back into F. Scott Fitzgerald's roaring twenties, and forward to the 1964 World's Fair and, further, into the present, to explore

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<sup>6</sup> The semiotic phantom is, of course, the novum in this particular science fiction story. But that doesn't make them any less real. The author of this dissertation is also haunted by the semiotic phantoms of the 1939 World's Fair.

<sup>7</sup> Gibson 23-26.

<sup>8</sup> Istvan Csicsery-Ronay, *The Seven Beauties of Science Fiction* (Middletown, CT: Wesleyan UP, 2011), p. 56. Csicsery-Ronay goes farther as to claim the past is science fiction, quoting Marc Bloch:

"When a historian asks himself about the probability of a past event, he actually attempts to transpose himself, by a bold exercise of the mind, to the time before the event itself, in order to gauge its chances, as they appeared upon the eve of its realization. Hence, probability remains properly in the future. But since the line of the present has somehow been moved back in the imagination, it is a future of bygone times built upon a fragment which, for us, is actually the past." (*Seven Beauties*, 79). We might qualify this claim by stating that *if* one considers history to be sci fi, it is hard sci fi indeed.

<sup>9</sup> Csicsery-Ronay, p. 79.



the future monuments, such as the eyes of T.J. Eckleburg, that came to manifest, and re-manifest in the landscape of Flushing Meadows Corona Park, Queens—or as Fitzgerald called it, “the valley of ashes.” By examining these various nodes across the twentieth century, the fictional and myth-making dimensions of future monumentality, are made apparent. Each monument is an effort to revise or erase a previous one. Differing visions of the future are often created simultaneously, and they compete for actualization.<sup>10</sup> And yet, past future monuments, past imaginations of the future—even the ones that don’t stick—prove to have remarkable tenacity. History, thus examined, abhors a line. Events may be ordered one after the other, but the past perpetually erupts into the present; the future folds back onto the past—and the parallel unrealized potentials universes perpetually pressure the present with the constricting squeeze of “if-onlys...”

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<sup>10</sup> By “actualization,” I am referring to the concept of *entelechy*, by which I mean the realization of a potential. My argument is less concerned with which future turns out to be the most “correct” from the perspective of a reader existing in the present, (though accurate prediction is interesting). I am more interested in the ways that *unrealized* futures still exist, or “haunt,” as semiotic phantoms do. To see how semiotic phantoms haunt on the level of the individual, try the following thought experiment: imagine, if you will, what you were like when you were sixteen years old. Who or what did that sixteen-year-old version of you imagine you would become at your current age? In what ways does that (probably unrealized) person shape who you are today? To study the phantom futures of the 1939 New York World’s Fair is to ask these questions not at the level of the individual, but at the level of the cultural. In other words, what did it mean for forty-five million fair-goers to, all at once, imagine the futures portrayed at the 1939 World’s Fair?

*Entelechy*: Late Latin entelechia, from Ancient Greek ἐντελέχεια (entelékheia), coined by Aristotle from ἐντελής (entelḗs, “complete, finished, perfect”) (from τέλος (télos, “end, fruition, accomplishment”)) + ἔχω (ékhō, “to have”).

## THE VALLEY OF ASHES

Ride the LIRR from Penn Station toward Port Washington. You will pass through Queens. A window-gazing, literary-minded commuter might be interested to know that this is roughly the path traversed by Gatsby and the Buchanans some ninety years before in Fitzgerald's famous fiction *The Great Gatsby* (1925). The train, tunneling under million-footed Manhattan in perfect darkness, sails under the East River before emerging in Long Island City in a blinking rush of light. From there, the tracks arch northward, traveling obliquely away from the island, allowing an opportunity to see New York's colossal midtown skyline, the scintillating Chrysler tower, the double-cantilevered Queensboro bridge, celebrated in Simon and Garfunkel's whimsical and winsome "59<sup>th</sup> Street Bridge Song (Feelin' Groovy)"<sup>11</sup> and immortalized by Nick Carraway's elated observation: "The city seen from the Queensboro Bridge is always the city seen for the first time, in its first wild promise of all the mystery and the beauty in the world."<sup>12</sup>

As the train glides farther into Queens it is difficult to take one's eyes away from this towering spectacle, even as the skyline diminishes in degrees with increasing distance—with eyes on the sky, one hardly notices what is directly foregrounding this passing landscape: the gray postindustrial wasteland of train depots that bracket the train tracks. This is part of what Fitzgerald called the "valley of ashes," the no-man's-land between Manhattan and Long Island: Corona Dump, Willets Point. Now it is called Flushing Meadows Corona Park, the site of the 1939 and 1964 World's Fairs. Willets Point remains an unremarkable gray greasy sixty-two-acre triangle of on-the-cheap auto repair shops, the legacy of George Wilson, the dusty car repairman,

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<sup>11</sup> Paul Simon and Art Garfunkel, "59<sup>th</sup> Street Bridge Song (Feelin' Groovy)," *Parsley, Sage, Rosemary and Thyme*, (Columbia Records, NY: 1966).

<sup>12</sup> F. Scott Fitzgerald, *The Great Gatsby*, (New York: Charles Scribner & Sons, 2004) 68.

Fitzgerald's denizen of the valley of ashes. All of this would be easy to overlook—the unremarkable backdrop of a quotidian commuter drawl to and from Manhattan to East Egg or Port Washington—were it not for a question spelled out in demanding, golden letters, hung across the back of a tremendous Presbyterian megachurch at Woodside facing the train tracks:

“Is it nothing to you, all you who pass by ?”  
Lamentations 1:12

This question was hung by the former pastor of the Presbyterian church in 2000. The pastor hung it nearly four stories high at eye level with the LIRR commuter rail explicitly so the message would reach the greatest number of people.<sup>13</sup> It is a harrowing message that endeavors to snap absent-minded commuters out of their distraction and into a difficult conversation with what would have otherwise been a silent, passing landscape ([Fig. 1](#)). Written in blazing golden letters, framed by the Manhattan skyline, phrased in terse monosyllabic diction, this question is the absolute antithesis of Carraway's ecstatic declaration of wonder while approaching Manhattan. The question evacuates all possibility of future potential, of “wild promise,” and forces the reader into a disillusioned, naked confrontation with the wasteland of the present. Within the context of Fitzgerald's “valley of ashes” and contemporary New York, a citywide argument has erupted over defining the meaning of this parkland. The argument has been battled through the vehicle future monuments over the course of a century through a cycle of destruction and rebuilding, of economic boom and bust, of fact and fiction wrestling for control of dominating the meaning of symbols and art. The stakes are who or what will define the future of Flushing. With each iteration of this cycle, beginning with a noxious ash dump and ending with

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<sup>13</sup> The pastor in question, Young Hee Lee, has since moved on to lead the Yeram Church, also in Flushing. I met with him and, with the help of a translator, was able to confirm that this was his intention with the message—to reach the most people and to directly compare New York City to a fallen Jerusalem. This comparison is not uncommon. He had never read *The Great Gatsby*.

the ghostly penitenti of those godly golden letters, we see the eyes of Fitzgerald's fictional blue bespectacled T.J. Eckleburg re-emerging despite forces of erasure. Today, it is a damning conviction, posed as a question, stranger than fiction: is it *nothing* to you, all you who pass by?

Slipped strangely and hauntingly into the interstices of a book otherwise full of vibrant colors, shimmering dreams, and exquisite, aristocratic parties, Fitzgerald's valley of ashes is described in sharp chiaroscuro to the upper-class happenings that comprise the outward structure of the plot:

About half way between West Egg and New York the motor road hastily joins the railroad and runs beside it for a quarter mile, so as to shrink away from a certain desolate area of land. This is a valley of ashes—a fantastic farm where ashes grow like wheat into ridges and hills and grotesque gardens; where ashes take the forms of houses and chimneys and rising smoke and, finally, with a transcendent effort, of men who move dimly and already crumbling through the powdery air. Occasionally a line of gray cars crawls along an invisible track, gives out a ghastly creak, and comes to rest, and immediately the ash-gray men swarm up with leaden spades and stir up an impenetrable cloud, which screens their obscure operations from your sight...

...The valley of ashes is bounded on one side by a small foul river, and, when the drawbridge is up to let barges through, the passengers on waiting trains can stare at the dismal scene for as long as half an hour. There is always a halt there of at least a minute...<sup>14</sup>

Much ink has been spilled sussing out the multilayered symbolism in Fitzgerald's description of the valley of ashes. Robert Long observes that the growing gardens of ash echo the idea of Queens as a fallen Eden, noting that Fitzgerald went so far in manuscript editions of *The Great Gatsby* to call it "the back alleyway of Hell," which aligns the "small foul river" with the river Styx and the unfortunate "men who move dimly and already crumbling" with the shades of the dead.<sup>15</sup> Fitzgerald was likely invoking Psalm 23:4, the "valley of the shadow of death," though

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<sup>14</sup> Fitzgerald, 23.

<sup>15</sup> Robert Emmet Long, *The Achieving of The Great Gatsby: F. Scott Fitzgerald, 1920-1925*, (East Brunswick, NJ: Associated University Presses, Inc, 1979) 161.

the presence of God in Psalm 23 is not taken for granted in Fitzgerald's description.<sup>16</sup> These hellish implications are strengthened by Fitzgerald's comparison of the river to Avernus, a sulfurous swamp rumored to be so poisonous to nature that birds couldn't fly over it without dropping dead from the sky. The Romans thought Avernus was the entrance to hell, and Vergil himself ascribed the epithet *olentis* or "foul smelling" to it.<sup>17</sup> Richard Lehan connects the valley of ashes to Fitzgerald's greater project of representing the "vacuousness of the new commercial culture" of 1920s America.<sup>18</sup> The lower classes who work in this barren industrial hellscape are manual laborers, machinists, pump station attendants, represented by the character George Wilson, an "anaemic," "spiritless man."<sup>19</sup> Lehan sees Wilson as a ghostly figure, "exhausted not only of ambition but also of a sense of wonder, of life's promises and hopes...functionary as the machines [he] minister[s]."<sup>20</sup> Wilson is a representative of the unseen, overlooked, dehumanized working class whose meager means of living is defined by the whims of the aristocrats whose cars he fixes and refuels, whose life is shaped by their extravagancies, and ultimately destroyed by their carelessness.

There have been various efforts to depict Fitzgerald's valley of ashes. In 2013, Fitzgerald's fiction hit the big screen in the latest iteration of unsatisfactory attempts to convert

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<sup>16</sup> *The Bible*. Authorized King James Version, Oxford UP, 1998.

<sup>17</sup> Vergil, *Aeneid*, Book VI: 201. Author's translation; corroborated by Robert Fagles 2006 translation.

<sup>18</sup> Richard Lehan, *The Great Gatsby: The Limits of Wonder*, (New York: Simon & Schuster, 1995) 32.

<sup>19</sup> Fitzgerald, 25.

<sup>20</sup> Lehan, 38.

this American classic into film.<sup>21</sup> Directed by Baz Luhrmann, the newest adaptation promised to be larger than life, fueled by an extravagant budget worthy of Gatsby himself; one hundred and five million dollars transformed Fitzgerald's words into moving image. *The Great Gatsby* (2013) depicts the denizens of the valley of ashes as so covered in filth and soot that they become an anonymous mass, which can be read as a comment on race and class, wherein the distinction between race is erased by a uniform gray layer of soot covering all the working-class inhabitants of the valley of ashes; regardless of race, everyone in this working class hell is equally anonymous, indistinguishable and united by wage slavery ([Fig. 2](#)).<sup>22</sup>

There are several moments in the film in which the valley of ashes is rendered as an expansive panoramic landscape ([Fig. 3](#)). Luhrmann's landscape shows us the valley of ashes from high up, not quite from a bird's eye view, but most akin to the perspective of a skyscraper, a fitting perspective for a period in New York's history when skyscrapers were growing like weeds and modern art had shifted dramatically with the possibility of these new vertiginous perspectives.<sup>23</sup> In the foreground, the pastoral Eden of West Egg comes to an abrupt end where

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<sup>21</sup> For critical reviews of the less satisfactory renditions of *The Great Gatsby*, see: Alan Margolies "Novel to Play to Film: Four Versions of *The Great Gatsby*" in *Critical Essays on The Great Gatsby* ed. Scott Donaldson, Boston G.K. Hall & Co 1984.

<sup>22</sup> Hua Hsu makes some mention of this in "The End of White America," published in *The Atlantic* (2009). <<http://www.theatlantic.com/magazine/archive/2009/01/the-end-of-white-america/307208/>>

<sup>23</sup> For example, see Charles Sheeler's *Skyscrapers* (1922) or his collaborative film with Paul Strand *Manhatta* (1921). Joan Wilson's prize winning World's Fair poem, "The World of Tomorrow," also insists on examining the Fair from skyscraper perspective. Fitzgerald himself talked of experiencing a moment something akin to a transcendental moment or clarity, vision, understanding, and disillusionment (all simultaneously) from his view atop the Empire State Building in "My Lost City." This deserves comparison to Emerson's "Transparent Eyeball" in *Nature* and Melville's anti-transcendental rebuttal in *Moby-Dick* "The Masthead;" Fitzgerald's description seems to be an amalgamation of the two (below):

green farmland runs up against a tremendous gash of gray smoky earth which tears through the midground like a creeping wound, suppurating around the edges, necrotizing at its core. The gray piles of rubble and trash echo the silhouetted skyscrapers set deep into the background, their crowns catching slivers of sunlight.<sup>24</sup> These skyscrapers, the greatest achievements of glittering architecture and American urban grandeur, are at the very top of the image (the landscape has a very high horizon line), such that they pictorially appear to have been constructed, quite literally, on top of the industrial ruins of the midground. Underneath them, the smoggy hell of the valley of ashes seems to be the city's underworld, its shadowy negative, its bilious underbelly. Cutting vertically through the center of the image is the fork where the "motor road hastily meets the railroad" (the LIRR), and then splits off shortly thereafter, both paths making a bee line towards a vanishing point which must end at the 59<sup>th</sup> Street Queensborough bridge and Penn Station. This road is traversed only by the hyperwealthy, the Gatsbys, Daisys and Buchanans, commuting to and from their businesses in the city and their gardens in the country, ignoring all the detritus along the way in this awful, forsaken place—it is nothing to them.<sup>25</sup>

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From the ruins, lonely and inexplicable as the sphinx, rose the Empire State Building and, just as it had been a tradition of mine to climb to the Plaza Roof to take leave of the beautiful city, extending as far as eyes could reach, so now I went to the roof of the last and most magnificent of towers. Then I understood everything was explained: I had discovered the crowning error of the city, its Pandora's box. Full of vaunting pride the New Yorker had climbed here and seen with dismay what he had never suspected, that the city was not the endless succession of canyons that he had supposed but that it had limits - from the tallest structure he saw for the first time that it faded out into the country on all sides, into an expanse of green and blue that alone was limitless. And with the awful realization that New York was a city after all and not a universe, the whole shining edifice that he had reared in his imagination came crashing to the ground.

<sup>24</sup> One small error in this image is that the skyscrapers catch light coming from the east, suggesting it is early morning. Morning would be temporally out of sync with the plot of the book and the movie, but it is an easy mistake to overlook.

<sup>25</sup> Tom Buchanan ironically mocks Wilson for being too sluggish about refueling his car: "'Let's have some gas!' cried Tom roughly. 'What do you think we stopped for—to admire the view?'" (Fitzgerald, 123)

To drive in his point, Fitzgerald famously describes a billboard overlooking the valley of ashes, painted with “the eyes of T.J. Eckleburg,” a symbol that he added late in the writing of *The Great Gatsby* when he saw a proof for the now iconic cover of the book ([Fig. 4](#)).<sup>26</sup>

But above the gray land and the spasms of bleak dust which drift endlessly over it, you perceive, after a moment, the eyes of Doctor T.J. Eckleburg. The eyes of Doctor T.J. Eckleburg are blue and gigantic—their retinas are one yard high. They look out of no face, but, instead, from a pair of enormous yellow spectacles which pass over a non-existent nose. Evidently some wild wag of an oculist set them there to fatten his practice in the borough of Queens, and then sank down himself into eternal blindness, or forgot them and moved away. But his eyes, dimmed a little by many paintless days under sun and rain, brood over the solemn dumping ground.<sup>27</sup>

As has been variously observed, the billboard can be read as representing the replacement of spiritual and moral vision with consumer and commercial materialism.<sup>28</sup> Thomas Jefferson’s vision for America, the “fresh green breast of the new world,” as of an enlightened agrarian utopia, has been swapped for an ersatz materialist advertisement.<sup>29</sup> Charles Samuels describes this series of emptied symbols in his analysis of *Gatsby*:

When Gatsby loved Daisy he lost his dream; when the sailors took the new world they began the degradation of America’s promise; when God saw what he had incarnated he went back to Heaven leaving only a blind sign of the business he would not now open. The past is our future. We have come to the end of possibility.<sup>30</sup>

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<sup>26</sup> Charles Scribner III, “Celestial Eyes—from Metamorphosis to Masterpiece,” in Matthew Joseph Bruccoli, ed., *F. Scott Fitzgerald’s The Great Gatsby: A Literary Reference* (New York: Carroll & Graf Publishers, 2000) 160–68.

<sup>27</sup> Fitzgerald, 23.

<sup>28</sup> Ronald Berman, *The Great Gatsby and Modern Times*, (University of Chicago Press, 1994) 46.

<sup>29</sup> Berman, 123-124; For the theme of blindness, see Berman chapter 4-6 “Seeing New York,” “Seeing Yourself,” Seeing the Scene.” Another source is Milton Hindus “The Mysterious Eyes of Doctor T.J. Eckleburg (*Boston University Studies in English*, Spring 1957).

<sup>30</sup> Charles Thomas Samuels “The Greatness of ‘Gatsby,’” *The Massachusetts Review*, Vol. 7, No. 4 (Autumn, 1966) 793. Charles Samuels here is echoing Wallace Stevens’ “The Plain Sense of Things,”

“After the leaves have fallen, we return  
To a plain sense of things. It is as if  
*We had come to an end of the imagination*, [author’s italics]  
Inanimate in an inert savoir.



T.J. Eckleburg, whose tattered sign suggests a defunct business, sells the paintless promise of vision to a myopic world, morally and spiritually blind, scarcely seeing beyond the material.<sup>31</sup> This “wild wag of an oculist” presides over the landscape with a certain silent omnipresence comparable to that of a modern day Dr. Zizmor ([Fig. 5](#)). For George Wilson, the ghostly anemic man living in the shadow of the billboard, T.J. Eckleburg comes to be a direct signifier of God, a power that comprehends all the things he does not understand, a witness to his wife’s infidelity, deceit and cuckoldry that backgrounds his humble, hardscrabble life:

“I spoke to her,” he muttered, after a long silence. “I told her she might fool me but she couldn’t fool God. I took her to the window”—with an effort he got up and walked to the rear window and leaned with his face pressed against it—“and I said ‘God knows what you’ve been doing, everything you’ve been doing. You may fool me, but you can’t fool God!’”

Standing behind him, Michaelis saw with a shock that he was looking at the eyes of Doctor T.J. Eckleburg, which had just emerged, pale and enormous, from the dissolving night.

“God sees everything,” repeated Wilson.

“That’s an advertisement,” Michaelis assured him.<sup>32</sup>

It is no coincidence that Wilson’s neighbor, Michaelis, who tries to comfort him in the wake of the tragedy that took his wife, shares his name with an Archangel. The name has Hebraic etymological roots: “Michael” means “Who is like God?”<sup>33</sup> Nick Carraway had already answered this etymological question in his earlier characterization of Gatsby as a man who paradoxically “sprang from his Platonic conception of himself” and “was a son of God.”<sup>34</sup> Thus it is with the greatest irony that the angel-comforter Michaelis asks George Wilson (the man who

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<sup>31</sup> Dale B. J. Randall, “The ‘Seer’ and ‘Seen’ Themes in Gatsby and Some of Their Parallels in Eliot and Wright,” (*Twentieth Century Literature* , Vol. 10, No. 2, Jul., 1964) 62.

<sup>32</sup> Fitzgerald, 159-160.

<sup>33</sup> Hebrew: מִיכָאֵל; this question is often represented in art in Latin: *Quis ut Deus?*

<sup>34</sup> Fitzgerald, 98.

fundamentally mistakes a billboard for God, a confusion which sets him on the path toward decide) whether or not he has a church.<sup>35</sup> Wilson has no church. He has nothing but ash and, before that day, his wife. Wilson, the working class Job, answers Michaelis that he has none, none but a mute icon watching over a dump.<sup>36</sup> If only, we might imagine, the evacuated existential eyes of T.J. Eckleburg had been replaced with the plea of the Presbyterian megachurch:

Is it nothing to you, all you who pass by?  
Look around and see.  
Is any suffering like my suffering  
that was inflicted on me,  
that the lord brought on me  
in the day of his fierce anger?<sup>37</sup>

#### **PARTHENON ON A FLUSHING SWAMP**

Stranger than symbol, film, phantom, or fiction is the fact that Fitzgerald's valley of ashes was a real place, and in 1925, one could follow Fitzgerald's description to an actual dump in Queens. In the 1920s, electricity was still a relatively new invention and gas/oil heating had not yet replaced coal heating. This meant that the city of five and a half million people all depended on coal to stay warm during the winters.<sup>38</sup> To dispose of the mountains of ash generated from Manhattan and the surrounding boroughs, the city paid the Brooklyn Ash Removal Company to daily dump trainloads of garbage into a salt marsh on the outskirts of the

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<sup>35</sup> Fitzgerald, 157.

<sup>36</sup> Fitzgerald, 159-160.

<sup>37</sup> Lamentations 1:12; *Holy Bible*, New International Version, 2011; web. <<http://www.biblegateway.com/passage/?search=Lamentations+1>>.

<sup>38</sup> 10 million in the region; 5.62 million in the five boroughs. "Total and Foreign-born Population: New York Metropolitan Region by Subregion and County, 1900-2000," *New York Census Appendix 5-3*, web. <[http://www.nyc.gov/html/dcp/pdf/census/nyy\\_table\\_5\\_3.pdf](http://www.nyc.gov/html/dcp/pdf/census/nyy_table_5_3.pdf)>.

city, near an inlet to Flushing Bay known as the Corona Ash Dump (Figs. 6 & 7). The train was dubbed the “Talcum Powder Express” because, despite efforts to cover these trains full of ash with tarps, huge clouds of smoke could be seen billowing from the tops of the dump cars, which carried ninety cubic yards of ash per car twice a day to the Corona Dump (Fig. 8).<sup>39</sup> In addition to dumping trash and garbage, the company engaged in the ecologically disastrous project of incinerating the trash, completely devastating the environment and fostering working conditions that could not have been anything but dangerous and unhealthful (Fig. 9). John A. “Fishhooks” McCarthy, CEO of the Brooklyn Ash Removal Company, seemed to be some sort of a parody of a robber-baron as he administered his business, and “sat under a beach umbrella on an old rocking chair, and personally tallied each truckload of material as it arrived.” One pile of trash, affectionately named “Mount Corona,” was a hundred feet tall and the home of rats “big enough to wear saddles.”<sup>40</sup> McCarthy allowed scavengers to rummage through the trash for potential valuables among the detritus, and we can credit him with the creation of an miserable and exploitative business; he is the source of Fitzgerald’s description of the inhabitants of the valley of ashes, the “men who move dimly and already crumbling through the powdery air;” the “foul-smelling river” was Flushing Creek.<sup>41</sup>

For all the imagination that inspired Fitzgerald’s famous description, the fact of the matter is that he was directly describing reality. His description of a capitalist wasteland, the inevitable ends of materialist greed, was not just a dark prediction of where he believed

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<sup>39</sup> Richard J. Harrison, *Long Island Rail Road Memories: The Making of a Steam Locomotive Engineer*, (New York: Quadrant Press Inc., 1981) 8.

<sup>40</sup> Or so Robert Moses estimated. Qtd in Robert A. Caro, *The Power Broker: Robert Moses and the Fall of New York*, [1st ed.] (New York: Knopf, 1974), p. 1082.

<sup>41</sup> Roger Starr, “The Valley of Ashes: F. Scott Fitzgerald and Robert Moses,” *City Journal*, (Autumn, 1992), web. <<http://www.city-journal.org/article02.php?aid=1524>>.

American consumer culture would ultimately lead—it was no mere symbol or omen—it was astoundingly real, a literal smoldering pit where fantasy is smashed by reality, product decomposes into garbage, life into death, the fresh green breast of the new world wilts gray, the green light of hope fizzles out, no daisies grow, and cash turns to ash. His only invention was the emptied billboard eyes of T.J. Eckleburg, a fictional billboard to preside over a nihilist future monument.

What Fitzgerald didn't anticipate was the future of the valley of ashes. As it existed in *The Great Gatsby*, the valley of ashes has a timeless quality, infernal and eternal. The Great Depression, on all counts, confirmed Fitzgerald's anxieties about the fate of the materialist, consumerist culture of the roaring 20s. In his account, "My Lost City," Fitzgerald saw New York of the late 20s as already burned out:

Young people wore out early—they were hard and languid at twenty-one...none of them contributed anything new...Whole sections of the city had grown rather poisonous, but invariably I found a moment of utter peace in riding south through Central Park at dark towards where the façade of 59<sup>th</sup> Street thrusts its light through the trees. There again was my lost city, wrapped cool in its mystery and promise. But that detachment never lasted long... The city was bloated, gutted, stupid with cake and circuses, and a new expression 'Oh yeah?' summed up all the enthusiasm evoked by the announcement of the last super-skyscrapers.<sup>42</sup>

These moments of peace near 59<sup>th</sup> street echo the ecstatic joy Nick Carraway described when crossing the Queensboro Bridge with all its "mystery and promise."<sup>43</sup> Yet the feeling is ephemeral now, a passing memory of a "lost city," of a lost age once fueled but now poisoned by cash, alcohol, and parties.

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<sup>42</sup> F. Scott Fitzgerald, "My Lost City," in *The Crack-Up*, ed. Edmund Wilson (New York: New Directions Publishing Co, 1964) 23-33.

<sup>43</sup> Fitzgerald uses the very same vocabulary "mystery and promise" from *The Great Gatsby*, p. 68, which explicitly connects these two moments—"The city seen from the Queensboro Bridge is always the city seen for the first time, in its first *wild promise of all the mystery* and the beauty in the world."

The idea of “poisonous” sections of a city recalls Baron Haussmann’s characterization of another city well-known to Fitzgerald: Paris. Haussmann, notorious for his massive remapping of Paris in the 1860s, employed the metaphor of medicine to describe his methods—Paris, he said was as a “sick city” suffering from congestion; he imagined himself as the master surgeon-architect who would cure the city-patient by means of his massive projects to reorganize the city around boulevards and improved infrastructure. The cost of this surgery was bulldozing the homes of thousands of working class Parisians whom he viewed as either part of the illness, or a necessary sacrifice to the overall health of the whole body of the city.<sup>44</sup> Though Fitzgerald saw a city that was increasingly sick, spent, combusted, burned out, etiolated, haunted, ghostly, approaching the economic collapse of the Great Depression, teetering precariously towards the landscape of the valley of ashes, he could not have guessed that the Baron Haussmann of the twentieth century, Robert Moses, who, in the 1930s, had achieved a meteoric rise to power as a city planner, had not only read *The Great Gatsby*, but also was profoundly moved by the description of the valley of ashes:

Fitzgerald's description of the dump cannot be improved on even by those of us who knew not only its threatening and depressing outward appearance, but even its exact chemical and physical properties, its unsavory history and the mountainous labors required to take it away.<sup>45</sup>

For the master builder of New York, Fitzgerald’s soon-to-be American Classic offered not only a critique of the city, but a direct challenge. Moses wanted to take Fitzgerald’s billboard down, to prove that he could, through his own sheer will power and “mountainous labor,” erase this “unsavory history.” To do so, he would need to invent a usable future.

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<sup>44</sup> David Harvey, *Paris, Capital of Modernity* (New York: Routledge, 2013) 260.

<sup>45</sup> Robert Moses, “The Saga of Flushing Meadows Park,” 1966.  
<<http://www.nywf64.com/saga02.shtml>>.

Using his authority as Parks Commissioner, and having already deeply engrained himself into the financial ins-and-outs of New York, Moses wrestled ownership out of the fishhooks of master grafter John A. McCarthy, who profited to the tune of \$2,775,185.27 for the sale of his dump, the Brooklyn Ash Removal Company. Moses then yoked his Herculean plans to restore the Augean Stables that was the valley of ashes to several other projects he was simultaneously coordinating: the construction of the Triboro Bridge, the construction of Grand Central Parkway (which runs through the valley of ashes), from which he hoped to glean enough money in order to level the dump and coat it in a layer of topsoil thick enough to grow grass green enough for a respectable park. To flush Flushing, Moses had a veritable forest pile driven into the mud and ash in order to provide a foundation for buildings that would not sink (Figs [10](#) & [11](#)).<sup>46</sup> However, the tremendous amount of money necessary to build a decent park atop a swamp-dump was far beyond what could be grafted from the leftovers of these larger infrastructural projects—so Moses lent his influential bullhorn of a voice to a small committee of Queens residents who thought it might be a good idea to host the World’s Fair in Flushing. With his future vision of a grandiose World’s Fair, Moses single-handedly set out to erase the materialism of the Jazz Age, whitewash the eyes of T.J. Eckleburg, extirpate the impoverished locals, and, with the anti-entropic alchemy of capitalism, turn ash back into grass, and more importantly, ash into gold. More than money, Moses needed an idea to replace the Jazz Age burnout; he needed a new idea to replace the old with: he needed a future monument.

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<sup>46</sup> The images are Thomas Gilkey’s etchings of the construction of the park. Gordon W. Gilkey, *Officially Approved Etchings, New York World’s Fair: ‘Building the World of Tomorrow’* (New York: Charles Scribner’s Sons, 1939). This pile driving technique, incidentally, was invented by the Venetians in order to build the many artificial islands or *fondamente* that comprise the city of Venice. Strange as it may seem, both Flushing and Venice share the property of being build on an undead upside-down forest. For more on Venice, see: Karl Richard Appuhn, *A Forest on the Sea: Environmental Expertise in Renaissance Venice* (Baltimore: Johns Hopkins University Press, 2009).

## THE 1939 WORLD'S FAIR

"The designers were populists, you see; they were trying to give the public what it wanted. What the public wanted was the future."  
—William Gibson, "The Airstream Futuropolis: The Tomorrow that Never Was"<sup>47</sup>



The 1939 World's Fair was a love letter to the future manifested in a theme park. Each industry, company, country exhibiting at the Fair competed for the attention of the millions of wide-eyed fairgoers wandering its labyrinth. Notably, each individual exhibition's goal was to show how, in the future, that particular company, industry, country, etc, would necessarily be an essential—if not *the* essential—aspect of the future. The Fair was thus an enormous future monument, full of smaller future monuments, each making different, but often overlapping claims about what the future should, would, and ought to hold.

It would be difficult to overstate the enormous popularity of the 1939 New York World's Fair and the grip it held on public imagination. Nearly every publication wrote about it—many of them daily. It made the cover of *The New Yorker*, in which flabbergasted editors gushed, “we love the fair” in an article full of various trivia (“they expect to squeeze 387,000 oranges a day...at the State of Florida's fruit-juice bar”) ([Fig. 12](#)).<sup>48</sup> *LIFE* magazine boasted a sixteen page article that hyped the numbers: one hundred and seventy million dollars had leveled twelve

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<sup>47</sup> Gibson 86.

<sup>48</sup> “The Talk of the Town,” *The New Yorker*, April 29, 1939 15-17. This reference to oranges, incidentally, rhymes nicely the oranges in *The Great Gatsby*, which also symbolize excess and decadence:

“Every Friday five crates of oranges and lemons arrived from a fruiterer in New York—every Monday these same oranges and lemons left his back door in a pyramid of pulpless halves. There was a machine which could extract the juice of two hundred oranges in a half hour if a little button was pressed two hundred times by a butler's thumb.” *Gatsby*, 40-41.

hundred acres of dump, planted ten thousand trees, millions of flowers, and built two hundred buildings—“In virtually all ways, the New York Fair will be the biggest ever held in America.”<sup>49</sup> The *Official Guidebook* was over two hundred and fifty pages long, merely to list, one after another, all the exhibits, events, foods, and the like. In the minds of many, it seemed bigger than Manhattan itself.<sup>50</sup> Everyone dressed up for the Fair. Poems were written. Art commissioned. Comics printed. Celebrities invited. Exhibitions abounded.<sup>51</sup>

The exhibitions at the World’s Fair regularly spilled over into the absurd, and frequently defy imagination—but some idea of the scope of the many exhibitions ought to be attempted.<sup>52</sup> RCA made Franklin Delano Roosevelt the first President to give a televised speech.<sup>53</sup> Fairgoers could even broadcast themselves on the first domestic TVs. Bell Laboratories exhibited “Voder,” the Voice Operation Demonstrator, a synthesizer that could be made, with some skill, to imitate the human voice.<sup>54</sup> Du Pont, which would soon be enmeshed in the Manhattan Project, displayed their latest invention, nylon.<sup>55</sup> There was a literal walking, talking, smoking, seven-

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<sup>49</sup> “World’s Fair” *LIFE Magazine*, (13 March 1939) 33-49.

<sup>50</sup> *LIFE* magazine has one such photo, in which an aerial view of New York shows the Fair in the distance, the icon of which dwarfs everything else in the image. “World’s Fair,” 33. ([Fig. 13](#))

<sup>51</sup> This was one of the most enviable parties in history, right up there with Gatsby’s blue lawned late night Jazz Age soirees. Oh to have been invited!

<sup>52</sup> The author has spent many an hour trying to imagine all this spectacle. The Queens Museum undoubtedly has the finest collection of World’s Fair materials. There is plenty of video available on YouTube, the Prelinger Archive, as well as numerous catalogs, photos, and descriptions and yet it remains difficult to imagine the dimensions of this event. One excellent source is Brian Fies graphic novel: Brian Fies, *Whatever Happened to the World of Tomorrow?: A Graphic Novel* (New York: H N Abrams, 2009).

<sup>53</sup> Cusker and others, p. 83.

<sup>54</sup> You can hear Voder speak here: < [https://www.youtube.com/watch?v=5hyI\\_dM5cGo](https://www.youtube.com/watch?v=5hyI_dM5cGo)>.

<sup>55</sup> New York World & Apos and S Fair, *Official Guide Book of the New York World’s Fair, 1939*. (New York: Exposition Publications, inc, 1939), p. 181.



foot-tall robot, “‘Elektro’ The Mechanical Man, and his Dog Sparky,” built by Westinghouse.<sup>56</sup>

Westinghouse also designed another sort of future monument, a time capsule “deemed capable of resisting the effects of time for five thousand years.”<sup>57</sup> Albert Einstein himself penned a note for those denizens of the five thousand year future, expressing a sober assessment of the present state human violence and war: “anyone who thinks about the future must live in fear and terror.”<sup>58</sup> He ended on a more optimistic note, “I trust that posterity will read these statements with a feeling of proud and justified superiority.” There was an Aquacade, an enormous stage-pool with regular performances by some five hundred “aquabelles” and “aquadonises” that was wildly popular.<sup>59</sup> Some exhibits were downright strange. The Food Exhibit presented a symbolic drama, or hallucination, charted inside a sixty-foot egg:

an avocado, five jewels glowing from its skin, climbing a mountain peak; a flight of lobsters winging its way into the interior; a trans-Atlantic aqueduct spilling roses into the desert; an eye blinking mysteriously from a cave; and a clock inside a can racing madly backwards.<sup>60</sup>

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<sup>56</sup> Cusker and others, p. 13. You can see Elektro walk, talk, and smoke here: <https://www.youtube.com/watch?v=AuyTRbj8QSA>.

<sup>57</sup> Westinghouse Electric & Manufacturing Company, *The Book of Record of the Time Capsule of Cupaloy, Deemed Capable of Resisting the Effects of Time for Five Thousand Years, Preserving an Account of Universal Achievements, Embedded in the Grounds of the New York World's Fair, 1939* (New York: New York 1938). *Official Guidebook*, 195.

<sup>58</sup> Westinghouse Electric & Manufacturing Company, p. 48. Two years later, Einstein would write a letter to FDR warning of the nuclear threat. Time capsules and nuclear threats, however, are the *The Golden Record*, which is the subject of chapter three. Einstein's sobering note implies that future audiences must necessarily be superior. Otherwise it would be unlikely there would be any audience whatsoever.

<sup>59</sup> Robert A. M. Stern, *New York 1930: Architecture and Urbanism between the Two World Wars* (New York: Rizzoli, 1987), p. 113.

<sup>60</sup> Cusker and others, pp. 8–10. The drama is meant to allegorize the transportation of food across the country, of aqueducts to irrigate the desert, and canning to preserve food despite the spoil of time.

And if that were not abstract enough, Salvador Dali himself designed an exhibit, the “Dream of Venus,” populated by “maniac mermaids” that would act out a surrealist landscape that was to include:

- (1) An exploding giraffe
- (2) An undulating piano in the form of a woman
- (3) An undulating wall with zippers for a doorway
- (4) An underwater fireplace and a cow which will be milked
- (5) Venus, underwater in her pristine state, on a thirty six foot bed who has lulled herself to sleep by counting hordes of bicycle-riders passing over her head.
- (6) A couch in the shape of Greta’ Garbo’s lips
- (7) Botanical tapemeasures
- (8) An eye with telephones for lashes
- (9) A taxicab, dry on the outside, but raining on the inside and inundating Christopher Columbus.<sup>61</sup>

The World’s Fair sprang up at the end of a decade of economic depression. The hollow consumer culture that had by 1929 expended itself as Fitzgerald predicted was reborn into a celebration of science, progress, and the future, funded by none other than the capitalistic forces that Fitzgerald was so dubious of. Robert Stern describes the prevailing attitude of the Fair as “nothing is impossible.”<sup>62</sup> That ambiance is reflected in the up-temp song George Gershwin composed in honor of the Fair, entitled “The Dawn of a New Day,”

♪ Sound the brass, roll the drum!  
To the world of tomorrow we come!  
See the sun through the gray?

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<sup>61</sup> “I used to balance two broiled chops on my wife’s shoulders, and then by observing the movement of tiny shadows produced by the accident of the meat on the flesh of the woman I love when the sun was setting, I was finally able to attain images sufficiently lucid and appetizing for exhibition in New York,” Dali explained. For more on this surreal exhibition, see: Ingrid Schaffner, *Salvador Dali’s Dream of Venus: The Surrealist Funhouse from the 1939 World’s Fair* (New York: Princeton Architectural Press, 2002). Dali’s exhibit was also the source of “Oscar the Amorous Octopus,” a World’s Fair peepshow that E.L. Doctorow describes in Chapter 29 of *World’s Fair*. Dali was never satisfied with his exhibition and returned to Europe in a huff when he couldn’t get it the way he liked it. According to Stern, in its second season the peepshow was heightened, and it was unofficially known as “20,000 legs under the sea.”

<sup>62</sup> Stern, *New York 1930*, p. 29.

It's the dawn of a new day!<sup>63</sup> 🎵

United by the theme of “Your World of Tomorrow,” this was the Fair of the future, centered around the symbolic future monument, Harrison & Foulhoux’s six-hundred-and-ten foot needle, the “Trylon,” and a colossal globe “eighteen stories high...as broad as a city block” called the “Perisphere.” The two were connected by the “Helicline,” described as “the longest moving electric stairway in the world” housing an exhibition entitled “Democracity.”<sup>64</sup> Together, these monumental buildings were meant to be the 1939 World’s Fair’s version of the Eiffel Tower, meant to “dramatize the theme” of the world of tomorrow ([Fig. 14](#)).<sup>65</sup> They stole the show. The Trylon was visible from just about anywhere at the fair, and possibly visible as far away as New Jersey. They exerted a certain gravity, a massiveness competitive with the skyscrapers of the Manhattan skyline, pulling Manhattanites away from their insular island and into their orbit. E.L. Doctorow’s semi-autobiographical *World’s Fair* recounts the effusive excitement and anticipation of finally seeing the Trylon and Perisphere as a twelve-year-old boy:

Even from the elevated station I could see the famous Trylon and Perisphere. They were enormous. They were white in the sun, white spire, white globe, they went together, they belonged together in some sort of partnership in my head. I didn’t know what they stood for, it was all very vague in my mind, but to see them, after having seen pictures and posters and buttons of them for so long, made me incredibly happy. I felt like jumping up and down, I felt myself trembling with joy.

I thought of them as friends of mine.<sup>66</sup>

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<sup>63</sup> George Gershwin, “Dawn of a New Day (Official Song Of The World’s Fair), Horace Heidt & His Musical Knights, *The Great Depression – American Music in the 30’s*, (Sony Music Entertainment, 1939) <<https://www.youtube.com/watch?v=6YRc5q-KFIY>>. Lyrics transcribed by author.

<sup>64</sup> Frank Monaghan, ed., *The Official Guidebook of the New York World’s Fair 1939*, (New York: Expositions Publications, Inc., 1939) 42-44.

<sup>65</sup> For more photos, see Alan Taylor, “In Focus: The 1939 World’s Fair,” *The Atlantic*, (Nov. 1, 2013) web. <<http://www.theatlantic.com/infocus/2013/11/the-1939-new-york-worlds-fair/100620/>>.

<sup>66</sup> E.L Doctorow, *World’s Fair*, (New York: Random House, Inc., 1985) 250.

Fairgoers were meant to take one of two escalators straight up into the Perisphere where two balconies slowly rotate the audience over the Democracy, simulating a day in “Centerton,” the city of 2029. The model city was arranged geometrically in a radial plan, with neighborhoods divided logically into Pleasantvilles or Millvilles.<sup>67</sup> The business nine-to-five was at the center. Everything was connected by streamlined roads. Variation ceded to uniformity, chance to contrivement, contingency to efficiency, individuality to cooperative: the future city was a perfectly integrated metropolis, a mathematically balanced symphony of architecture that was a hybrid of Frank Lloyd Wright’s “Garden City” and Le Corbusier’s “Radiant City.” Though there were some naysayers, such as Lewis Mumford, who called the Perisphere a “great egg out of which civilization is to be born,” it was nonetheless a popular exhibition.<sup>68</sup> Stepping out of the Democracy, fairgoers were meant to take in views of the Fair while walking down the Helicline, elegantly sloped, and passing through the base of the Trylon before returning to the Fair.<sup>69</sup> As historian Francis O’Conner cleverly observed: “certainly no one was going to remind the Fair’s capitalist sponsors of the Biblical implication of needles.”

In essence, a fairgoer would have the experience of ascending into a future monument (the Perisphere) to rotate around and witness a miniature model future-monument-within-a-future-monument (the Democracy), before exiting down the Helicline. It would be difficult, from this heli-clined perspective, not to gaze out over the Fair and notice that the plan of the Fair itself follows the same radial layout as the Democracy, much like thirds of a colossal bike

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<sup>67</sup> Stern, *New York 1930*, p. 752.

<sup>68</sup> Lewis Mumford, “The Skyline in Flushing. Genuine Bootleg”, *The New Yorker*, 29 July 1939, pp. 38-41.

<sup>69</sup> Cusker and others, p. 62.

wheel (Figs [15](#) & [16](#)). Few noticed, but the buildings were subtly color-coated in light red, yellow, and blue to visually cue visitors of their relative position.<sup>70</sup> Thus the whole Fair was a living, life-sized model echoing the miniature Democracy ([Fig 17](#)): a future within a future within a future.<sup>71</sup>

What a wonder it would have been to Fitzgerald to see that the blind three-meter-wide eyes of Dr. T.J. Eckleburg (*deus otiosus*<sup>72</sup>) had been replaced with the white, modernist, progressive, phallic symbol of scientific vision piercing into the future, a tribute to the new spirit of technological faith. This monument was an attempt to erase an ashen past, to “see the sun through the gray,” to shake off the present of the Great Depression, and to convert what Van Wyck Brooks called “a useable past”<sup>73</sup> into a “useable future.”<sup>74</sup> The editors of *Architectural Forum* described the feeling of the Fair: “Tomorrow outpulls all others, Yesterday is not without its line—only Today draws a blank.”<sup>75</sup> To be at the fair was to be in the future. To be absolutely anywhere else in the world was to be merely in the present, and soon to be both passed and past.

## THE FUTURAMA

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<sup>70</sup> Helen A. Harrison, “The Fair Perceived: Color and Light as Elements in Design and Planning,” in Cusker and others, pp. 43–44.

<sup>71</sup> “Turtles all the way down,” as the saying goes.

<sup>72</sup> Meaning “idle god” – as in Deism, a god who does no more than set the clockwork of the universe into motion.

<sup>73</sup> Van Wyck Brooks, “On Creating a Useable Past” *The Dial* (11 April, 1918).

<sup>74</sup> Francis V. O’Connor, “The Usable Future: The Role of Fantasy in the Promotion of a Consumer Society for Art,” in Helen Harrison and Joseph Cusker, *Dawn of a New Day: The New York World’s Fair, 1939/40*, (Flushing, NY: Queens Museum, 1980) 57-71.

<sup>75</sup> Qtd in Stern, *New York: 1930*, 727.

The “Futurama” at the General Motors Pavilion, E.L. Doctorow tells us, was “everyone’s first stop.”<sup>76</sup> It was built by Norman Bel Geddes. It offered a competing vision of the future. The Futurama was a 35,738 square foot “Aladdin-like trip” twenty years into the future (1959/60), seen from the perspective of an airplane flying low over some 500,000 miniature houses, superhighways, buildings, and bridges.<sup>77</sup> In the Futurama, Fitzgerald’s meager road from Great Neck to New York City became a fourteen-lane super highway fueling a utopia full of radio-controlled cars, air conditioning, and hyper efficient urban planning. The experience, according to Doctorow, was something out of Alice in Wonderland—the viewer would feel colossal, viewing a whole city in miniature, only to suddenly shrink at the first step outside of the ride, with the sudden realization that you are now standing on the very corner of the future, made life-sized, that you were just looking at in miniature on the ride.<sup>78</sup> The future is a toy, over which the viewer presides like some sort of giant. Brian Fies illustrates the uncanny floating-head quality of this experience as viewers circled the Futurama with only their faces illuminated ([Figs 18 & 19](#)). His drawings capture the rider’s exhilarating experience of becoming like a god over this tiny future city, watching over it like T.J. Eckleburg might. And yet, the only people populating the city of the future are the people of the present, sitting on the ride itself, soon to become people of the past. Who then lives in the Futurama?

50,000 radio-controlled cars.<sup>79</sup>

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<sup>76</sup> Doctorow, 251.

<sup>77</sup> *Official World’s Fair Guidebook*, 208.

<sup>78</sup> Doctorow, 253. One of the best description of this experience is in Brian Fies graphic novel, *Whatever Happened to the World of Tomorrow?* 20-23.

<sup>79</sup> *Official World’s Fair Guidebook*, 206-8

The future, according to GM, is meant for cars, not people.<sup>80</sup> The viewer becomes like a god over a landscape that has no place for people, except in the forward-looking past. At the end, the rider collects a pin proudly proclaiming, “*I HAVE SEEN THE FUTURE.*”

The eyes of the Fair are on the future...presenting a new and clearer view of today in preparation for tomorrow; a view of the forces and ideas that prevail as well as the machines.<sup>81</sup>

## THE FORD PAVILION

Adjacent to the GM Pavilion stood the rival Ford Pavilion sporting a different vision of the future, but a similar message. At the Ford Pavilion, one could ride cars around “the road of tomorrow,” a half-mile long loop integrated directly into the structure of the building.<sup>82</sup> Inside, Henry Billings’ titanic double entendre, the “Mobile Mural,” was an altarpiece to the great Ford V-8 flathead engine, made of lively, moving gears and pistons, spanning some seventy feet wide and forty feet tall (Figs [20](#) & [21](#)).<sup>83</sup>

Whereas the *Futurama* made its audience feel big, the Mobile Mural made its audience feel small. The mural centered around an engine case for a Ford V-8 projected outwards with its pistons removed so one can peer into the eight cylinders. Directly below, the engine is rotated ninety degrees towards the audience, providing a cross-section of the cylinders and two pistons pumping in a crankshaft. Twenty four glittering copper tubes pour out of the V-8 and frame the

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<sup>80</sup> Lewis Mumford, who was no fan of the fair or Robert Moses, makes this critique later: “The first lesson we have to learn is that the city exists, not for the facile passage of motorcars, but for the care and culture of men.” However public opinion wouldn’t swing his way until the 1964 World’s Fair. Mumford “The Highway and the City,” *Architectural Record* 123, no. 4 (April, 1958), 186.

<sup>81</sup> *Official World’s Fair Guidebook*, 41.

<sup>82</sup> *Official World’s Fair Guidebook*, 206-207.

<sup>83</sup> “Mobile Mural: Henry Billings Does a Three-Dimensional Mural Whose Hero is a Ford V-8 Motor in Complex Motion,” *LIFE Magazine*, 13 March, 1939) 42-43.

engine.<sup>84</sup> Two portholes project an animation of gears turning, giving the impression of staring into the eyes of the machine itself. The mural dramatizes the Genesis of the Ford Model-T from mining, to manufacture, to mobile. Moving from left to right, one sees that the engine is the focal point of a vast array of factory production line processes punctuated by scientific discoveries. On the far left, a bucket hangs from a gantry, which would ladle molten steel into machine molds. Next to it, an X-Ray tube illuminates a crystalline lattice, the molecular structure of steel. Above, Charles Sheeler's *Criss-Crossed Conveyors* have found a new home at the apex of the mobile mural—a transformation of the Christian cross into the conveyor cross.<sup>85</sup> Whereas the left-hand side of the mural is dedicated to vision, the right-hand side is dedicated to measurement: a disembodied hand holds a step block; a question mark-shaped micrometer measures with the extreme precision necessary for finely tuned mechanics; behind it, a scale; behind that, a blue schematic that is likely another X-Ray diffractogram of steel. Below at floor level, six giant cogs frame vignettes describing the translation of energy into motion.

And yet, is there not some sinister pseudomorphism in this altar to the engine? It has a face—a V-8 engine with a surrounding skull made up of the factory production process: the Mobile Mural thus eternally embodies and contemplates its own creation and perpetuation. Language has been lost, or reduced, to formulas from chemistry and physics textbooks—“ $F=MA$ ” hangs in the smoke with all the authority of the *logos* of God, the word of creation, or even the tetragrammaton. The equation for photosynthesis, barely visible below the x-ray tube, celebrates the most essential conversion of light into energy. Below, the six cog-vignettes

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<sup>84</sup> Incidentally, these pipes visually echo the gaunt, elongated fingers of Edvard Munch's *The Scream* (1893).

<sup>85</sup> Terry Smith, *Making the Modern: Industry, Art, and Design in America*, (Chicago, IL: Chicago U Press, 1993) 417.



become the machine's teeth. They are at eye level with the audience, so that viewers can read about how light is converted into chemical energy, chemical energy into heat, heat into motion, motion into heat, motion into electricity, and electricity into heat—this is the entropic flow of energy necessary to the V-8 engine and the world of tomorrow.<sup>86</sup>

This is how gasoline is converted into motion, work, and pollution. It is how a dump can be turned into a World's fair, how ash can alchemically be transmuted into grass, or cash, how the poverty of the Depression can be converted into prosperity, how regress can be changed into progress, how human beings—notably absent from the mural—can be converted into machine production. All at the expense of George Wilson. The teeth of the machine, the cog-vignettes, are at eye level not only because they are meant to teach the audience about energy conversion—they also pantomime it: the machine appears to be gnashing on the heads of the fair-goers, a Mobile Mural, a machine Moloch, consuming mankind to produce the glorious V-8.

But did anyone recognize the implied final conversion: the conversion of human energy into machine energy? Probably not. For Fairgoers, cars meant glorious mobility, the agency, power, and freedom to choose where one is, will be, and to change what one was. Spatial mobility was socioeconomic mobility—to drive out of the past and into the future. Steinbeck quipped in *Cannery Row* that “Two generations of Americans knew more about the [Model T] Ford coil than the clitoris, about the planetary system of gears than the solar system of stars.”<sup>87</sup> Fitzgerald was no exception. As Luis Echevarria notes in his research on Fitzgerald and cars, Fitzgerald dreamed of cars as one might about a wedding day.

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<sup>86</sup> “World's Fair,” *LIFE*, 42.

<sup>87</sup> Luis Girón Echevarría, “The Automobile as a Central Symbol in F. Scott Fitzgerald” *Revista Alicantina de Estudios Ingleses*, 6 (1993), 73-78.

...the automotive symbol and metaphor are used extensively in *The Great Gatsby*. Nick, who is not in the same financial bracket as Tom Buchanan or Jay Gatsby, drives an old Dodge. Nick's car, then, may be seen as analogous to his character and his moral values: reliable and old-fashioned....The auto accidents...all convey the carelessness, recklessness, and irresponsibility of the times... George Wilson's tattered dreams of a good life and a happy marriage are symbolized by 'the dust-covered wreck of a Ford in his garage. Like the car, Wilson is 'spiritless,' his suit and hair covered with ashen dust.<sup>88</sup>

It is no surprise then, that the blue eyes of T.J. Eckleburg are replaced with these blue eyes of the Mobile Machine, whose churning cog-filled soul we see mashing together like gears inside the mind of some enormous omniscient engineer. The Mobile Mural is what Baudrillard calls "a three-dimensional virtual image with no depth," uniting all industry in an eternal, timeless, autopoetic, self-perpetuating, machine present.

Wilson's home has been bulldozed for the World's Fair. But the broken down old car in his garage, the Ford Model-T he wants to fix up, has risen from the ashes like a mechanical phoenix.<sup>89</sup> It is almost as if the World's Fair re-wrote *The Great Gatsby* with the understanding that the *cars* were the protagonists. Perhaps they are. *Deus otiosus* is replaced with *deus ex machina*: God is dead; Long Live Ford.

## THE 1964 WORLD'S FAIR

Whence, oh whence did the Fair appear?  
Out of nowhere into here.  
Did it just spring up in a flash when bidden?  
No, you can bet your life it didden.  
How was the marsh grass changed to roses?  
By a crusty magician, name of Moses.  
...He looked at a waste of mud and sand,  
And Moses envisioned a Promised Land.

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<sup>88</sup> Ecchevarria, 75-77.

<sup>89</sup> *Gatsby* 22.

Then Moses called upon the Lord,  
And RCA and DuPont and Ford...  
Nobody departs, until it closes,  
From the Promised Land of Mr. Moses.  
—Ogden Nash, “The Promised Land of Mr. Moses”<sup>90</sup>

The 1939 World’s Fair ended the following year, and ironically, all its utopian dreams were physically scrapped in order to support the war effort. The steel structure of the Trylon and Perisphere, piercing hollow monuments to the future, were dismantled for the materials to pierce tanks. The Mobile Machine was converted into a war machine. The future came to the 1939 World’s Fair, but it did not arrive in the way Bel Geddes predicted in his *Futurama*.

Twenty-five years later, another World’s Fair would be hosted on the same site, united under the theme of “Peace through Understanding,” an effort to grapple with the problems of an increasingly globalized world. It was, by most measures, a failure.<sup>91</sup> Robert Moses, the “crusty magician” was again in charge of planning the 1964 World’s Fair, but in the 1960s he was in his seventies and was notoriously stubborn. At this point in his career, he had taken to saying things like “Dictators and tough executives get things down in this world.”<sup>92</sup> His various committees quit on him again and again; his myopia clouded his vision; and he insisted on keeping the same budget for the 1964 World’s Fair as he did for the 1939, despite twenty years of inflation. Corners were cut at every opportunity, and prices raised. They used the same basic radial plan as

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<sup>90</sup> Ogden Nash, “The Promised Land of Mr. Moses,” *New York Times Magazine*, April 19, 1964.

<sup>91</sup> John Steele Gordon, “The World’s Fair” *American Heritage*. Volume 57, Issue 5, October 2006. There are some more optimistic reads about the success of the 1964 World’s Fair, such as Lawrence R. Samuel, *The End of the Innocence - The 1964–1965 New York World’s Fair* (Syracuse University Press, 2010).

<sup>92</sup> Qtd from Seth Fein *Our Neighborhood* (documentary). This documentary is one of the best sources for analyzing the legacy of the 1964 World’s Fair in present day Queens.

the preceding World's Fair, stymying any effort at innovation. The Fair's theme of world peace was a clear response to the global theater, fresh off the Korean War, in the midst of Vietnam, and the larger Cold War. To dramatize the theme, Moses replaced the Trylon and Perisphere with the Unisphere, the next in the continuum of gargantuan steel structures at the center of World's Fairs.<sup>93</sup> The Unisphere is a hundred-and-twenty foot steel globe, with orbiting satellites celebrating space exploration.<sup>94</sup> The future would be global, interconnected, prosperous, and peaceful.<sup>95</sup> It's a small world after all. However, this sentiment was marred by the non-participation of several prominent countries on account of Moses' failure to acknowledge standards of the Bureau of International Exhibitions.<sup>96</sup> Again and again sheer willpower and monomania led to Moses hamstringing himself and the Fair. Given the choice between deferring to the knowledge and vision of others, or instead demonstrating that he could always get his own way, Robert Moses always chose the latter.

The 1964 World's Fair therefore became an ersatz version of the 1939 World's Fair. Elektro, the walking, talking, smoking robot, was replaced with an uncanny robotic Abraham Lincoln who would triumphantly stand up and espouse a tedious boilerplate speech about the

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<sup>93</sup> Such as the Crystal Palace, the Eiffel Tower, etc.

<sup>94</sup> By this point in his career, Robert Moses is said to have "resented the mysteries of the Trylon and Perisphere" claiming "Frankly, I never understood [them]" a reflection, perhaps, of the limits of his imagination at this point in his life. Robert A. M. Stern, *New York 1960: Architecture and Urbanism between the Second World War and the Bicentennial*, 2nd ed. (New York, NY: Monacelli Press, 1997), pp. 1032–33.

<sup>95</sup> The Unisphere, encompassing the future of the entire planet, was physically much smaller than the City of Tomorrow imagined in the Perisphere twenty years before.

<sup>96</sup> Stern, *New York 1960*, pp. 1027–29.

‘American character’ to increasingly bored audiences.<sup>97</sup> Westinghouse sunk another Time Capsule into the ground. Ho hum. One exhibit, “The Underground Home,” showed how Americans could live safely in underground bunkers with all sorts of comforts and amenities—one might even forget that they are living in a bomb shelter. The *New Yorker* noted the irony in an article; the Underground Home had “come to haunt our dreams...buried, like a qualifying footnote, under an archway that proclaims the theme of the fair is to be ‘Peace Through Understanding.’” Perry and Burns declared it the “winner of P/A’s *Dr. Strangelove* Award.”<sup>98</sup> Ford’s exhibition of the “space city” of the future was widely considered derivative and not worth the wait.<sup>99</sup>

Among the most popular exhibitions was, again, General Motors’ “Futurama II,” a reincarnation of the 1939 Futurama, which reflected on the many unfulfilled entelechies of the 1939 World’s Fair.<sup>100</sup> It was one of the Fair’s must-see exhibitions, another panegyric to infrastructure and cars. Only this time, the dream of superhighways, speed, and mobility had come to feel like a nightmare.<sup>101</sup> The clear-cut utopian cheerleading vision of the future seemed unachievable and even undesirable:

Traveling through GM’s new super-duper Futurama, we kept asking ourselves exactly whose future GM was depicting—ours, theirs, or that of a mythical race. Let’s admit right off that GM has put on a real pro show...But if the world depicted is the world

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<sup>97</sup> Stern, *New York 1960*, p. 1038. Reader, you can watch it for yourself: <<https://www.youtube.com/watch?v=BH0SrfGZiXI>>.

<sup>98</sup> Qtd in Stern, *New York 1960*, p. 1048. Incidentally, bunkers and survivalism is a sort of future-thinking that this dissertation addresses in Chapter 4, The Clock of the Long Now.

<sup>99</sup> Stern, *New York 1960*, p. 1049.

<sup>100</sup> David Oats, “The Mighty Fair: New York World’s Fair 1964-1964: A Retrospective,” Exhibition Program, (Flushing Council on Culture & the Arts, 1985).

<sup>101</sup> Qtd in Stern: Vincent Scully “All those roads!—the American archetype of movement commercially woven to strangle us all.”

to come, then each of us should get down on his or her knees and pray that in our next reincarnation we arrive as a machine.”<sup>102</sup>

What had been the implicit message of the Futurama I and Mobile Mural had become the explicit message of the Futurama II.<sup>103</sup> The futures depicted simply were not for people; they were for cars and corporations.

Many of the 1964 buildings remain in the park today, notably the Unisphere, and the park benefited from another significant expansion in celebration of the second World’s Fair. The Westinghouse time capsules remain, presumably, for the next five thousand years, buried in the park a few meters from one another. But the 1964 World’s Fair demonstrates yet another type of Future Monument: the shoddy one. The Unisphere, the vision of the future in 1964, was simply not particularly gripping, or interesting in comparison to its 1939 counterpart. It held little purchase, netting, as it did, nineteen cents on every dollar invested. The semiotic phantom of the ‘64 World’s Fair simply didn’t stick like the technophilic, exuberant, fever-dream that was the 1939 World’s Fair.

## CONCLUSIONS: ASHES TO ASHES

The fictional and literal valley of ashes never did vanish in the way Moses had hoped. T.J. Eckleburg never quite disappeared; his fictional presence still permeates the Flushing Meadows Corona Park. Underlying all these symbolic events, beneath just a few inches of

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<sup>102</sup> Robert Malone qtd in Stern, *New York 1960*, p. 1052.

<sup>103</sup> Isaac Asimov, the prolific sci fi author and futurist, took to the NYTimes to publish his predictions for the year 2014 after he attended the 1964 World’s Fair. His predictions are remarkably prescient, anticipating Malthusian population growth, gadgetry, skype, and—strangely enough—“enforced leisure” with serious psychological consequences as human beings will have become “largely a race of machine tenders.” Isaac Asimov, “Visit to the World’s Fair 2014,” *The New York Times*, August 16, 1964. <<https://archive.nytimes.com/www.nytimes.com/books/97/03/23/lifetimes/asi-v-fair.html>>.

topsoil, the ashes of decades' worth of dumping still simmer. Even today, one can dig them up with a trowel.<sup>104</sup>

The questions surrounding the valley of ashes remain as important as ever. Competing visions of the future still vie for prevalence. At Willets Point, a “62-acre tangle of autosheds” bordering Flushing Meadows-Corona Park, the modern-day George Wilsons of New York make their living through uncertified car repair. Michael Bloomberg, as part of his Mayoral efforts to Haussmannize New York, targeted this spot as part of his legacy project. Evict, bulldoze, and construct: the local community will be leveled and rebuilt as part of his three billion dollar effort to improve and modernize what is, in the eyes of Bloomberg, a dump.<sup>105</sup>

“Yes it looks ugly, but they don’t see that we’re people,” laments one mechanic at Willets Point; “To me this is not hideous, this is beautiful,” claims another.<sup>106</sup> Whether god is completely absent, as suggested by T.J. Eckleburg, or whether god simply shows no signs of making himself present anytime soon, as Jeremiah believes in *Lamentations*, the crisis of existential burnout is as symbolically central to the landscape of Willet’s Point as ever.

Fitzgerald reflected on this apathy of New York near the end of “My Lost City”:

'What news from New York?'

'Stocks go up. A baby murdered a gangster.'

'Nothing more?'

'Nothing. Radios blare in the street.'

I once thought that there were no second acts in American lives, but there was certainly to be a second act to New York's boom days. We were somewhere in North

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<sup>104</sup> “Chapter 12: Hazardous Materials,” *Willets Point Development Plan: Draft Generic Environmental Impact Statement*, April, 2008. 2 <<http://www.nycedc.com/project/willets-point-development>>. The author personally confirmed that the ash is buried under approximately ten inches of topsoil as of 2014.

<sup>105</sup> Daniel Grieger, “Willets Point Mega-Plan Gets Green Light.” *Crain’s New York Business*. Oct. 9, 2013 <[http://www.crainsnewyork.com/article/20131009/REAL\\_ESTATE/131009874](http://www.crainsnewyork.com/article/20131009/REAL_ESTATE/131009874)>

<sup>106</sup> Sarah Maslin Nir, “The End of Willets Point.” *The New York Times* 22 Nov. 2013. *NYTimes.com*. Web. 12 Dec. 2013.

Africa when we heard a dull distant crash which echoed to the farthest wastes of the desert.  
'What was that?'  
'Did you hear it?'  
'It was nothing.'  
'Do you think we ought to go home and see?'  
'No - it was nothing.'

This is the generalized apathy of a jaded generation, the public perspective summed up, as Fitzgerald observed, by the expression “Oh yeah?” and punctuated by the uninterested, listless repetition of “nothing.” The inhabitants of Willets Point, pursuing some small slice of the American dream, will soon be evicted in part of a long, legacy-building, American tradition of utopian progressive Haussmannization efforts, from Robert Moses to Mayor Bloomberg and beyond. Perhaps the modern denizens of the valley of ashes will—unlike Wilson—find some small relief in a church somewhere. But the churches of Queens are more pragmatic than hopeful as demonstrated by the New York Presbyterian, which loudly wonders if God has left the stage.<sup>107</sup>

These questions, pessimistically symbolized in *The Great Gatsby*, are part of why the book is still so popular today, and why it keeps being remade into movies. Fitzgerald’s description impels his audience to confront the very thing that is normally overlooked, or willfully ignored. The fiction of *Gatsby* provides a safe vantage point for readers to psychically distance themselves from the terrifying fact that this is *not* a fiction; it is Queens. He forces us to question how the city grapples with the long-term consequences of a shortsighted, decadent past.

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<sup>107</sup> Lewis Mumford also compared New York to a fallen Jerusalem in his essay “What Is A City?” “When the city ceases to be a symbol of art and order, it acts in a negative fashion: it expresses and helps to make more universal the fact of disintegration. In the close quarters of the city, perversities and evils spread more quickly; and in the stones of the city, these antisocial facts become embedded: it is not the triumphs of urban living that awaken the prophetic *wrath of a Jeremiah*, a Savonarola, a Rousseau, or a Ruskin.” Italics by the author. Lewis Mumford, *The Lewis Mumford Reader*, 1st ed. (New York: Pantheon Books, 1986) 106.



His characters, Gatsbys, Buchanans, Wilsons, Eckleburgs—even his cars—haunt this landscape, semiotic phantoms, fragments of the mass dream, squeezing at a present in which people have always imagined the better, actualized the worse, and lamented what could have been.

Though there is no shortage of ecstatic propaganda describing the 1939 World's Fair and faith in the power of human ingenuity and technology to create ever more progress, one poet, Joan O. Harvey, presented a more sobering assessment of the scene.<sup>108</sup>

You are preposterous, O My America;  
You put a line in the Morning Papers:  
“Poets, show us the world of tomorrow”.  
....  
Your impatience for Monuments, America,  
Is largely your charm;  
You keep tearing your Monuments down  
And building bigger, you frown  
And are dissatisfied, but the trouble  
Is what they signify, not the Monuments;  
So you turn to the Poets, crying  
“This is a nice skyline. Put a vision  
Behind it.”

She was the only poet to be a finalist in the competition who did not submit some sort of glowing panegyric. Her poem, “The World of Tomorrow..”, was far ahead of its time, encapsulating many of the critiques made here in this chapter. Climb up a sky scraper, she asks her reader, and

...try to discern  
This World of Tomorrow;  
Being careful to look in the right direction  
Lest we see Thebes or Troy, Carthage or Babylon,  
The Monuments of the Maya or Coney Island.<sup>109</sup>

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<sup>108</sup> It's been estimated some forty thousand different souvenir objects (pins, posters, shirts, book ends) were produced with some image of the Trylon & Perisphere

<sup>109</sup> [Fig. 22](#) provides the skyscraper perspective I believe Joan Harvey had in mind. We might compare this to the skyscraper view in Luhrmann's *The Great Gatsby*.

Here Ozymandias lingers on the periphery of Harvey's imagination. She goes on to criticize the inherent contradictions of this future-projecting, to question the greed ("hoard in Kentucky") of the never-ending pursuit and accumulation of wealth, or the inherent selfishness of the endeavor ("You could feed the whole world / If the notion appealed to you"). Instead,

You take a Beatitude for a slogan  
And scare the world, or set up the Gospel  
In factories, make fortunes, and  
Turn out Billionaires, but are aware  
The Kingdom of God is not yet.  
There are discrepancies,  
Discrepancies unthinkable in the World of Tomorrow,  
The United States of America, Utopia,  
The Kingdom of God.

In the final lines, Harvey imagines the end of the world with god picking up the Trylon and Perisphere and playing a cosmic game of pool with the cue the Trylon and the ball the Perisphere, knocking them into the planet and ending the world:

And there will be thunder—Which we will not hear.  
We shall not be there, America,  
In that Tomorrow of the Perfect Sphere.  
There will not be one Scientist  
To be mystified by the hoard in Kentucky,  
To disturb the dust of Manhattan, and sigh  
"This was a people...we  
Do not know why; the theory  
That they built skyscrapers because they enjoyed it,  
Is preposterous, and, improbably, true."

In asking for poets to variously write about the meaning of the World's Fair, the organizers of the World's Fair had lost control of the very symbols they themselves had built. Future Monuments, in this case, these enormous pillars of future-oriented intentionality, revert to regular monuments over the course of time. They then become not only a record of that intentionality, but subject to revision and comparison, highlighting the gap between what could be, should be, ought to be, and ultimately is.

In 2013 sometime, the great golden letters of the New York Presbyterian Church were taken down, a result of a change of church leadership ([Fig. 23](#)). Someone was trying to erase Eckleburg again. What now will remain to snap those daily commuters out of their distraction? Who will make the next effort to define the future of Willet's Point? Will the Gatsbian dreamworld be abandoned in the collective amnesia of an uncaring present? How will Eckleburg resurrect himself again? What Machine Moloch will gobble up the next landscape? Or are the shades—the ghostly penitenti of those godly golden letters still hanging on the church—enough to manifest Eckleburg? And you: readers, viewers, commuters—

Is it nothing to you, all you who pass by?

Fig. 1 – View of Presbyterian Church from near the tracks of the LIRR and the Woodside stop. ([back to page](#))



Fig. 2: Screenshot from Luhrmann's *The Great Gatsby* (2013). Note the billboard in the background. ([back to page](#))





Fig. 3 – Screenshot of the landscape rendition of the Valley of Ashes. ([back to page](#))



Fig. 4: Francis Cugat's iconic book cover. ([back to page](#))

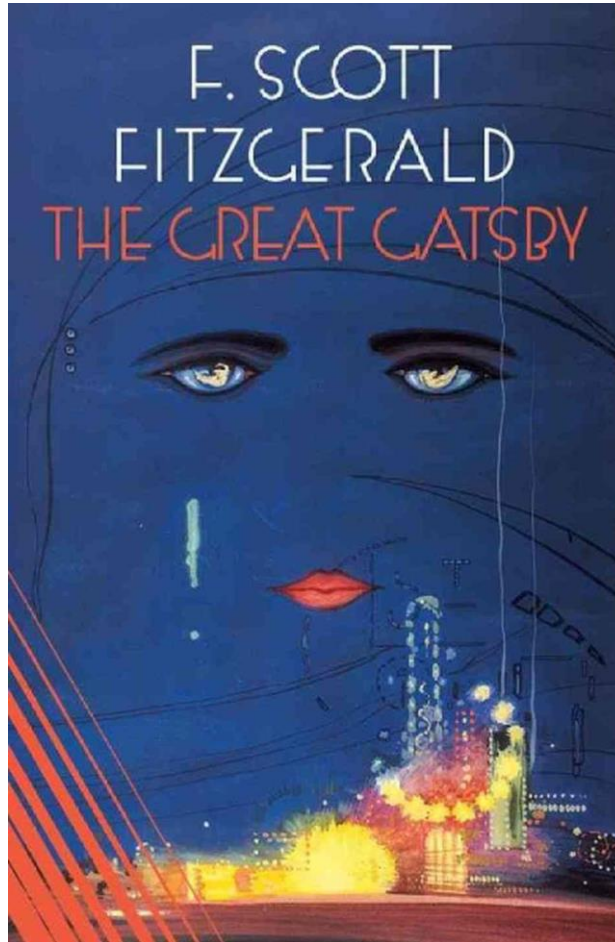
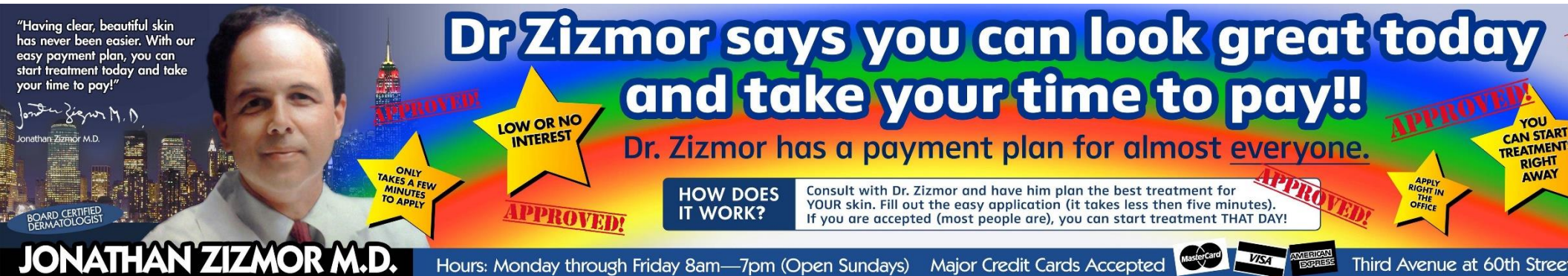


Fig. 5: Ubiquitous Dr. Zizmor advertisement. ([back to page](#))

Dr. Zizmor's advertisements for clear skin have been all over New York City for years, as any New Yorker will tell you.



The advertisement banner features a portrait of Dr. Jonathan Zizmor on the left, with a city skyline in the background. The main headline reads "Dr Zizmor says you can look great today and take your time to pay!!" in large, bold, blue letters with a yellow outline. Below this, a sub-headline states "Dr. Zizmor has a payment plan for almost everyone." The banner is decorated with several yellow stars containing text: "APPROVED!", "LOW OR NO INTEREST", "ONLY TAKES A FEW MINUTES TO APPLY", "APPROVED!", "YOU CAN START TREATMENT RIGHT AWAY", "APPLY RIGHT IN THE OFFICE", and "APPROVED!". A section titled "HOW DOES IT WORK?" explains the process: "Consult with Dr. Zizmor and have him plan the best treatment for YOUR skin. Fill out the easy application (it takes less than five minutes). If you are accepted (most people are), you can start treatment THAT DAY!". The banner also includes a quote from Dr. Zizmor: "Having clear, beautiful skin has never been easier. With our easy payment plan, you can start treatment today and take your time to pay!". At the bottom, it lists the location "JONATHAN ZIZMOR M.D.", hours "Monday through Friday 8am—7pm (Open Sundays)", accepted credit cards "MasterCard VISA AMERICAN EXPRESS", and the address "Third Avenue at 60th Street".

"Having clear, beautiful skin has never been easier. With our easy payment plan, you can start treatment today and take your time to pay!"

Jonathan Zizmor M.D.  
Jonathan Zizmor M.D.  
BOARD CERTIFIED DERMATOLOGIST

# Dr Zizmor says you can look great today and take your time to pay!!

Dr. Zizmor has a payment plan for almost everyone.

**APPROVED!** **LOW OR NO INTEREST** **ONLY TAKES A FEW MINUTES TO APPLY** **APPROVED!** **YOU CAN START TREATMENT RIGHT AWAY** **APPLY RIGHT IN THE OFFICE** **APPROVED!**

**HOW DOES IT WORK?** Consult with Dr. Zizmor and have him plan the best treatment for YOUR skin. Fill out the easy application (it takes less than five minutes). If you are accepted (most people are), you can start treatment THAT DAY!




**JONATHAN ZIZMOR M.D.** Hours: Monday through Friday 8am—7pm (Open Sundays) Major Credit Cards Accepted    Third Avenue at 60th Street



Fig 6: Aerial map of Manhattan and Queens from 1921. Valley of Ashes / Corona Dump is visible to the right side of the image, near the center. See Fig. 4 for detail. Available on: <<http://maps.nyc.gov/doitt/nycitymap/>>. ([back to page](#))

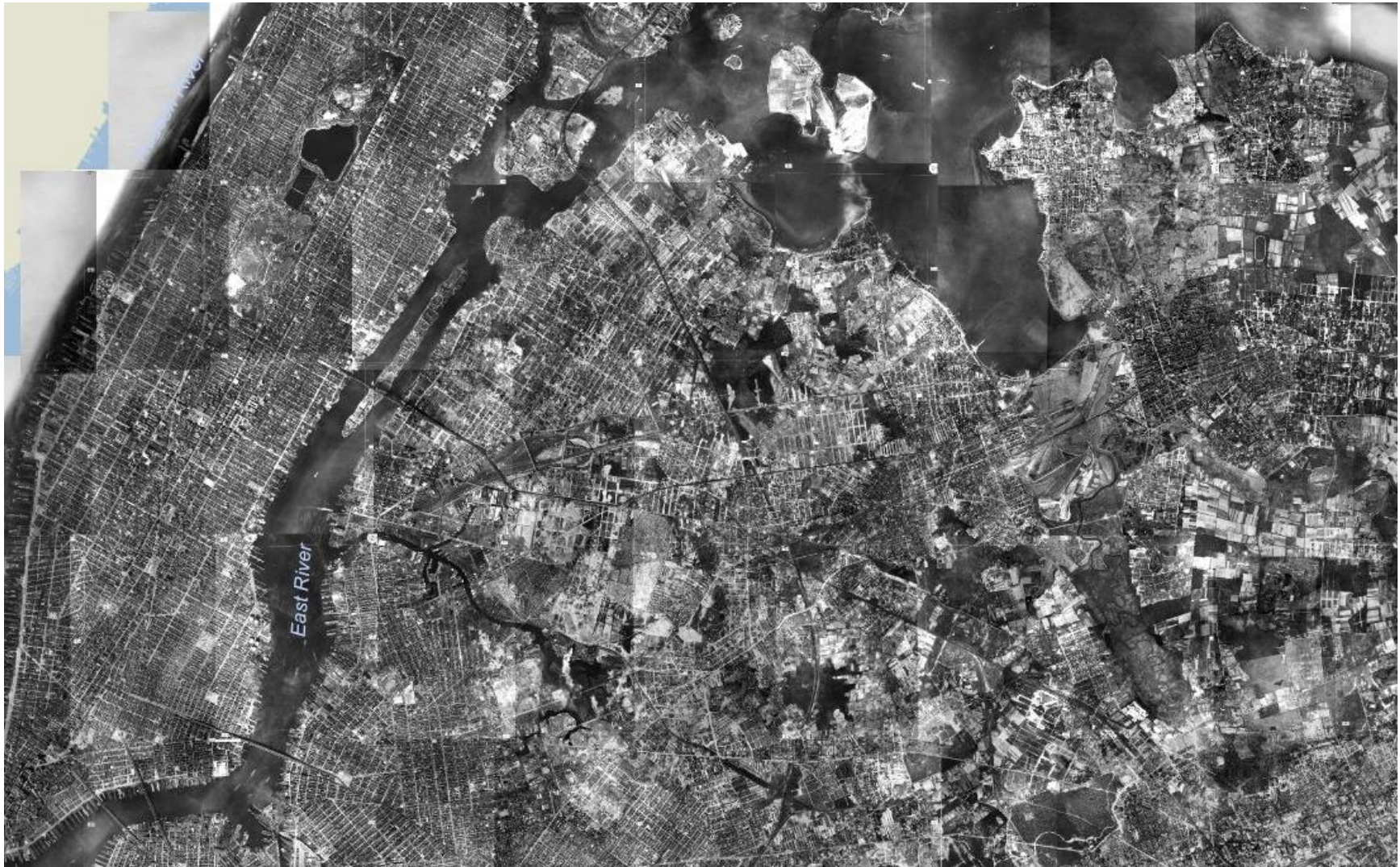




Fig 7: Close up aerial perspective of the Corona Dump, the source of Fitzgerald's valley of ashes. Available on:  
<<http://maps.nyc.gov/doitt/nycitymap/>> ([back to page](#))





Fig 8: Transporting Fly Ash ([back to page](#))

Left: one car of the “Talcum Powder Express,” forty feet long and holding ninety cubic yards of ash.

Right: “Trucks with solid rubber tires rumbled off to the railroad sidings where they were dumped into high-sided wooden gondola cars,” according to R. Harrison’s *Long Island Rail Road Memories* (1981).





Fig. 9: Corona Dump, Queens, NY; unknown photographer, unknown date; New York University Faculty Digital Archive via P. F. Strubeck. <<http://members.trainweb.com/bedt/indloco/barc.html>>. ([back to page](#))



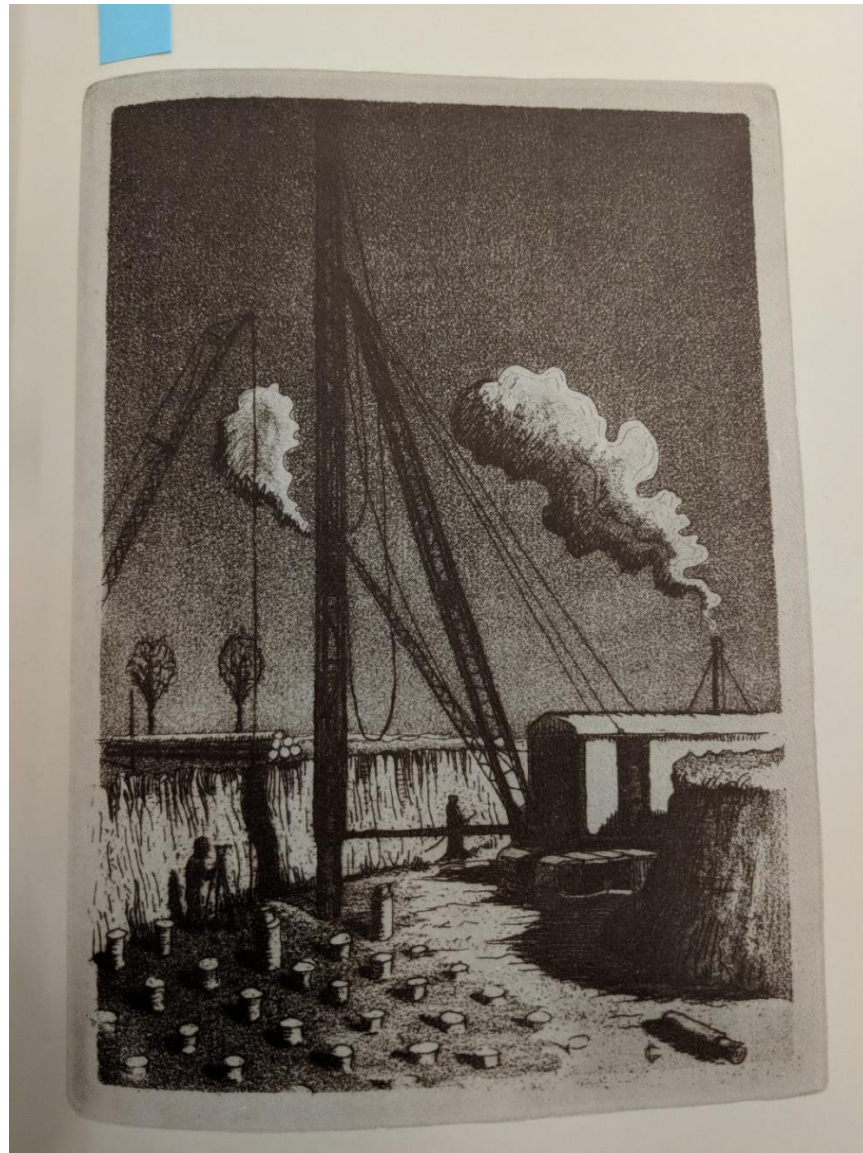


Fig. 10: Thomas Gilkey, "Plate 6," *Officially Approved Etchings, New York World's Fair: 'Building the World of Tomorrow'*  
([back to page](#))



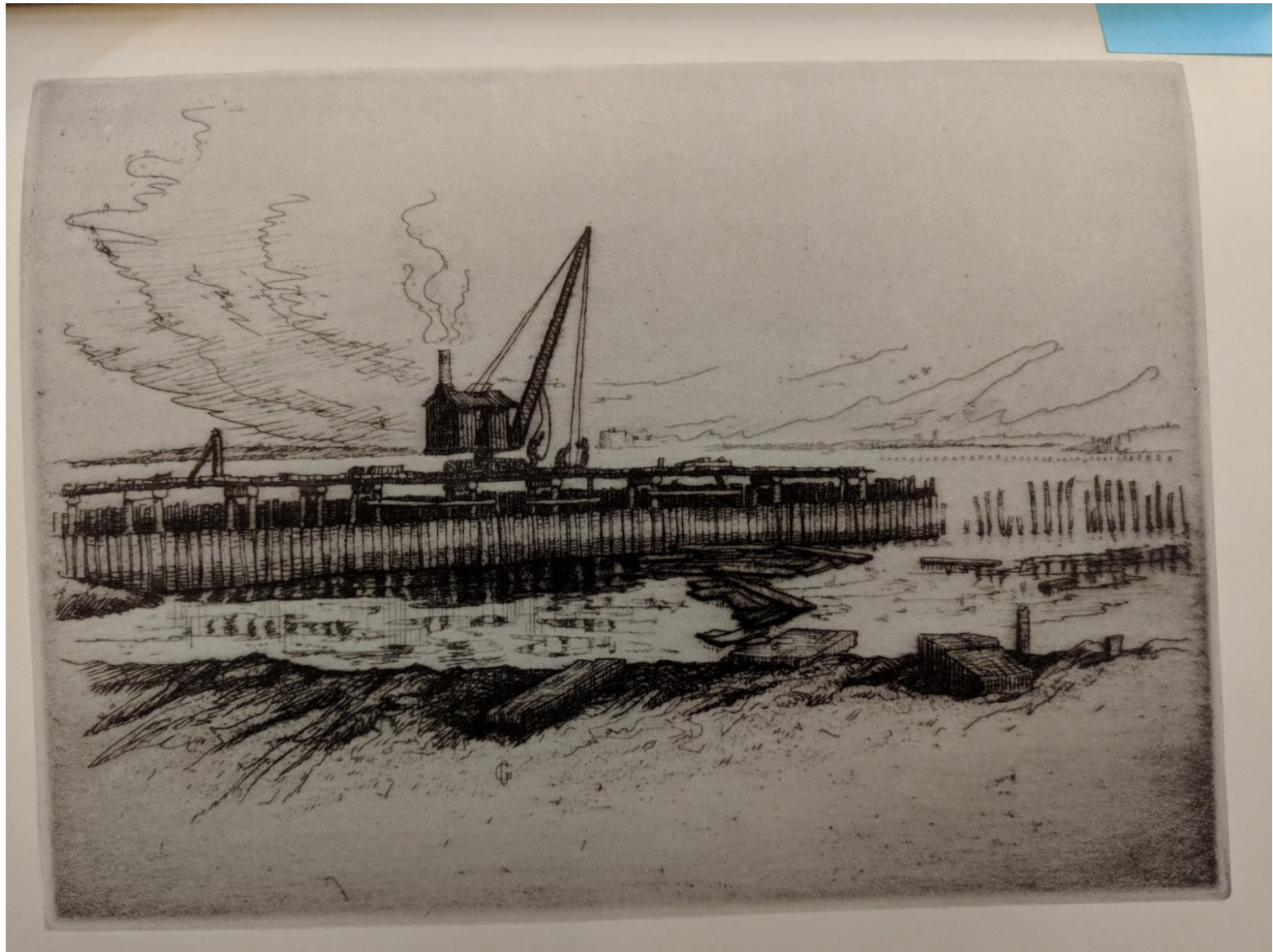


Fig. 11: Thomas Gilkey, "Plate 3," *Officially Approved Etchings, New York World's Fair: 'Building the World of Tomorrow'*

[\(back to page\)](#)

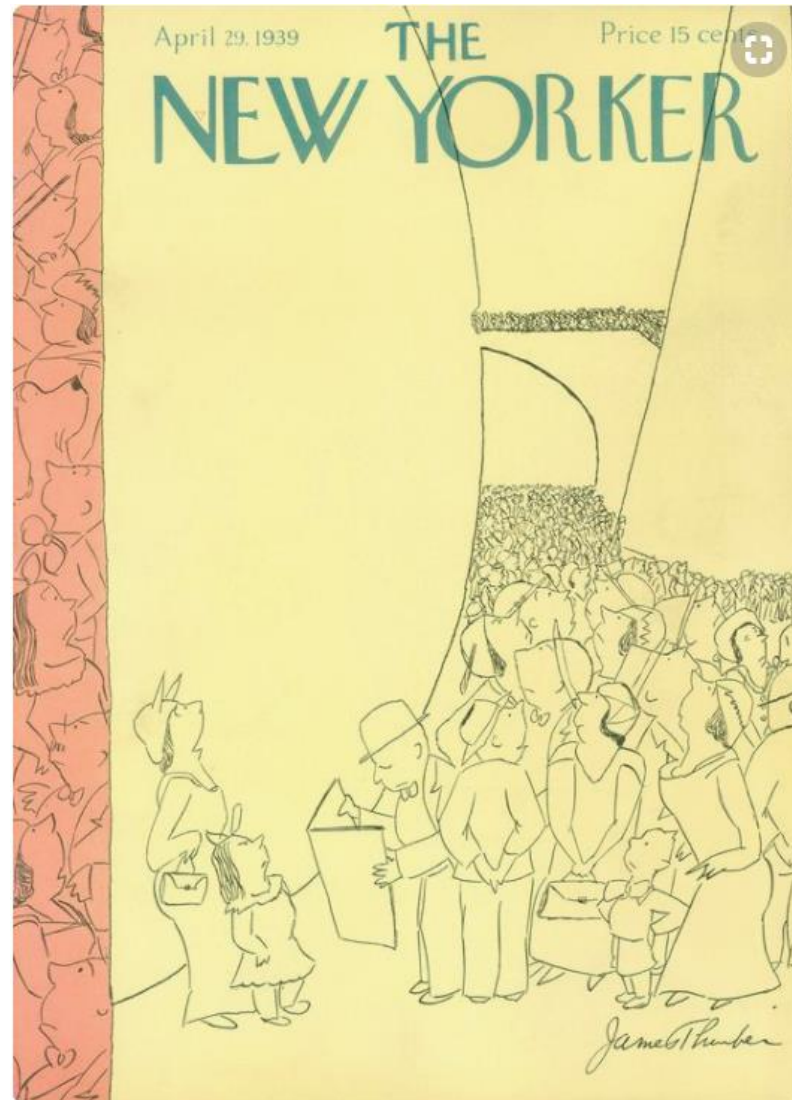


Fig. 12: Cover of *The New Yorker* drawn by James Thurber, April 1939. [\(back to page\)](#)





Fig 13: *Life* magazine, with the Trylon & Perisphere drawn to dwarf the city. ([back to page](#))



Fig. 14: Trylon and Perisphere at the 1939 World's Fair. From a photo gallery in *The Atlantic* (see bib: Alan Taylor) ([back to page](#))



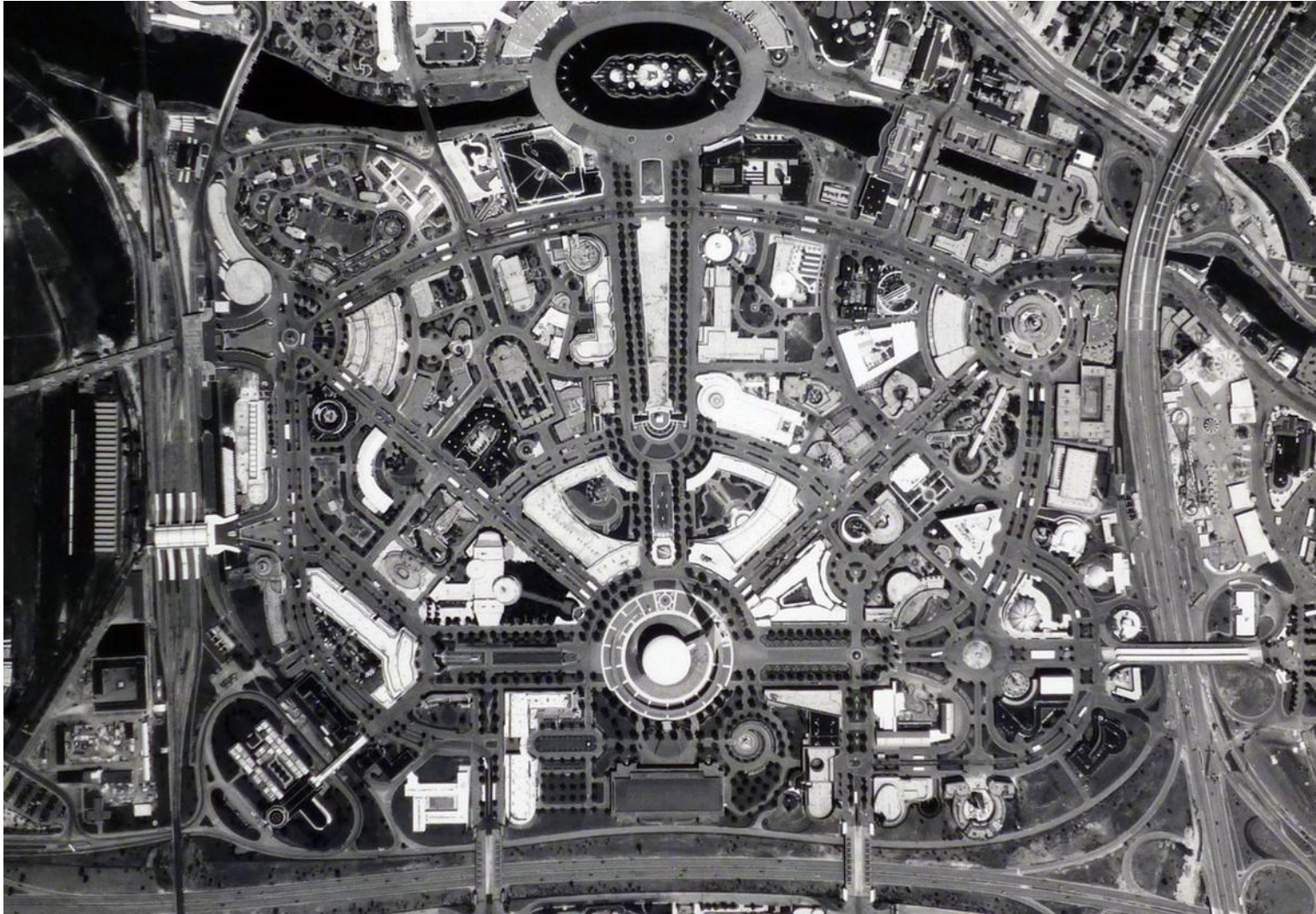


Fig 15: The radial layout of the 1939 World's Fair. From a photo gallery in *The Atlantic* (see bib: Alan Taylor) ([back to page](#))







Fig. 16: Color map of the World's Fair. Compare to the radial layout of the Democracy. ([back to page](#))



Fig 17: The Democracy in all its glory. ([back to page](#))

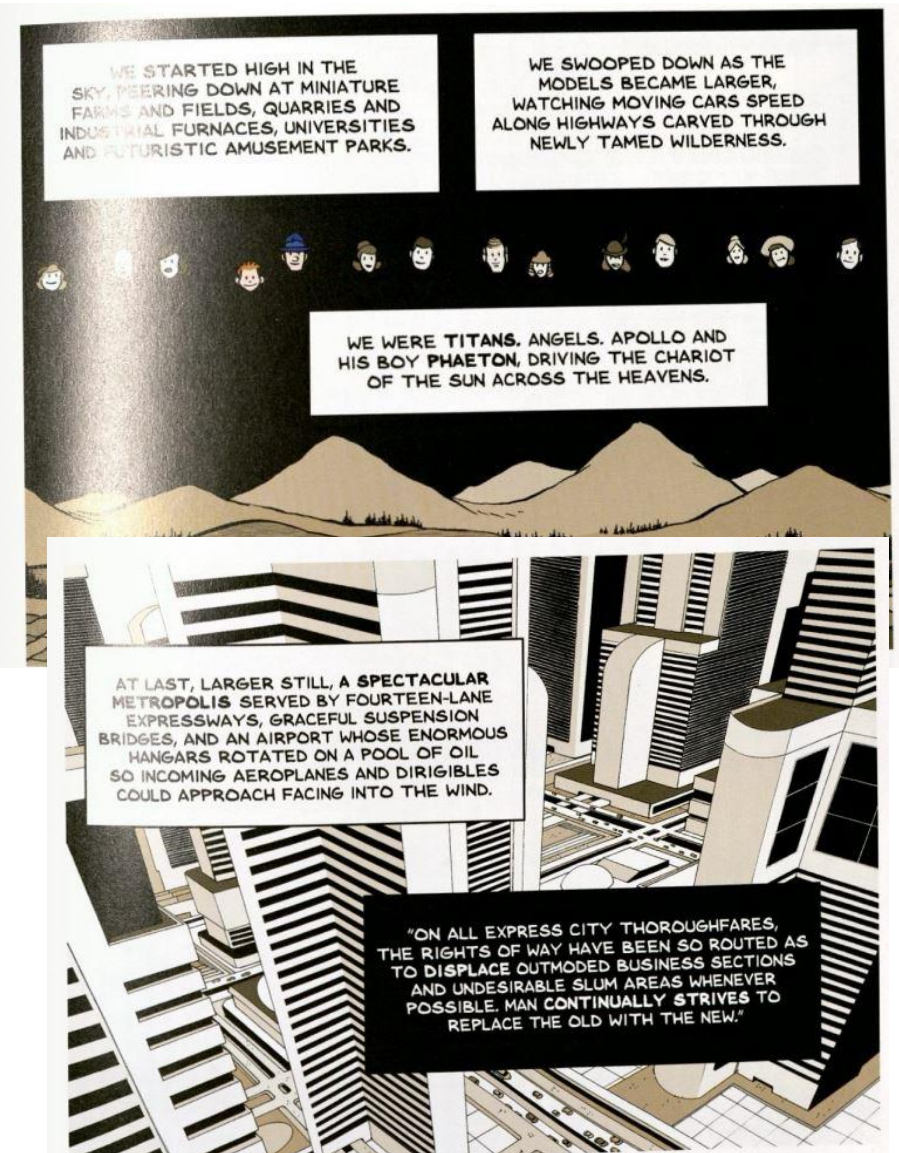


Fig 18: Brian Fies illustration of GM's *Futurama*.



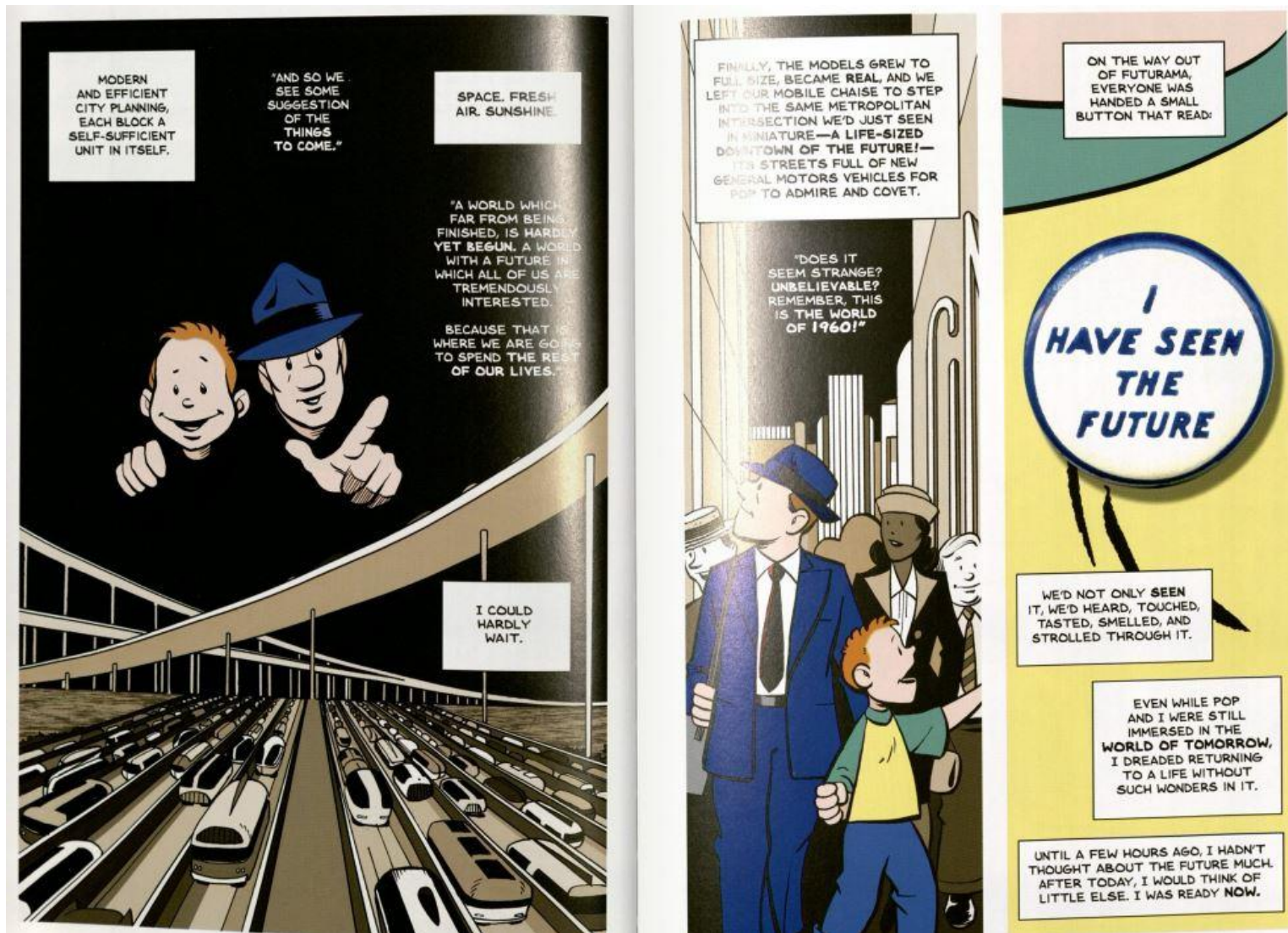


Fig 19: Brian Fies illustration of GM's Futurama. ([back to page](#))

Fig 20: The “Mobile Mural,” here shown as a model. Image from *LIFE*. ([back to page](#))

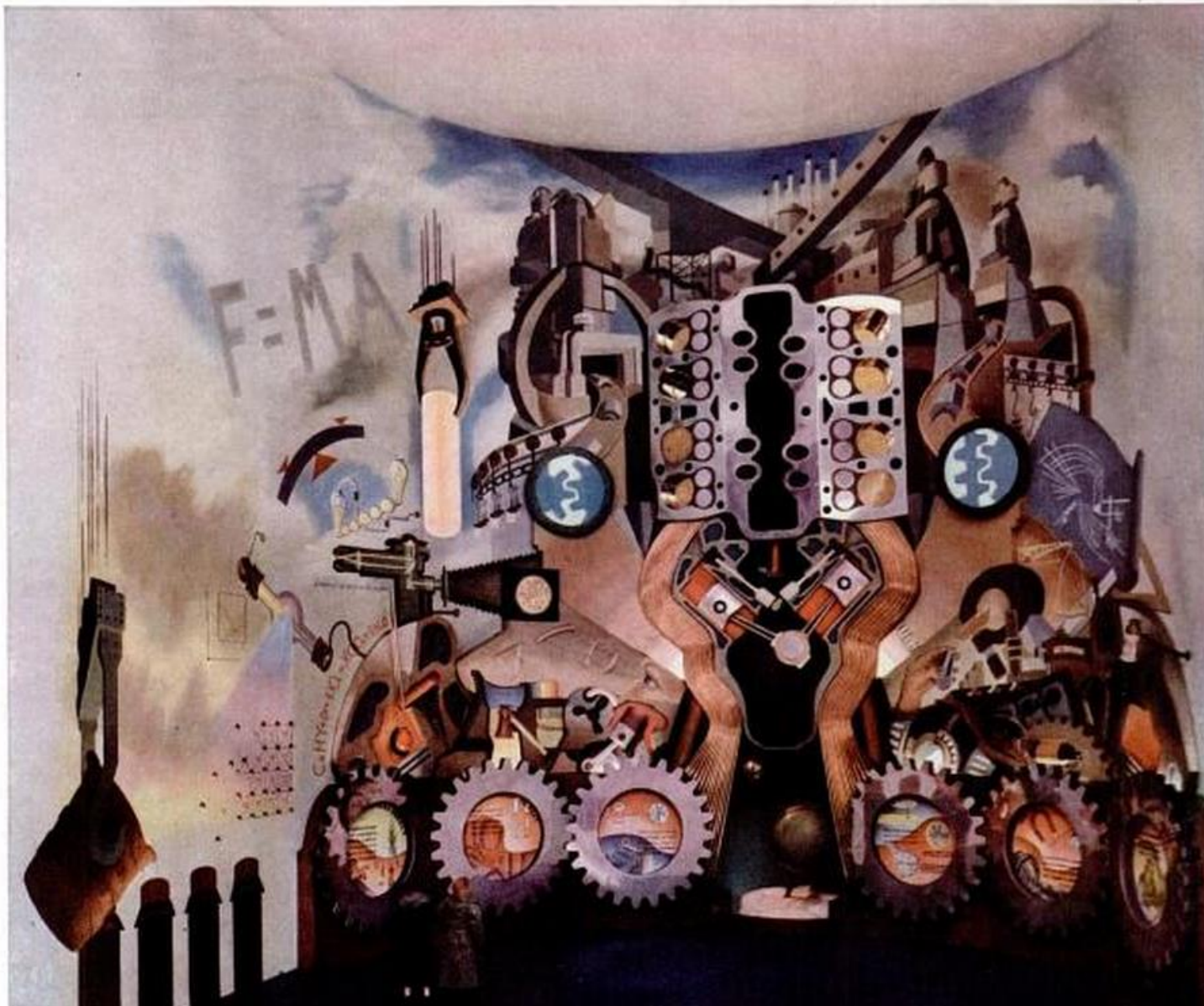




Fig 21: Photograph of the “Mobile Mural” from inside the exhibition. Photo taken by William H. Beal and submitted by his grandson, David Knowles. Note the size of people in relation to the Mobile Mural. ([back to page](#))





[http://www.1939nyworldsfair.com/worlds\\_fair/wf\\_tour/zone-6/ford.htm](http://www.1939nyworldsfair.com/worlds_fair/wf_tour/zone-6/ford.htm).

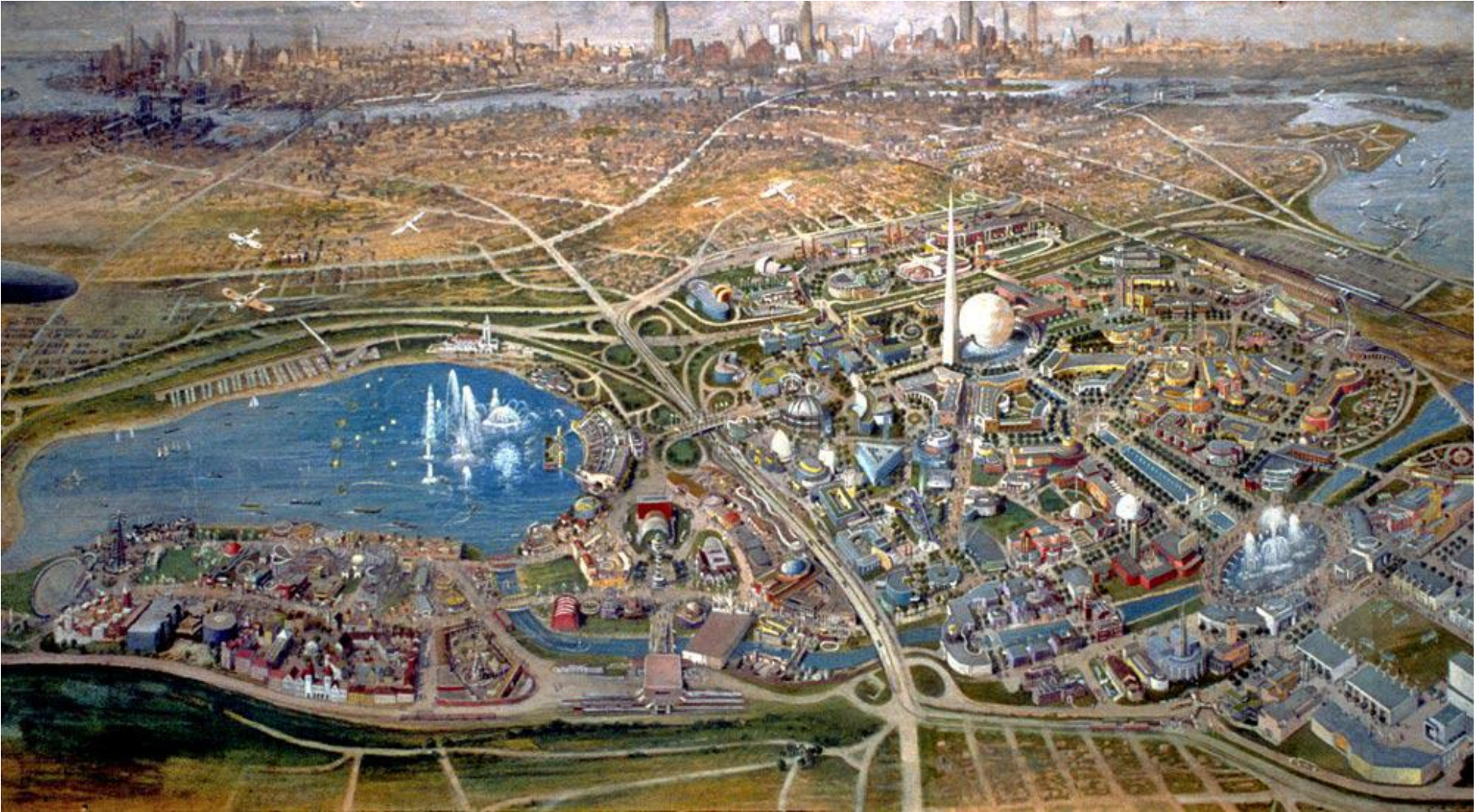


Fig 22. Etching of the 1939 World's Fair from a skyscraper perspective. (Aerial view of the New York World's Fair of 1939, undated (ca. 1938). Tempera on wallboard, H.M. Petit. 43 1/4 x 84 1/2) ([back to page](#))





Fig 23: Erased the NY Presbyterian. Ghostly pentimenti of the golden lettering remain visible. Compare to [Fig 1](#). ([back to page](#))

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**CHAPTER 3:**  
**THE GOLDEN RECORD**  
**“FOR FUTURE TIMES AND BEINGS”**

Now the new figurehead of man appears,  
Facing the vast immeasurable unknown,  
Naked, star-spined, beyond the call of years,  
Hand in hand, outward bound, and so alone.

Go tiny messenger of our race,  
Touch, if you can, harbor in some far place.<sup>1</sup>

Fare forward, travellers! Not escaping from  
the past  
Into indifferent lives, or into any future;  
You are not the same people who left that  
station  
Or who will arrive at any terminus, ...  
You shall not think 'the past is finished'  
Or 'the future is before us'. ...  
While time is withdrawn, consider the  
future  
And the past with an equal mind. ...  
Not fare well,  
But fare forward, voyagers.<sup>2</sup>

~~~~~

Carl Sagan was just five years old when he became one of the forty million people to attend the 1939 New York World's Fair. He hadn't yet read Fitzgerald. In fact, he was just learning how to read. But the vision of the future, the “world of tomorrow” imprinted on his on his mind the idea of the future as surely as it did countless other fairgoers. Robert Moses' ephemeral, fictional future monument had an important effect: it inspired Sagan to a life of science ([Fig 1](#)).³ And it planted the seeds of an idea that would mature some forty years later in a future monument of his own fashioning—The Golden Record.

¹ Aim Morhardt, “Pioneer 10: The Golden Messenger,” qtd in Carl Sagan, *Carl Sagan's Cosmic Connection: An Extraterrestrial Perspective* (New York; New York: Cambridge University Press, 2000), p. 29.

² T. S. Eliot, “Dry Salvages” in *Four Quartets* (New York: Harcourt, Brace and Company, 1943).

³ ‘For Future Times and Beings : Draft Essay’, *Library of Congress, Washington, D.C. 20540 USA*, p. 2 <<https://www.loc.gov/resource/mss85590.038/?st=gallery>> [accessed 2 May 2018].

MASTER - 1/30/78

FOR FUTURE TIMES AND BEINGS

"I had monuments made of bronze, lapis lazuli, alabaster . . . and white limestone . . . and inscriptions on baked clay . . . I deposited them in the foundations and left them for future times."

-- Esarhaddon, King of Assyria
Seventh Century, B. C.

In 1939,
before my fifth birthday, my parents took me to the 1939 New York World's Fair, which exhibited wonders. Lightning was made to crackle, blue and fearsome, between two metal spheres. A sign said "Hear light! See sound!" and it turned out that, sure enough, such things were possible. There were buildings devoted to strange cultures and faraway lands, ^{of very} whose existence I had been totally ignorant of. The centerpiece of that World's Fair was the Trylon and Perisphere, a ^{stately} graceful, tapering tower and a building-sized sphere in which was something called "The World of Tomorrow." You would walk ^{high-railed} on a ramp and below you, in miniature, was an exquisitely detailed model of the future -- graceful aerial skyways filled with streamlined automobiles and happy citizens purposefully intent on some futuristic business, the nature of which was difficult to divine from the perspective of my limited experience and abbreviated stature. But one message was clearly communicated: there were other cultures and there would be future times.

Fig 1 – Sagan's unpublished draft essay for *Murmurs of Earth*. ([back to page](#))

On August 20, 1977 at 10:29:45 EDT, NASA launched the Voyager 2 into space. Its identical twin, the Voyager 1, followed a few weeks later, set for a different trajectory.¹ Each bore a Golden Record along with cartridge and stylus, a glittering gift to whoever might, in some distant future, retrieve one of these probes. Together, their mission was to take measurements and collect data on the Roman Gods revolving around the sun: Mars, Jupiter, Saturn, Neptune, Uranus. It was the Voyagers' short-term aim to take photographs of the moons and snap planetary portraits of each planetary God at stunning resolutions.² Their path was delicate, tortuous, utterly precise, weaving through the planets as closely as possible, a journey fittingly called the "Grand Tour" of the solar system.³ The technological achievement of the Voyager mission is astounding. Sagan compared their course to a game of "interplanetary billiards," but this is something of an understatement. Space is flat on average, but relatively lumpy within our solar system. Moving Voyager reliably from one part of the solar system to another is like trying

¹ Though Voyager 1 and Voyager 2 were launched in reverse order, they were launched on different trajectories, such that Voyager 1 would quickly overcome Voyager 2, and justify its status as the "first" Voyager. Stephen J. Pyne, *Voyager: Seeking Newer Worlds in the Third Great Age of Discovery* (New York: Viking, 2010), p. 78.

² Voyager photos are available on the NASA JPL (Jet Propulsion Laboratory) website: <<http://voyager.jpl.nasa.gov/gallery/>>. The Voyager images remain the among the very best yet taken of our planetary neighborhood. Just recently, the JPL released a series of posters imaginatively advertising tourism in the solar system, complete with catch phrases like "Experience the pleasures of Gravity Assists!" <<http://www.jpl.nasa.gov/visions-of-the-future/>>.

³ Chesley Bonestell, *Beyond Jupiter; the Worlds of Tomorrow*. (Boston, Little, Brown, 1972), p. 18. The gravity-assisted route, dependent upon a carefully timed slingshot effect of Jupiter, has also been creatively described as "billiard-like" (Bonestell, 16).

to predict and determine the course of a golf ball across a sloshing waterbed.⁴ By one account, Voyager 1 nearly did not have enough momentum to make it past Jupiter.⁵

Their collected data would allow NASA scientists to gather new information about the solar neighborhood so that, through the study of the solar system, human beings might better learn more of their place in the cosmos.⁶ After threading their fated flybys, the Voyagers traversed the very limits of the solar system, measuring the properties of the heliosphere. Thirty-five years later, the Voyager 1 sailed into the heliopause, the outermost limit of the solar system, defined by the line at which the prevailing solar winds are overcome by cosmic winds. Soon, around 2025 or so, the compact nuclear reactors of both Voyagers will fizzle out and these probes, triumphs of semiautonomous computer intelligence, will die.⁷

This chapter explores the Voyagers after this point, after the year 2025, from the moment they shut down and onward. A hundred million years onward. A billion years onward. Across interminable distances, into futures unreckoned. The moment the Voyagers shut down, the probes undergo a series of transformations. Their functional purpose as assiduous transmitters of scientific data ceases. Their numerous technical measuring appendages are demoted to mute

⁴ Sagan uses the phrase “interplanetary billiards” in multiple sources, the earliest of which is probably “*For Future Time and Beings: Draft Essay*,” (1978) pg. 8. One excellent demonstration of the complexity of navigating the solar system is available [here](#).

⁵ John Murray, Emer Reynolds, and Clare Stronge, *The Farthest: Voyager in Space* (Arlington, VA: Public Broadcasting Service PBS, 2017)
<<http://www.aspresolver.com/aspresolver.asp?MARC;4031097>>.

Virginia P. Dawson, *Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958-2002* (National Aeronautics and Space Administration, Office of External Relations, 2004), p. 157
<<http://hdl.handle.net/2027/uiug.30112065968536>>.

⁶ NASA is still studying the Voyager data to this day.

⁷ Riley, Corfield, and Dolling, p. 190. The *Voyager Workshop Manual* is the definitive source for the Voyager missions, however, there is also the NASA JPL website
<<http://voyager.jpl.nasa.gov/where/index.html>> and Carl Sagan’s *Murmurs of Earth* (Sagan et al, 1979).

metal branches. Up until this moment, the Voyagers had been the farthest physical extension of human perception into the universe. After this moment, they become dumb hunks of spindly metal. They shift from being tools for observing to unobservable art, from sensor into cenotaph; they transmute into future monuments, leap out of human temporality into cosmic temporality, and metamorphosize into the stuff of mythology. From that moment on, the Voyagers probes become protective shells, vessels, cosmic packaging for a gift from humanity to whoever might, in some far off elsewhere or otherwhile, retrieve them. The Voyagers become the bearers of the Golden Record.

What is the Golden Record? Certain questions are easier to answer—who made it, how it was made, what it is made of, what artists’ intentions were, and the like. Much work has already been done on the Voyagers. Stephen Pyne offers the most thorough history of the Voyager missions to date in *Voyager: Exploration, Space, and the Third Great Age of Discovery* (2010). Christopher Riley diligently catalogues the challenges and scientific technicalities of the Voyager missions in his illustrated *NASA VOYAGER 1 & 2 Owner’s Workshop Manual* (2015). Further, Carl Sagan and his team of scientists and artists, the progenitors of the Golden Record, wrote their own book cataloging the history and debates behind the effort to compile and create the music, greetings, and images on the Golden Record in *Murmurs of Earth* (1978).⁸ Digital copies of the entirety of the Golden Record are available on a permanent NASA webpage as well as on YouTube.⁹ This chapter is less concerned with rehashing these histories and instead asks how we are supposed to understand this strange, far-flung object, out of space, out of time.

⁸ Sagan, *Murmurs of Earth*.

⁹ See: <<http://goldenrecord.org>>.

Considering the Golden Record as a representative future monument allows a space for meditation on cosmic temporalities: what does it mean to make works of art that are nearly immortal? How does the record compel its audience to remember the future? Who is that audience, and who populates that future? At what timescale does it become an absurd task to consider the future of human beings? Just how much future is there, anyways?

Slipping through the erosionless vacuum of space, the Golden Record is likely to be the most enduring object ever made by humankind. In its inaccessibility, its irretrievability, its temporal expansiveness, it becomes a remarkable thought experiment made literal by the fact of its material existence. It demands that one think of incomprehensible distances, unfathomable amounts of time; it impels its audience to think of the future not only in a human sense, but also in a galactic sense, elevating ideas of thinking universally to the universe itself. This twelve-inch disk is—perhaps—the most monumental of monuments ever yet made. As such, it has been called many things: a time capsule, a cenotaph, a sarcophagus, a gift, a cocoon, a mixtape, a Rosetta Stone, a love letter, a long play record. All these names are accurate. But there are more metaphors to add to this list: the Golden Record is a collective *memento mori*, a golden graven image meant to substitute for otherwise absent gods; a new Golden Bough or Golden Fleece, and a future monument in the fact that it is a work of art conceived expressly to compel its audience to think of the future. The Golden Record is temporally and spatially the most extreme of future monumentality, the most ambitious in its claim on eternity, starkly highlighting one of the major qualities of future monuments to set an imagination of what the future will be, and to define the purpose of humankind within that imagined future.

The strange and noble aspiration of humankind to throw some selection of its thoughts, dreams, discoveries, memories, and music into space is accompanied by the harrowing epiphany

that just about anything NASA launches into space will outlast humanity itself, that rocket detritus and space trash might well be the most lasting vestige asserting the presence of human existence in this universe.¹⁰ Much of what can be said about the Golden Record can also be said about all sorts of other abandoned space stuff: the Mars rovers, the moon buggy, cell phone satellites, Alan Shepard's golf balls, even packets of feces, urine, and vomit left on the moon by the Apollo missions, along with their footprints—each of these objects have an equal claim on eternity.¹¹ By one estimate, there are some hundred million miscellaneous objects bigger than a millimeter in orbit around Earth, threatening satellites and space stations with the possibility of their impact at seventeen thousand miles an hour. These bits of detritus will continue to assert the presence of humanity into the deep future, an archive of space miscellany, the fodder for some future space archeologist's dissertation.¹²

There are of course more recent examples. When Elon Musk successfully launched his rocket, the *Falcon Heavy*, into space, he attached to it a Tesla Roadster, driven by a dummy they named "Starman."¹³ It, too, will likely survive forever in space, a testament to the absurd power of hyper-wealthy technocrats to celebrate themselves legacy projects that double both as

¹⁰ Space Archaeology, variously dubbed "exoarchaeology" or "aerospace archeology" is a strange and relatively new field. Its interests however are in the present and recent past, as opposed to the far future. See: Ann Darrin and Beth L. O'Leary, *Handbook of Space Engineering, Archaeology, and Heritage* (CRC Press, 2009), pp. 4–5.

¹¹ BBC "What's Left Behind on the Moon?" <https://www.bbc.co.uk/news/ampstories/moonmess/index.html> [accessed 16 January 2018]

¹² Cath Le Couteur 'Adrift, A Space Junk' *The Atlantic*, Oct 12, 2017
<https://www.theatlantic.com/video/index/542175/adrift-short-film-space-junk/?utm_source=atlb> [accessed 16 January 2018].

¹³ Leonard David, Space.com's Space Insider Columnist | February 22, and 2018 06:21am ET, 'Where Is Starman? Track Elon Musk's Roadster as It Zooms Through Space', *Space.Com*
<<https://www.space.com/39777-track-elon-musk-tesla-starman-website.html>> [accessed 28 February 2018].

monumental advertisements and future monuments. Starman reflects the superficial hopefulness of future monuments that, in this case, stretches towards Mars to the tune of David Bowie's "Space Oddity." With Starman, Musk demonstrates that future monuments need not take themselves so seriously. They may also be cosmic kitsch, an interplanetary joke. The Golden Record, however, takes itself much more seriously.

To understand what it means to make things that are immortal, I rely on classical mythology, particularly the Roman myth of the Golden Bough, though the Golden Fleece could substitute as well. Greek and Roman mythology, after all, is chock-full of sacred objects and immortal beings. Using these comparisons, I demonstrate the optimistic and pessimistic interpretations of this immortal object. I argue that the Golden Record is an effort, on the part of Carl Sagan, with the bullhorn of NASA space exploration, to set a common collective goal for all of humanity in a universe where a god or gods, who had previously mythically and religiously defined this common purpose, no longer exist. The claim that NASA through Carl Sagan was inviting a mytho-religious dimension to a scientific mission is not new. In *Redeeming Culture: American Religion in an Age of Science*, historian James Gilbert delves into the many ways the line defining religion from science has been frequently scumbled in American culture, from the Scopes trial to the Apollo 8 broadcasted reading of *Genesis* on Christmas Eve, 1965.¹⁴ Kendrick Oliver's *To Touch the Face of God* more narrowly defines the religious dimensions of American space exploration. This chapter adds more evidence to Oliver's work, while simultaneously expanding the correlation between religious transcendence and cosmic transcendence to the

¹⁴ James Burkhart Gilbert, *Redeeming culture: American Religion in an Age of Science* (Chicago, Ill.: University of Chicago Press, 1997). Another example of C.S. Lewis's *Out of the Silent Planet* (1943), the first of the *Space Trilogy*, imagines an linguist traveling to Mars, only to find that the that, by leaving Earth, he has broken a covenant with God by traveling beyond the limits of the world that was meant for him. C. S. (Clive Staples) Lewis, *Out of the Silent Planet* (New York: Macmillan, 1943).

realm of mythology and monumentality.¹⁵ Because future monuments imply a belief or faith in effecting a particular future, they necessarily adopt a religious and moral dimension in the message they convey about what *should* be. Sagan's particular flavor of scientific moral prognostication invokes little to nothing from the Judeo-Christian model, however, and instead invokes Greek and Roman mythological antecedents. The chapter that follows will show how a small team of scientists in the late 1970s aimed to play the role of ancient Greco-Roman gods and create a heroic challenge for some future group of heroes, (either aliens, or future generations), to strive to achieve.¹⁶ What would it mean to retrieve the Golden Record?—that is a difficult question. To answer it, this chapter explores an analogous question: What did it mean to retrieve the Golden Bough?

THE GOLDEN RECORD

The Golden Record is ([Fig 2](#)), quite literally, a long play record, the ubiquitous musical medium of the 1970s, and, at that time, the most reliable way NASA could think of to store data for long periods. Rather than vinyl, however, it is made of copper plated in gold.¹⁷ The idea to attach a message to a satellite had first been put forward in 1972, when NASA let Carl Sagan fix a small plaque to the Pioneer 10. The Golden Record was no mere plaque. As Sagan explains, the Pioneers 10 and 11 were mere “visual greeting cards” compared to the Golden Record, which contained some two hours of music and images spiraled into the grooves of a copper record

¹⁵ Kendrick Oliver, *To Touch the Face of God: The Sacred, the Profane, and the American Space Program, 1957-1975*, New Series in NASA History (Baltimore: Johns Hopkins University Press, 2013).

¹⁶ I owe a debt to Roland Barthes methodology in *Mythologies*, which explores the myriad ways that myths are invented and operate in contemporary society.

¹⁷ Sagan, *Murmurs of Earth*, p. 12.

electroplated in a protective sheath of gold.¹⁸ John Casani, the project manager of Voyager, approached Sagan to brainstorm designing some sort of equivalent message for the Voyagers in December of 1976. Casani's impetus, he claimed, was that

...it would certainly stimulate people's thinking about how to communicate with a totally alien society and culture with their own alphabet and language. It turned out to be something that was publicly engaging, and that was the beauty of it I thought.¹⁹

John Casani had no idea, eight months before launch, that Sagan was going to suggest an LP made of gold. Neither did Sagan. The record was a result of a broad collaboration. Sagan consulted a wide range of thinkers, astronomers like Harvard's own A.G.W. Cameron, Frank Drake, the founder of the Search for Extra Terrestrial Intelligence (SETI), philosophers like Steven Toulmin at the University of Chicago, biologists such as Leslie Orgel at the Salk Institute, businessmen like B. M. Oliver, Hewlett-Packard's president for research and development, ethnomusicologists like Alan Lomax, founder of the Cantometrics Research Center, artists like Jon Lomberg, and science writers like Timothy Ferris, who still writes about the Golden Record to this day. Science fiction masters Robert Heinlein and Isaac Asimov contributed ideas. Sagan's first wife, Linda Salzman, played a significant role in assembling all the greetings from around the world; his second wife, Ann Druyan, acted as creative director and later, producer of *Cosmos*. The list of people Sagan assembled was something like an epic catalogue of heroes, with Sagan himself the Jason among these Argonauts.²⁰ Careful delegation was necessary to complete the task of compiling a thoughtful, distilled portrait of humankind's

¹⁸ Sagan, *Murmurs of Earth*, pp. 14–15, 23.

¹⁹ Riley, Corfield, and Dolling, p. 38.

²⁰ For a better sense of what this heroic catalog is, see the acknowledgements section of Sagan, *Murmurs of Earth*, pp. 238–46. Frank Drake agreed. In an interview for the documentary *The Farthest* (2017), he reflected, "Voyager was, to me, Homeric."

greatest hits with just six weeks and a budget of twenty-five thousand dollars.²¹ The resulting record contained six and a half minutes of greetings in fifty-nine languages (including a humpback whale song); “Sounds of Earth,” an audio essay with Kepler’s *Harmonices Mundi*; recordings of volcanoes, oceans, birds, heartbeats, and Morse code of the Vergilian phrase “*ad astra per aspera*”—“through hardships, to the stars.”²² Then there is the world music, a quartet of German composers, an Indian raga, Melanesian panpipes, a Navajo night chant, a Japanese bamboo *shakuhachi* (flute) piece, a Pygmy initiation song, a Javanese *gamelan* (orchestra), blues from Blind Willie Johnson, and even Chuck Berry’s “Johnny B. Goode.”²³ For Sagan, music meant making a monument that far exceeded the limits of funeral stele or the Rosetta stone. He explained:

We are feeling creatures. However, our emotional life is more difficult to communicate, particularly to beings of very different biological makeup. Music, it seemed to me was at least a creditable attempt to convey human emotions... Perhaps there is a “universal” music... Because of the relationship between music and mathematics, and the anticipated universality of mathematics, it may be that much

²¹ Riley, Corfield, and Dolling, p. 39.

²² The sentiment is something of a Roman trope. See: *Aeneid* XI: 641, “*sic itur ad astra*”; Seneca, *Hercules Furens*, 437 “*non est ad astra mollis e terris via*.” More recent adaptations of the phrase include Buzz Lightyear’s “To infinity and beyond!” and the famous *Star Trek* split infinitive, “To boldly go where no man has gone before,” both catchphrases that echo the American manifest destiny faith in the frontier. Incidentally, *Star Trek* has a number of episodes that riff on aspect of the Golden Record. Relevant to the whale song is *Star Trek IV: The Voyage Home* (1986), in which Captain Kirk and crew of the *USS Enterprise* must time travel to retrieve extinct humpback whales, which is the only animal capable of communicating with a hostile alien threat wreaking devastation on earth. Erik Von Detten and others, *Toy Story* (Burbank, Calif.: Distributed by Buena Vista Home Entertainment, 1995). Harvey Bennett and others, *Star Trek IV, the Voyage Home* (Hollywood, Calif.: Paramount Home Video, 2003).

²³ “The Sounds of Earth” and “The Music of Earth” in Sagan, *Murmurs of Earth*, pp. 150–209. Steve Martin even poked fun at Chuck Berry and the Golden Record on *Saturday Night Live*. ‘SNL Season 03 Episode 18 - Steve Martin, The Blues Brothers - NBC.com’ <<https://www.nbc.com/saturday-night-live/season-3/episode/18-steve-martin-with-the-blues-brothers-65761>>. In 1986, Carl Sagan and Ann Druyan wrote a birthday note to Chuck Berry, congratulating him on his sixtieth birthday: “When they tell you your music will live forever, you can usually be sure they’re exaggerating,” Sagan quipped. Chuck Berry, Carl Sagan, and Ann Druryan, “Birthday letter to Chuck Berry,” 1986. Manuscript/Mixed Material. Retrieved from the Library of Congress, <www.loc.gov/item/cosmos000081/>.

more than our emotions are conveyed by the musical offerings on the Voyager record.²⁴

NO SUCH LINGUA COSMICA

“A sad spectacle. If they be inhabited, what a scope for misery and folly. If they be not inhabited, what a waste of space.”
—Thomas Carlyle

Imagine: an alien plucks the Golden Record out of its protective case and looks at the directions for how to play an LP. Would an alien be able to decode the message on the Golden Record? A 2014 article in the *Atlantic* claims yes.²⁵ The answer, however, is a bit more complicated.

The problem of inventing a universal language is an old one that arose historically in the global context of finding a neutral medium for communicating foreign policy and trade relations among nations. Expanding the idea to the literal ‘universal,’ Hans Freudenthal wrote the seminal book, *Lincos* (1960), short for *lingua cosmica*, in which he argued that mathematics is the only logical universal language for extraterrestrial communication.²⁶ More recently, Alexander Ollongren published the current definitive work on Astrolinguistics.²⁷ The logic of Astrolinguistics can be traced back to Kepler himself, who believed that the universe, being made by a perfect god, must necessarily conform to a perfect logic. Because perfection only

²⁴ Sagan, *Murmurs of Earth*, pp. 13–14.

²⁵ Adrienne LaFrance, ‘Humanity’s Most Famous Mixtape Is Now 11 Billion Miles From Earth’, *The Atlantic*, 22 September 2014 <<http://www.theatlantic.com/technology/archive/2014/09/humanitys-most-famous-mixtape-is-now-11-billion-miles-from-earth/380552/>>.

²⁶ Hans Freudenthal, *Lincos; Design of a Language for Cosmic Intercourse.*, Studies in Logic and the Foundations of Mathematics (Amsterdam, North-Holland Pub Co, 1960).

²⁷ Alexander Ollongren, *Astrolinguistics: Design of a Linguistic System for Interstellar Communication Based on Logic* (Springer New York: New York, NY, 2013).

exists in ideation, it follows that mathematics must be the language of god and, therefore, the universe itself. The connection between music and mathematics, as Sagan well knew, can be traced back to the *musica universalis* of Pythagoras.²⁸ Carl Sagan and Frank Drake agreed: it was fitting, in a way, to use the universal language of mathematics to transmit the directions for how to play the *other* universal language on the Golden Record: music.

Sagan, Drake, and the rest of the SETI team loved to play this game: what would a proper universal language look like? They would write their own mathematical codes, often in binary, and send them to one another.²⁹ A correct translation might be nothing more than an 8-bit picture of a martini glass, but the translatability would establish at the very least that within the universe of SETI scientists, universal mathematical languages could be conceived. The “depressing shock,” Drake lamented, was that “almost none of the elite members of [SETI] were able to interpret this message.”³⁰ Forget interstellar communication, inter-SETI communication failed.

Sagan and Drake both wrote up detailed explanations for how to read the Golden Record’s directions in *Murmurs of Earth*. The essential first step for an alien to understand is the concept of “on” and “off,” “is” and “isn’t” which is the basis of binary programming. Hydrogen, being the most abundant element in the universe, could operate as the key to this cosmic Rosetta Stone, a sort of galactic shibboleth.³¹ If an alien species could recognize the following diagram represents the hyperfine transition of a hydrogen diatom at its two lowest energy states,

²⁸ Sagan, *Murmurs of Earth*, p. 13.

²⁹ Drake outlines this challenge in Ch. 2 of Sagan, *Murmurs of Earth*, “The Foundations of the Voyager Record.”

³⁰ Sagan, *Murmurs of Earth*, p. 53.

³¹ Sagan, *Murmurs of Earth*, pp. 36–37.

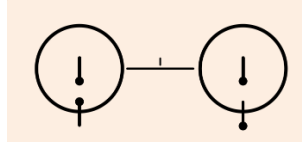


Fig 2 – hydrogen diatom.

then the aliens would be able to determine both a measure of distance related to the wavelength produced, and a measure of time relative to the speed of that transition (.7 billionths of a second), and thus have a key for understanding the rest of the diagrams on the record that describe, among other things, the Earth's position relative to a number of pulsars, and the speed at which the record ought to rotate (16 2/3 rpm) in order to play appropriately.³² But who could?

The assumptions here are astonishing. To detect and retrieve a nearly one-ton satellite traveling at a velocity of 38,000 mph is a massive technological feat.³³ To put that large number in some perspective, a given bullet travels on average somewhere around 1,700 mph.³⁴ Voyager, by comparison, is travelling at twenty-one times the speed of your average bullet, and is much, much larger. Then, presuming one could catch up to Voyager, the aliens would then need to have sensory apparatuses akin enough to humans to be able to see the diagrams on the Golden Record, logic similar enough to comprehend binary, and a nuanced understanding of hydrogen.³⁵ Next is the matter of playing the record in medium capable of transmitting sound. To receive the

³² Riley, Corfield, and Dolling, pp. 156–57.

³³ 'NASA - Voyager Facts'
<http://www.nasa.gov/centers/goddard/news/topstory/2003/1105voyager_facts.html>.

³⁴ That means the goal would be to retrieve a record off an object that is traveling with a momentum of $800\text{kg} * 760 \text{ meters / second} = 608,000 \text{ newton seconds}$, or, a really big bullet, traveling at twenty-one times its velocity.

³⁵ The superabundance of hydrogen in the universe does indeed make it likely, given all the other assumptions being made about these aliens, that the imagined receiver of the Golden Record might have some grasp of it. John Rigden has an excellent book on the history of discoveries made from just the very first element: See: John S. Rigden, *Hydrogen: The Essential Element*, paperback ed., 3rd printing. (Cambridge, Mass: Harvard University Press, 2003).

Golden Record in space is a stellar technological accomplishment far outstripping the relatively simple process of strapping it to a satellite and rocketing it into space in the first place; it is the difference between firing a gun, and un-firing a gun. Sagan was aware of this:

There is a major difference between sending and receiving. We have only recently achieved the ability of doing either, and any civilization even a bit behind us technologically could do neither. Therefore, a baby civilization like ours is not a civilization that might be expected to transmit; the technology of other communicative civilization should be far in advance of our own.

It is quite a bit easier to scramble an egg than it is to unscramble one. Sagan and his team expected a lot from their imagined receivers, most of all, they expected these hypothetical aliens be of a sort far smarter and more skillful than the senders themselves.³⁶

There's much more to be said about these hoped-for aliens. Trevor Paglen usefully categorizes aliens into two categories: alien-aliens, and alien-strangers. The former alien-stranger is "not human, but which shares many characteristics with human," for example: *E.T.*, *Star Wars*, *Close Encounters with the Third Kind*, and any other recognizably humanoid creature. The latter the 'alien-alien' is "an alien that is truly and radically non-human, with few if any overlapping communication strategies, thoughts, or sensory experience," for example: the buggers in *Ender's Game*, the obelisk in *2001: A Space Odyssey*, or the heptapods in Ted Chiang's novella, *The Story of Your Life* (2010), recently made into a film, *Arrival* (2017).³⁷ Paglen concludes that the

³⁶ Sagan, *Murmurs of Earth*, p. 7.

³⁷ Chiang is interested in precisely the question of alien communication. Chiang imagines a protagonist who, fittingly, is a linguist who must figure out how to communicate with the heptapods, an alien species that perceives all of time simultaneously, thus leading to a very difficult problem of translating a language that neither has tense and seems to say everything at once. The protagonist, in learning to interpret this language, learns to perceive all of her existence, past and future, simultaneously. This leads to difficult questions of agency, and a difficult decision: whether or not to have a child she knows will have a congenital disease [in the movie adaptation] that will kill her. Ted Chiang, *Stories of Your Life and Others*, 1st ed. (Easthampton, MA: Small Beer Press, 2010); Denis Villeneuve and others, *Arrival* (Los Angeles, CA: Paramount Home Entertainment, 2017).

idea of communicating with the alien-stranger that Sagan and Drake had in mind is ridiculous. Paglen asks, “Is it even theoretically possible to compose a message for extraterrestrials with ‘a full picture of earth and its inhabitants?’ Answer: ‘Of course not.’”³⁸ He goes on to explain that, although the *Golden Record* was created with the “alien-stranger” category in mind, it is much more likely the record encounters an alien with no means of comprehending or communicating with any object that operates under the anthropocentric assumptions of Sagan and his crew. Paglen is not alone in his doubts. Poet Anthony Michael Morena imagines eight scenarios in which make light of the many ways the Golden Record might fail to transmit its message to various sorts of aliens: scrap scavenging aliens who destroy it for profit; aliens who are so hot they melt Voyager; aliens with no ears, yet feel the vibrations; corporate, capitalist aliens who appreciate the Golden Record as a human effort to raise brand awareness; paranoid aliens who fear Voyager; tiny aliens who climb into the labyrinthine grooves of the Golden Record searching for survivors, etc.³⁹ Linguist Sheri Wells-Johnson is the nonfiction version of Ted Chiang’s linguist-protagonist. As a linguist who is blind, she is acutely aware of the underlying assumptions of human communication. To “see,” in many languages, means to understand. Embodiment, she explains, is part and parcel the stuff of language. The reason human beings possess a concept of “left” and “right” is because human beings have two arms. If there were three arms, there’d very likely be a third direction (she calls it “squirk”).⁴⁰ Language isn’t

³⁸ Trevor Paglen, ‘Friends of Space, How Are You All? Have You Eaten Yet? Or, Why Talk to Aliens Even If We Can’t’, *Afterall: A Journal of Art, Context and Enquiry*, 32 (2013), 8–19 <<https://doi.org/10.1086/670177>>.

³⁹ Anthony Michael Morena, *The Voyager Record: A Transmission* (Brookline, MA: Rose Metal Press, 2016).

⁴⁰ Adam Mann, ‘What Linguistics Can Tell Us about Talking to Aliens’, *Scientific American* <<https://www.scientificamerican.com/article/what-linguistics-can-tell-us-about-talking-to-aliens/>> [accessed 27 February 2019].

created in a vacuum, nor does it exist as a platonic ideal—many forces influence language, and one fundamental force is the negotiation of a physical body with a given environment. Vision is a big assumption. Stanislaw Lem’s, masterpiece *His Master’s Voice* (1968), explores in detail the many contingencies of communication which would fail. There could be an insurmountable linguistic gap, or intelligence gap. A linguistic gap might be some species that communicates only with smell. And intelligence gap would be analogous to why human beings have yet to figure out how to communicate with ants.⁴¹ There is a general consensus. It is more likely that space is a Tower of Babel. There is no such *lingua cosmica*.

While Paglen fails to account for the idea of the radio shell, or the absurdly slow pace of the Voyager’s flight, he does discard any notion of its reception by an alien race, calling the idea of aliens, or of alien reception “a figment of human imagination.” Nonetheless, it is a *useful* thought experiment, Paglen explains

...because thinking about aliens is a way to think about ourselves and our relationship to the future. Symbolically, much is at stake... what relationship do we want to have to the cosmos, to the stranger and to the future? Should our disposition be pregnant with nihilism of silent indifference, or should we endeavor to develop an ethical relationship to those symbolic figures, and, by extension, ourselves?

For Paglen, any meditation on aliens is reciprocally a meditation on ourselves. If the Voyagers encounter any life at all, the probability of which Drake himself defined in his own eponymous

⁴¹ ‘Astronomy Magazine - If Aliens Contact Us, We Won’t Understand | Astronomy Magazine’, *Astronomy.com* <<http://astronomy.com/bonus/alien-contact>> [accessed 4 March 2019].

equation, there is next to zero chance the aforementioned conditions are met.⁴² Supposing that the human species were to endure on Earth for another forty thousand years, in all likelihood, the closest living things to the Golden Record would remain other future human beings. To Casani and others, the Record exists as a concretization of the old anthropological device of the imagining how Martians would perceive a given human interaction, custom, etc. It is an object that acts as a nexus for the discussion of the values, ideals, failures, social constructions, of humans.⁴³ The Golden Record asks us to project ourselves far, far into the future.

⁴² Drake's equation is a famous one, and a simple one, used to predict the number of intelligent civilizations there might be in the Milky Way. The equation relies on multiplying a series of probabilities that astronomers can only guess at, for example: the rate of star formation in the galaxy, times the fraction of those stars with planets, times the number of those planets suitable for life, times the fraction of those planets on which life appears, times the fraction of those planets that might have intelligent life, times the fraction of those civilizations that develop interstellar communication, times the length of time any two of those civilizations might simultaneously exist to receive each other's messages. Each probability multiplier is significantly less probable than the previous, the overall probability of alien life being very, very low no matter how optimistically one adjusts the numbers. And yet, when one remembers that the Milky Way has somewhere in the neighborhood of four hundred thousand million stars in it, even the most pessimistic non-zero probabilities yield a large number of civilizations out there. And Drake only accounted for our galaxy. We might add to Drake's equation the "Golden Record multiplier"—the probability that the direction NASA sent Voyager is near enough to one of these civilizations. For more, see: 'The Drake Equation | SETI Institute' <<http://www.seti.org/drakeequation>>. See: Fig. 3.

⁴³ For a book-length treatment of responses to Drake's Equation, see Stephen Webb's treatment of the Fermi Paradox: Stephen Webb, *If the Universe Is Teeming with Aliens...where Is Everybody?: Fifty Solutions to the Fermi Paradox and the Problem of Extraterrestrial Life* (New York: Copernicus/Praxis Pub, 2002); recently updated: Stephen Webb, *If the Universe Is Teeming with Aliens ... WHERE IS EVERYBODY?: Seventy-Five Solutions to the Fermi Paradox and the Problem of Extraterrestrial Life* (Cham, DEU: Springer International Publishing, 01).



Fig 3 – Drake’s Equation.

If no one is to receive the Golden Records, then the Golden Records will travel silently on in space, unperturbed except, perhaps, by periodic pepperings of micrometeorites. Sagan thought about this deeply, and went so far as to make a mathematical prediction about the rate of degradation, estimating

“two percent of the record should be micropitted by the time the spacecraft reaches a distance of one light year. This corresponds to about 4,000 tiny impacts before it leaves the cloud of cometary debris. Thereafter, in interstellar space, the abundance of micrometeorites should be much less, and the outward face of the record will degrade at the very slow rate of about 0.02 percent of its area for every 50 light years traveled. An additional two percent of damage will not occur until the spacecraft had traveled an additional 5,000 light years, which is one-sixth of the distance between the sun and the center of the Galaxy. It will take the Voyager spacecraft about a hundred million years to traverse such a distance.”⁴⁴

⁴⁴ Sagan, “For Future Times and Beings,” 51.

The records will remain recognizable (were there anything to recognize them) long after the pyramids disintegrate, long after the sun swells into a red giant and consumes the solar system. Some interminable amount of time after that, they will crumble into a whimper of their previous form, like so many statues of Ozymandias. Seen from the perspective of eventual desuetude, the Golden Records are cenotaphs in space, steles, empty golden sarcophagi carrying some slice of the memory of the Anthropocene moment beyond the brief time allotted on Earth.⁴⁵

Sagan and team knew that the Golden Record would never, beyond the realm of fancy and thought experiment, be retrieved. They further knew that if any communication with aliens were to happen, it wouldn't happen via the snail mail of slow-moving space stuff. Radio waves travel at the speed of light, nearly 18,000 times the speed of Voyager—alien communication is the stuff of radio telescopes.⁴⁶ Why then go through all the trouble of constructing a Golden Record? One way to answer this question is thoroughly nihilistic. Sagan, when he wrote about the Golden Record, surrounded it with tons of positive, forward-thinking rhetoric. Looking, however, more widely at his popular writings, Sagan pragmatically forecasted the end of the planet in myriad ways. Asteroids, he said, have hit before, and will hit again, like “30,000 swords of Damocles hanging over our heads—ten times more than the number of stars visible to the naked eye under optimum atmospheric clarity.”⁴⁷ He was a product of his Cold War moment,

⁴⁵ One thinks of the whole Earth as a tomb – a sentiment shared in William Cullen Bryant's “Thanatopsis.”

⁴⁶ Sagan was also well-aware of the efficacy of radio waves: “The primary approach quite properly is the search for radio messages transmitted in our direction by more advanced civilizations.” Sagan, *Murmurs of Earth*, p. 7. Sagan imagines this scenario in a science fiction novel he wrote *Contact*. The irony is the first broadcasts are Hitler's 1936 speech at the Berlin Summer Olympics, the first broadcast strong enough to leave the earth. Carl Sagan, *Contact* (New York: Simon and Schuster, 1985).

⁴⁷ Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*, 1st ed. (New York: Random House, 1994), p. 261. Humankind, he'd have us note, is like the proud Damocles, feasting at the table, pretending he is king of the world, all the while unaware of the threat of instantaneous annihilation.

painfully aware of the threat of nuclear catastrophe. He wrote a book where he dubbed the term “nuclear winter.”⁴⁸ The world, for Sagan, could just as easily end “in fire,” as it could in ice, “if it had to perish twice,” as Robert Frost put it.⁴⁹ In this reading, communicating with aliens, or creating some sort of object for reflection for humankind, are both ancillary impetuses for the creation of the Golden Record. When one considers the endless cold emptiness of space, the Golden Record is just another reminder, a *memento mori*, of the impossibility of getting off this rock. Ironically, Voyager was launched into space, carried by repurposed Intercontinental Ballistic Missile (Titan IIIE)—the very same rockets that would propel warheads around the planet and end the world as we know it also launched the Golden Record into infinity.⁵⁰

With the imminent and probable demise of humankind, the Golden Record—safely bolted to the side of the Voyagers, sealed off from the erosion of wind, water, fire, and the most dangerous, erosive, destructive force of all: human beings—had the responsibility of bearing the last memory of humanity’s brief existence into eternity.

⁴⁸ Carl Sagan, *A Path Where No Man Thought: Nuclear Winter and the End of the Arms Race* (New York, NY: Random House, 1990); P. R. Ehrlich and others, *The Cold and the Dark: The World after Nuclear War* (WWNorton and Co, New York, NY, 1984). Another example of Sagan’s love of Greek and Roman mythology: this book opens with a vignette of Cassandra, the Trojan Priestess who could see the future, but no one would believe her (p. 13). Cassandra is not unlike Aeneas in this respect, able to see the future but without any agency to affect it. In chapter 5 of the same book, Sagan considers quite seriously the possibility of total human extinction in the event of a global nuclear war.

⁴⁹ Robert Frost, ‘Fire and Ice,’ in ‘A Group of Poems’, *Harper’s Magazine*, 1920, p. 67.

⁵⁰ Dawson, p. 140.

Chapter 5 in general covers this topic. The ICBM is also mentioned in the documentary by Murray, Reynolds, and Stronge, *The Farthest* (2017).

REPORTING VOYAGER

Every year, another article or two gets published claiming the Voyagers have left the solar system. Why is it that science journalists yearly scramble to make this claim? The answer, it seems, has to do with the difficulty reconciling a journalistic narrative with a cosmic timeframe. As a journalist, one has something to write every time Voyager passes by a major

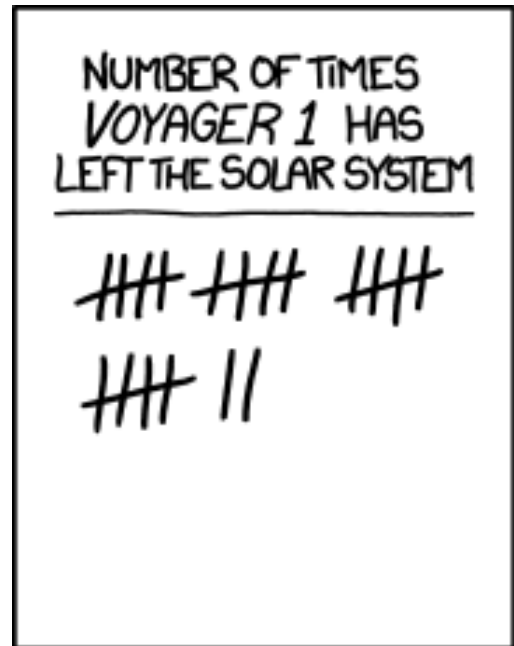


Fig 4 - Comic by Randall Monroe⁵¹

milestone. Launch day, for example, is an obvious opportunity.⁵² A year later, Jupiter provides ample occasion to spill some ink.⁵³

⁵¹ Randall Monroe, “Voyager 1,” *XKCD*, <<https://xkcd.com/1189/>>. Monroe includes the following comment in the title of the image:

So far Voyager 1 has ‘left the Solar System’ by passing through the termination shock three times, the heliopause twice, and once each through the heliosheath, heliosphere, heliodrome, auroral discontinuity, Heaviside layer, trans-Neptunian panic zone, magnetogap, US Census Bureau Solar System statistical boundary, Kuiper gauntlet, Oort void, and crystal sphere holding the fixed stars.”

⁵² ‘2d Voyager Spacecraft Lifts Off Smoothly Speeds Toward Jupiter’, *New York Times* (New York, N.Y., United States, 6 September 1977), p. 1.

⁵³ John Noble Wilford, ‘Voyager 1 Nears Jupiter Rendezvous: Voyager 1 Nears Jupiter Rendezvous Flux Tube to Be Penetrated’, *New York Times* (New York, N.Y., United States, 27 February 1979), section Science Times, p. C1.

A couple years after that: the rings of Saturn in splendid resolution.⁵⁴ Nearly a decade later, Uranus.⁵⁵ Twelve years later, Neptune—who knew it too has a ring?⁵⁶ The Voyagers are article-generating engines, often front page material, and, best of all, as a journalist, you can easily prepare your work in advance—perhaps even scoop other major publications. Yet it was as early as 1989 that New York Times journalist John Noble Wilford began to report on the end of the Voyager missions:

Groping in the dim vastness far from home, arthritic and partly deaf, feeble of voice and prone to memory lapses, the aging Voyager 2 is resolutely heading for a rendezvous next week with Neptune, its last planet of call at the edge of the solar system.

“The last picture show,” scientists are calling it, as they anticipate days of spectacular viewing with a mixture of excitement and nostalgia.⁵⁷

It is safe to say that the year 1989 was a bit premature to begin forecasting the obsolescence of the Voyagers. Wilford would necessarily correct himself with another follow up article yet another decade later, in which he described the Voyagers approaching the outer limits of the solar system.⁵⁸

⁵⁴ John Noble Wilford, ‘Voyager 2 Sends Clear Saturn Photos: Course Toward Uranus Observation of Satellites’, *New York Times* (New York, N.Y., United States, 14 August 1981), p. A13.

⁵⁵ John Noble Wilford, ‘As Voyager Nears Uranus, Flurry of Discoveries Is Expected: Close Encounter on Friday Should Yield Best Data Ever on Remote Planet. Discoveries Are Expected As Craft Nears Uranus’, *New York Times* (New York, N.Y., United States, 21 January 1986), section Science Times Education Arts, p. C1.

⁵⁶ John Noble Wilford, ‘Voyager Discovers a Turbulent Neptune: Terrible Winds Boil a Sphere of Gas at the Edge of the Solar System.’, *New York Times* (New York, N.Y., United States, 20 August 1989), section NATIONAL, p. 32.

⁵⁷ John Noble Wilford, ‘Aging Voyager 2 Hurtles to End of Mission’, *Spartanburg Herald-Journal*, 15 August 1989, section A5.

⁵⁸ John Noble Wilford, ‘26 Years After Launching, Voyager Is at Crucial Border’, *New York Times* (New York, N.Y., United States, 6 November 2003), section National, p. A20.

Each article that attempts to definitively claim “the Voyagers have left the solar system” is trying to put the final nail in the coffin of the Voyager narrative. To make this claim is, essentially, to report the final article on Voyager, to have the last word. Once they are outside the solar system—or once they shut down sometime in 2025—there’s nothing new to report.⁵⁹ They enter a temporal realm so large, thirty to forty thousand years, that it is too vast, too slow for practical narrative purposes of journalism; it is a stasis, in comparison to the fleeting demands of reporting. Even waiting a decade was trying for Wilford. When he predicted the end of the Voyagers in 1989, it was because he must have known that there was not going to be much to write about after Neptune. However, once they push beyond the edge of the solar system, beyond the heliopause, there is nothing—*nothing*—to put the Voyagers in conversation with, just thirty thousand years of empty space and then, maybe, they will approach the vicinity of some distant star.⁶⁰

Writing, as I am, sometime after the Voyagers have left the solar system, yet before they’ve powered down, this chapter finds itself composed at a timely moment. The Voyagers still breathe, still send a thin trickle of data from the outer extremities of the solar system, a distance so far it takes over day and a half for radio waves, travelling at light speed, to traverse. This trickle is a whispered assertion of their continued existence.⁶¹ Once they power down, however,

⁵⁹ Riley, Corfield, and Dolling, p. 192.

⁶⁰ Riley notes that at the velocity they travel, about 9 miles per second, it will take 300 years for the Voyagers to reach the Oort cloud. Then about 40,000 years for Voyager 1 to approach within 1.6 light years of star Gliese 445. Approximately at that time, Voyager 2 will be 1.7 light years from star Ross 248. Approximately 300,000 years after that, Voyager 2 will approach within 4.3 lightyears of Sirius, the Dog Star. See:

Riley, Corfield, and Dolling, p. 193.

⁶¹ Alexandra Witze, ‘Space Science: Voyager at 40’, *Nature*, 548 (2017), 392 <<https://doi.org/10.1038/548392a>>.

they transform into mute anonymous metal, at which point their existence will be the stuff of theory, philosophy, surmise, of trees falling in forests, and thought experiments. Because the narrative irreconcilability of Voyager timeframe with traditional journalistic or narrative timeframes, I turn to a genre more familiar with the eternal, mythology, in order understand this human-made immortal object.

A NOBLE METAL

“if gold ruste, what shal iren do”
—Geoffrey Chaucer⁶²

Gold is the material of mythology. Of the noble metals—Ruthenium (Ru); Rhodium (Rh); Palladium (Pd); Osmium (Os); Iridium (Ir); Platinum (Pt); Silver (Ag)—Gold (Au) is the noblest.⁶³ It is the *rex metallorum*—the ‘King of Metals.’⁶⁴ Its nobility is defined by the relative inertness of the metal in comparison to other substances. The outer shell of electrons in a noble metal does not easily interact with other elements. Chemically speaking, to be noble is to be unreactive, which is not to say noble metals resist forming bonds. They can be mixed into all sorts of alloys that are common in jewelry; rose gold, for example, or white gold, are alloys of

⁶² Geoffrey Chaucer, *The Canterbury Tales*, from "General Prologue: The Parson", Ll. 502 <<http://www.librarius.com/canttran/genpro/genpro479-530.htm>>.

⁶³ R.J. Puddephatt, "Gold Metal and Gold Alloys in Electronics and Thin Film Technology" in Hubert Schmidbaur, *Gold: Progress in Chemistry, Biochemistry, and Technology* (New York: Wiley, 1999), p. 238.

⁶⁴ Giulio Morteani, "History, Economics and Geology of Gold," in Schmidbaur, p. 40.

gold mixed with some amount of copper or silver, respectively.⁶⁵ Noble means it is difficult to impel gold to form a bond that creates new compounds (oxides or carbides, for example). Gold has the highest resistance to dissociation, that is, it is difficult to split its atoms from one another, or dissolve them in acid. It also has the least stable chemisorption state, which means its outer surface offers a uniquely improbable, unstable place for another chemical—oxygen or water say—to bond to.⁶⁶ Whereas other metals mix and meld with the world around them, oxygen corrodes them, acid dissolves them, water rusts them, the noble metals stand apart for their

⁶⁵ Where does gold come from? Surprisingly enough, gold isn't born on planets. It is alien to earth. According to Harvard astronomer Edo Berger, there is good evidence to suggest that gold is the "fireworks" of colliding neutron stars. Colliding neutron stars produced heavy metals that hurtled out into space, cooled into comets and asteroids that rained down on earth, sprinkling it with gold and precious metals some 200 million years ago. This gold was then melded into various geological processes, dug up, and in one particular case, dissolved in water and electroplated onto the copper mother of the *discus aureus*. Sent back into space, one could read this return trip as a material *nostos*. It is an analogue to Homer's *Odyssey* in space. Earth was just Circe's isle, where the gold was transmuted into other forms before escaping back to the cosmic sea. The cosmos never expected to get its gold back—and yet, we might think, in a Sagan sort of way, that the reason to return this bit of gold is to see if maybe—just maybe—somewhere out there, some part of the cosmos might want it back after all.

Duncan Brown and Edo Berger, 'Cosmic Alchemy: Colliding Neutron Stars Show Us How the Universe Creates Gold', *The Conversation* <<http://theconversation.com/cosmic-alchemy-colliding-neutron-stars-show-us-how-the-universe-creates-gold-86104>> [accessed 5 March 2019].

⁶⁶ B. Hammer and J. K. Norskov, 'Why Gold Is the Noblest of All the Metals', *Nature*, 376.6537 (1995), 238–40 <<https://doi.org/10.1038/376238a0>>.

resistance to change. Atoms of gold simply refuse to socialize with any other substances. Gold uniquely keeps its own company. It remains its own immutable, obdurate self.⁶⁷

Physically however it is extremely malleable. It can be flattened to translucent thinness that can be applied to almost any surface.⁶⁸ New anti-cancer treatments employ colloidal gold nanoparticles in lieu of chemotherapy.⁶⁹ Ultrathin translucent coats of gold are evaporated onto the visors of astronauts to augment their vision and protect against radiation. Neil Armstrong walked on the moon, gazing all the time through a thin, protective veil of gold.⁷⁰ Gold is an efficient conductor of electricity, ensuring stable connections of machinery that, if entrusted to

⁶⁷ Pulling up its etymological roots, “noble” harkens back to the Latin adjective *nobilis*, meaning “valuable,” and, even further, to the root verb *gnoscere* “to come to know.” A noble is thus someone well-known, or “in the know.” Knowledge and fame are virtues inseparable from the material itself. Gold has been directly correlated with nobility at least as early as the 14th century, when the English King Edward III named his gold currency the Noble. The two words meant one in the same thing; one could interchange them: gold for noble, noble for gold. To be noble connotes that one possesses qualities of morality, character, and rank, demonstrated by the possession of wealth. There is a sort of Machiavellian logic to this assumption: a noble is noble because he possesses gold; conversely, one who possesses gold is noble. And yet, an awful viceful person could present his stores of gold as God-given proof of nobility; after all, why would a just god deliver such noble tokens to an ignoble soul? Might makes right. If something is unchanging when everything else changes, it is eternal. It is an element outside or unaffected by time, akin to a platonic ideal, a virtue, or some manifestation of those things which preside eternally outside of the mutability of temporal things: the eternal is the ideal. Gold, then, in its timelessness, indicates that one’s nobility is part and parcel a reflection of some selection of timeless Platonic ideals.

⁶⁸ Illuminated manuscripts, for example: Marc Michael Epstein and Eva Frojmovic, *Skies of Parchment, Seas of Ink: Jewish Illuminated Manuscripts* (Princeton, New Jersey: Princeton University Press, 2015, 2015), pp. 40–46.

⁶⁹ Michael P. Antosh and others, ‘Enhancement of Radiation Effect on Cancer Cells by Gold’, *Proceedings of the National Academy of Sciences*, 112.17 (2015), 5372–76
<<http://dx.doi.org/10.1073/pnas.1501628112>>;

Marissa Fessenden, ‘How Doctors Are Harnessing the Power of Gold to Fight Cancer’, *Smithsonian*, February 2014, <<http://www.smithsonianmag.com/innovation/how-doctors-harnessing-power-gold-fight-cancer-180949436/>>.

⁷⁰ Shannon L. Venable, *Gold: A Cultural Encyclopedia* (Santa Barbara, Calif: ABC-CLIO, 2011), p. 1 <http://nrs.harvard.edu/urn-3:hul.ebook:EBSCO_362889>.

some baser metal, might corrode at the connections.⁷¹ Gold efficiently reflects infrared light, which makes it an excellent tool for deflecting heat and controlling temperature in the radiation filled vacuum of space; in a temperamental universe, gold always keeps its cool. Sheets of it blanket critical components of spacecraft, protecting them from exposure to the extremities of space. It is therefore a crucial element NASA employs to construct its satellites and spaceships.⁷² Its unique combination of chemical stubbornness with physical malleability makes it an invaluable medium for grappling with the challenges of creating technology that can suffer the conditions of space.

Pressed into a record, gold is noble in the sense of being the vehicle through which humankind would make itself known to the universe; it is noble in the etymological sense of being a ‘well-known’ object here on earth; it is noble in the sense of being rare; it is noble in the sense of being utterly apart from the mundane, physically in space, temporally out of time; it is noble in the sense of being the most changeless thing mankind has yet made; it is noble in the sense of representing an ideal, in this case, an effort to convey the very best face of humanity to the cosmos. Certainly, Sagan and his team built the record out of gold because of technical necessity, that is, its chemical stability; but he didn’t anticipate just how fitting the medium and the message are. It is fitting, in a sense Marshall MacLuhan would appreciate, chemically, physically, etymologically, symbolically, and ideally, to its message.

⁷¹ Venable, p. XVIII. The Apollo 1 tragedy, for example, taught NASA the importance of insulation, and never skimping on materials.

⁷² Venable, p. 1.

COSMIC ALCHEMY

In a lecture at Harvard entitled “The Divine,” Marilynne Robinson argued that science has largely moved to secularize its language to obfuscate its embarrassment at its mytho-religious origins. Religion, referring to Christianity, has also abandoned its relation to mythology, that is, “those elements of religion that it holds in common with other religions,” to dress itself up in the authority vested by the trappings of science.⁷³ Carl Sagan, though he did not explicitly connect the Golden Record to alchemy or Vergil, was no stranger to the importance of religion and mythology to science. In nearly every episode of *Cosmos*, he addressed the religious or mythological origins of scientific concepts. Episode 3, “Harmony of the Spheres,” for example, is largely about Johannes Kepler’s struggle to reconcile his religious belief in the Platonic perfection of the heavenly spheres with Tycho Brahe’s data that insisted upon comparably erratic ellipses.⁷⁴ Sagan’s Pulitzer Prize winning book *Dragons of Eden* (1977) is a work marked by his signature method of seamlessly weaving his way between scientific discovery and religious or mythological analogue.⁷⁵ By considering the Golden Record as an object stemming from the esoteric alchemic tradition, I propose an Eliadian reading of the Golden Record suggesting it is alchemy in space.⁷⁶

⁷³ Paraphrased from Marilynne Robinson, “The Divine,” William Belden Noble Lecture at Harvard University, April 4, 2016.

⁷⁴ *Cosmos: A Personal Voyage*, Episode 3, “Harmony of the Spheres,” October 12, 1980 – also the written version of this episode in his book.

⁷⁵ *passim*: Carl Sagan, *The Dragons of Eden: Speculations on the Evolution of Human Intelligence*, 1st ed. (New York: Random House, 1977).

⁷⁶ Mircea Eliade, *The Myth of the Eternal Return: Cosmos and History*, Bollingen Series ; 46, 2nd pbk. ed. (Princeton, NJ: Princeton University Press, 2005).

The alchemic shorthand for gold is simple, just a circle with a dot in the center. *Sol* it is called, or *helios*, the sun sign, ruled by Apollo, god of prophecy and music – the *primum materia*, the noblest metal seemed the material of the sun itself.⁷⁷



Note the coincidence that this ancient glyph looks like the Golden Record itself, seen from above, even with hole for its spindle? Sometimes, moved by calligraphic exuberance, alchemists wrote *sol* with flare:



Uncanny resemblance!—who could deny that pseudomorphic coincidence between glyph, god, and Golden Record? Further, the copper core of the record the element of Venus, goddess of love, ♀. It is almost as if the object itself were an invocation of the Apollo and Venus. Foresight and Love united to form this object which will fly ever further into an infinite future. The Golden Record has a copper heart, as if it were born from some cosmic love, and then the gold of our sun—mother and sun—music, prophesy, and love melded in a cosmic mixtape; a material invocation combining music with the highest ideals of humankind into a gift to the universe.

These symbols all come from alchemy, magical progenitor of chemistry, which took as its core belief the concept of universal correspondences, the idea that the revolutions of the planets and stars above somehow affected or reflected what would occur in the earthy sphere below. Alchemists believed that if a baser metal could be transmuted into a nobler one, so too could the human soul move from fallen state to one of grace. Modern science has long since

⁷⁷ Venable, p. 2.

disillusioned these esoteric beliefs, yet the symbolism remains: this idealized snapshot of humanity is literally elevated to the stars: *musica mundi* to *musica universalis*, thanks to the star shooting power of rocket science. Yet the Golden Record is not a work of scientific research—it holds no scientific merit at all. If the Golden Record can be read as an alchemic attempt to move some idealization of humankind beyond the mundane and into the cosmos, it is reasonable to bring in related alchemic myths, such as the myth of the Golden Bough. I argue that the Golden Record, purportedly made as a message to aliens, attached to an object of science, is imbued with a profound mytho-religious dimension that can be traced back to Vergil.

DISCUS AUREUS: RAMUS AUREUS

The story of the Golden Bough is a Vergilian invention described in Book VI of the *Aeneid*, marking the transition from the Odyssey-structured *nostos* epic to the Iliad-style war epic. Robert A. Brooks called the Golden Bough “one of the most critical and complex events in [the *Aeneid*’s] internal structure.”⁷⁸ I argue here that the parallels between the Golden Bough and the Golden Record are uncanny, extending well beyond their shared materiality—the Golden Bough is the best model for understanding the Golden Record: Vergil’s *katabasis*, the decent into hell, becomes NASA’s *anabasis*, the ascent into the heavens.⁷⁹ Vergil, too, was dealing with future monuments.

⁷⁸ Robert A. Brooks, ‘Discolor Aura. Reflections on the Golden Bough’, *The American Journal of Philology*, 74.3 (1953), 260–80 (p. 276).

⁷⁹ See Chapter 7 of Raymond J. Clark, *Catabasis: Vergil and the Wisdom-Tradition* (Amsterdam: Grüner, 1979).

Vergil tells us how Aeneas and the Trojans land at Cumae, near Naples, following the advice of King Helenus to seek out the wisdom of the oracle.⁸⁰ With her help, Aeneas learns to perform the rituals that will permit him entry into hell itself so that he might consult the shades of the dead and better understand his fated mission to found Rome. The descent, the oracle famously explains, is easy. Anyone can go to hell, it is coming back that is the privilege of very few heroes.⁸¹ To return from hell, one must bring a particular gift: the Golden Bough. Aeneas prays for divine assistance finding the bough, and two doves appear. These are the sacred doves of Venus, his mother, sent by her to show him the way. Once there, he greedily pulls down from the tree and brings back to the oracle. With his golden passport, Aeneas and the oracle descend together into hell and consult the shades who foretell the entire history of Rome. The Bough is described twice, once when Aeneas finds it, and first when the Oracle describes the task:

In a dark forest, there lies
A branch, gold leafed and gold stemmed,
Said to be sacred to the Juno of the Inferno [Persephone]; the whole world
Hides this branch and encloses it in the dark valleys of shades...⁸²

Therefore, look high with your eyes and by divine will, you find it,
Seize it with your hand, for the branch itself will follow willing and easily
If the fates call you; otherwise, with no amount of force,
Or any iron, will you be able to conquer it.⁸³

⁸⁰ Vergil, *Aeneid*, III: 433-62.

⁸¹ Vergil, *Aeneid*, VI:126-9.
facilis descensus Averno
sed revoare gradum superasque evader ad auras
hoc opus, hic labor est.

⁸² *Aeneid*, VI:136-9.
Latet arbore opaca
Aureus et foliis et lento viminie ramus
Iunoni inferae dictus sacer; hunc tegit omnis
Lucus et obscuris claudnt convallibus umbrae

⁸³ *Aeneid*, VI: 146-148.
Ergo alte vestiga oculis et rite repertum
Carpe manu; namque ipse volens facilisque sequitur,
Si te fata vocant; aliter non viribus ullis

Just what is this Bough? The Golden Bough is described as “*aureus et foliis et lento vimine ramus*,” or “a branch golden both in its leaves and in its spry shoot.”⁸⁴ It is delicate, crackling onomatopoeically in the soft winds, “*sic leni crepitabat brattea vento*,” near the gateway to hell, foul-smelling Avernus, “*olentis Avernus*.”⁸⁵ It is secreted away “*latet arbore opaca*,” in a dark forest, so well that the “whole world hides this branch and encloses it with dark valleys of shades.”⁸⁶ It is a thing of metal growing from a thing of wood, an unnatural, divine object somehow growing from a tree—divinity springing from mortality, death growing on life. Robert Brooks calls this phenomenon “life-in-death”—a fitting symbol of the paradoxical position of Aeneas, a living being, passing through the world of the dead. “The bough,” Brooks explains,

becomes a guarantee both of Aeneas’ ability to enter the underworld and his protection while passing through it...As he plucks the bough from the tree, death from life, so he departs from the underworld unharmed life from death.⁸⁷

The Golden Bough is a moral, mythical, and religious object. Not only is it impossible to find if one is not meant to find it, but it is impossible to pluck if one is not destined to pluck it. The medium of gold, as discussed earlier, is important to both these objects; it promotes these objects from the realm of the mundane to the realm of the sacred. A vinyl LP is to the Golden Record what a wooden tree branch is to the Golden Bough. Note the small coincidence that the twin doves “*geminae... columbae*” that lead Aeneas to the branch can be mapped onto the twin

Vincere nec duro poteris convellere ferro.

⁸⁴ *Aeneid*, VI:137.

⁸⁵ A description that rhymes with Fitzgerald’s description of the Valley of Ashes in the [previous chapter](#). *Aeneid*, VI: 209 & 201, respectively.

⁸⁶ *Aeneid*, VI: 136-9. “*hunc tegit omnis lucus et obscuris claudun convallibus umbrae*”

⁸⁷ Robert A. Brooks, p. 271.

Voyagers.⁸⁸ The Golden Bough is hidden by the whole world “omnis,” in a dark valley of shades, “convallibus umbrae,” just like the Golden Record is hidden by the whole universe in the depths of space.⁸⁹ To find the Golden Bough is to find a needle in a haystack, a branch in a forest, a satellite in a cosmos. What, then, would it mean to *retrieve* it?

In the two thousand years of Vergilian hermeneutics and criticism, there have been many answers to this question. This section that follows outlines some of these interpretations and draw parallels between the Golden Bough and the Golden Record. Simply stated: any interpretation of the Golden Bough can be usefully translated to the Golden Record.

Anthony Ossa-Richardson outlines the major readings of the Golden Bough from the fourth century Italian scholar Servius onward.⁹⁰ Servius’ glosses locate the Golden Bough in pagan ritual, connecting it pseudomorphically with the Pythagorean mystical interpretation of the letter Y, representing the fork, or rite of passage, at which a youth chooses to live a life of virtue or vice.⁹¹ The Golden Bough is the symbol of the life lived in pure virtue. It yields only to the moral hero whose pure heart and *pietas* allow him to retrieve it.⁹² Adrian Parvulescu argues further that the Golden Bough is a symbol of peace. Parvulescu notes that readers often overlook the frequency with which Greek and Roman hell is *invaded* by heroes—numerous interlopers wreak all sorts of havoc on the underworld. The Golden Bough is thus a passport, indicating that

⁸⁸ *Aeneid*, VI: 190.

⁸⁹ *Aeneid* VI: 138-139.

⁹⁰ Anthony Ossa-Richardson, ‘From Servius to Frazer: The Golden Bough and Its Transformations’, *International Journal of the Classical Tradition*, 15.3 (2008), 339–68.

⁹¹ Ossa-Richardson, pp. 345–46.

⁹² Adrian Pârdulescu, ‘The Golden Bough, Aeneas’ Piety, and the Suppliant Branch’, *Latomus*, 64.4 (2005), 882–909 (p. 890).

the bearer not only has great piety, but has been destined by the gods to make this trip, and comes not by strength of brute force (as Hercules did), but through the proper avenues, the agreed upon bureaucratic route to hell. The circularity of the relationship between branch and retriever is the same as with the sword in the stone: Arthur is King because he has the moral and divine authority to retrieve Excalibur; conversely, Excalibur yields to Arthur because he is the chosen king; or similarly, Aeneas can retrieve the Golden Bough because he has impeccable *pietas*, and we know he has impeccable *pietas* because he retrieves the Golden Bough. The precedent for the Golden Bough as a symbol of peace, then, is the olive branch. The bearer need only show it to say “we come in peace” and Charon diligently makes way. By extension, the Golden Record is a moral object—to retrieve it an act of *pietas*. The bough’s message of peace, incidentally, is the foremost message on the Golden Record, which is famously inscribed “To the makers of music, all worlds, all times.”⁹³

The 6th century scholar Fulgentius noticed the Golden Bough is Aeneas’ ticket to visions of the future Roman Empire. The Golden Bough represents the hero’s achievement of so much knowledge (*scientia*) and learning (*doctrina*) that one is able to see beyond the fog of the present into the fated future.⁹⁴ More recently, the classics scholar Maud Bodkin reads the Golden Record in these terms, as a key to unlock a vision of the future, an object that allows a hero the visionary epiphany that is seeing the purpose and meaning of his life unraveled into a deep future.⁹⁵ The Golden Bough is thus a mythical, fictional future monument—proleptically

⁹³ Sagan, *Murmurs of Earth*, p. 40.

⁹⁴ Qtd in Ossa-Richardson, pp. 347, 350. “Scientia” = knowledge; “Doctrina” = “learning.”

⁹⁵ “The strange shining bough, awaiting the hand destined to pluck it, seems a natural symbol of that visionary power granted by heaven to those whose eyes ‘piercing in quest’ are to explore the viewless places of earth—the mysteries of life and death” in Maud Bodkin, *Archetypal Patterns in Poetry; Psychological Studies of Imagination*, (London, Oxford University Press, 1934), pp. 133–35.

imagined by Vergil as a symbolic device to tell a complex Roman anti-war epic.⁹⁶ Neither Vergil, nor Sagan are particularly optimistic about these golden visions. Vergil expressly tells us Aeneas returns from Hell through the Gate of Ivory, known as the Gate of False Dreams.⁹⁷ Transferring this interpretation of branch as key-to-the-future from *ramus* to *discus*, Carl Sagan, the creator of the New Bough, plays the role of the Divinity who places the Bough in the forest. Or rather, in the absence of gods to create Golden Boughs to define the goals for heroes, Sagan creates his own goal, his own purpose. But his goal isn't for a single hero—it is a collective golden goal for all human beings. By putting the Bough into space, he aspired to create a defining symbol, a nexus for thoughts of what the cosmic future and purpose of humankind ought to be. Sagan set into motion half of a heroic cycle, establishing a heroic goal, and posing it as a challenge to future generations: the *Discus* or *Ramus Aureus* is Servius' and Pythagoras' 'Y,' the split between the entelechial realization of the Golden Record as either the nihilistic post-apocalyptic cenotaph, or the optimistic challenge to future generations to persevere, against all odds.

An aside: Normally one must die to have access to the answer to the meaning of life. Aeneas, however, is privileged to see it march in front of him in ghostly procession, the whole history of Rome from the creation of the universe to the triumphs and sufferings of Caesar Augustus. Of course, ultimately Aeneas leaves hell through the Gate of False Dreams—when he awakes he doesn't seem to quite remember his dream of the future. Vergil uses this device to suggest an interpretation of Roman history that emphasizes the horrors of war (“*bella horrida bella*,” note: the first two words elide together, fusing the concept of horror and war in a single word), compared to the pleasures of peace (cf. *Georgics*, *Bucolics*). Once the dream is done, he returns his hero Aeneas to a state of not remembering this dream—we get the sense that Aeneas has gained the wisdom of the dream without the particularity of the details of the dream, that is, until the very end of the epic when he very much makes the wrong decision to slaughter the suppliant Turnus. This is not unfitting with the future monument Golden Record encouraging an idealized vision of the future that remains, as always, a dream—the influence of the dream, we hope, nonetheless profits us with some sort of collective wisdom to make conscientious decisions for the future of humankind/Rome.

⁹⁶ For a book length interpretation of this reading of the *Aeneid*, see: Michael C. J. Putnam, *Virgil's Epic Designs: Ekphrasis in the Aeneid* (New Haven: Yale University Press, 1998).

⁹⁷ *Aeneid*, VI: 893-898.

THE GREAT DEMOTIONS

Carl Sagan was an atheist, which is what might make it seem strange he would try to make a mytho-religious object like the Golden Record. His book, *Pale Blue Dot* (1994), outlines much of his cosmological perspective. In chapter 3, “The Great Demotions,” Sagan lists the long history of anthropocentrism that has led to our present moment, the long series of disillusionments that have forced the human species to reckon with the simple fact that it is not the center of the universe. Those demotions are here paraphrased:

1st Demotion: The Earth is the center of the universe. Therefore, human beings are special. [Ptolemaic universe]

2nd Demotion: Even if the Earth isn’t the center, the sun is, so we are still very close to the center of the universe. Therefore, human beings are special. [Copernican / Keplerian]

3rd Demotion: The sun isn’t the center, but the Milky Way is, and our sun is very near that. Therefore, human beings are special. [Galilean]

4th Demotion: There may be hundreds of Galaxies, but ours is the center of them all. Therefore, human beings are special. [Hubble]

5th Demotion: Given there is no center to the universe, then at least no other stars have planets. Therefore, human beings are special.

6th Demotion: Even if other stars have planets, none of them have life. Therefore, human beings are special.

7th Demotion: Further, human beings are different from other animals. Therefore, human beings are special.

8th Demotion: We might be related to animals, but human beings are still special somehow.⁹⁸ [Darwinian]

One aspect of the Golden Record as a future monument is it adds another step to this series of great demotions. The Futurama at the 1939 World’s Fair created the experience of feeling giant and godlike over the landscape of the future, and then shrank the audience back down to human-

⁹⁸ Sagan, *Pale Blue Dot*, Chapter 3. I like to think the Great Demotions could be renamed “A History of Anthropocentric Apologetics.”

size upon exiting the ride. Sagan's Golden Record simultaneously reflects another demotion of human beings, a diminutization of human species when recontextualized on a planetary, or cosmic scale, while also asserting that it is worthwhile to preserve some bit of the memory of human culture to share with some future alien neighbors. Sagan thinks that the collective grasp of this humbling perspective is essential to achieving any sort of ethical relationship with one another here on Earth, as well as the ever-expanding universe. The lesson to take away from Voyager is not *human beings are smart, special, and justly privileged*. The lesson is the opposite. The search for aliens is also a search for further evidence destabilizing any claims on the primacy of human perspective. To make a golden gift for aliens is to presume their existence and imagine a universe from their perspective. If human beings are the only sentient life in the cosmos, that is a type of specialness. But if there are other sentient aliens, then the basis for assuming any primacy of the human system of ethics must be reframed within a much larger context. What Sagan would have audiences of Voyager ponder can summed up in one of Sagan's most famous speeches, the "Pale Blue Dot," a narration introducing one of the most important images in the history of photography ([Fig 5](#)), when Voyager 1, skirting the outward bounds of the solar system, turned its camera back towards Earth, which, from such great heights, appeared as barely more than a fleck of dust:

Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there—on a mote of dust suspended in a sunbeam.

The Earth is a very small stage in a vast cosmic arena... Our posturings, our imagined self-importance, the delusion that we have some privileged position in the Universe, are challenged by this point of pale light. Our planet is a lonely speck in

the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves.⁹⁹

Sagan's primary problem with anthropocentrism is the heart of the "Pale Blue Dot" speech, and it stems back to Protagoras, the father of relativism, who would have us believe that "man is the measure of all things." By extension, Sagan takes issue with all anthropocentric religions, (especially western, Judeo-Christian traditions), that profess a privileged position for humankind in the universe. Sagan's response to Protagoras is the same as Demosthenes': "What a man desires, he imagines to be true"—or rather, man is not the measure of all things, man measures all thing how he desires. This concept is central to the *Aeneid*, where the dual character of gods is deliberately left ambiguous. Every action taken by any character in the *Aeneid* can be read both as effected by the gods, or as a psychological phenomenon. Thus, even in scenes where the name "Venus" might not ever be mentioned, we can still see the presence of Venus via actions, thoughts, or impulses that are Venus-like. Though the gods may be absent in name, they are omnipresent in *numen*, "divinity." Vergil expresses this ambiguity throughout the *Aeneid*, most explicitly in Book IX when the warrior Nisus¹⁰⁰ asks:

*Dine hunc ardorem mentibus addunt,
Euryale, an sua cuique deus fit dira cupido?*

Do the gods not give this fire to our hearts, Euryalus,
or does each man's mad passion become to him a god?¹⁰¹

⁹⁹ One reading of the "Pale Blue Dot" speech is available on YouTube: Carl Sagan, *The Pale Blue Dot* <<https://www.youtube.com/watch?v=kmP4Xzt0rN4&nohtml5=False>>. Sagan also published the speech in *Pale Blue Dot* (1994).

¹⁰⁰ *nisus*, -us m. a pressing or resting upon or against a) a striving, exertion; b) step, flight, push, ascent; c) a giving birth; Virgil is no stranger to etymological puns.

¹⁰¹ *Aeneid* IX: 184-5.

To Sagan, humans are the very gods they want to see in the world.¹⁰² Religion and philosophy, unmoored from the scientific method, are popular because they are a form of wish fulfillment. Sagan wonders:

What do we really want from philosophy and religion? Palliatives? Therapy? Comfort?... Reassuring fables? ... Dismay that the Universe does not conform to our preferences seems childish.¹⁰³

For Sagan, choosing to “believe” in a religion or philosophy versus choosing to “explore” the universe through the scientific method is something akin to Neo’s choice in *The Matrix* between the blue pill and the red pill. Those opting for religion would prefer a collective swallowing of the blue pill. Conversely, “Modern Science” is the red pill, taking us into a “voyage into the unknown, with a lesson in humility waiting at every stop.”¹⁰⁴ For Sagan, the pursuit of knowledge of the universe is the pursuit of self-knowledge. This knowledge is not only hard to stomach, it is the realization that “we have not been given the lead in the cosmic drama”—that if “all the world’s a stage,” we might not even have a role at all.¹⁰⁵

Given that “the gods were disappointingly hard to find,” Sagan proposes we replace religion with scientific humanism—essentially Spinozan awe at natural law and pursuit of greater knowledge of it.¹⁰⁶ It is time to quit clinging to the reassuring fantasy of a universe that, seen from the individual perspective, intuitively seems to be all about the individual, and

¹⁰² In the following chapter, we will see Stewart Brand adopt a [similar motto](#): “We are as gods and have to get good at it.”

¹⁰³ Sagan, *Pale Blue Dot*, p. 46.

¹⁰⁴ Sagan, *Pale Blue Dot*, p. 19.

¹⁰⁵ A sentiment that echoes both Shakespeare’s *As You Like It*, a title reflecting a Protagoras/Demosthenes argument, and the Oracle of Delphi’s motto: *gnothē seauton*, “know thyself.”

¹⁰⁶ Sagan, *Pale Blue Dot*, p. xv.

embrace the exploration of the awe-some hugeness of a cosmos in which, if there is a god at all, such a god “must be even greater than we dreamed.”¹⁰⁷ The other path is the blue pill, the choice to live a blinkered existence and never to try to see the universe as it is, face-to-face. In Sagan’s encomium to knowledge, one hears echoes of Marlowe’s *Faustus*, Milton’s Satan, and Erskine’s “The Moral Obligation to Be Intelligent.” More and more, the reason for creating an object like the Golden Record comes into focus. Sagan is providing an idea of what he thinks it means to live in a universe without a cosmic purpose defined for us by a god. If there is no god to define our meaning and purpose, no “parent to care for us, to forgive us our errors, to save us from our childish mistakes,” then it follows that people must become responsible to ourselves and to each other; after all, “We are the custodians of life’s meaning... If we crave some cosmic purpose, then let us find ourselves a worthy goal.”¹⁰⁸ But what exactly is that goal? Who or what should define that meaning? The Golden Record is his answer. Rather than the myth of a chosen hero working in concord with the gods to retrieve a fateful golden object and see the future (and subsequently found Rome) as Aeneas does, we have Carl Sagan, working in the absence of gods to establish a noble universal goal, a *raison d’etre* to define the purpose of the whole crew of the ship of Earth in a universe in which there seems to be no god or gods at all to establish that purpose.

One could read the Golden Record in comparison to the “Pale Blue Dot” photo as the latest in a series of images reflecting Sagan’s “great demotions,” starting with the Aristotelian geocentric universe, then the Copernican heliocentric universe. Next in this set would be the *Earthrise* photo taken in 1968 ([Fig 6](#)), then the *Blue Marble* ([Fig 7](#)) taken during the Apollo 17

¹⁰⁷ Sagan, *Pale Blue Dot*, p. 50.

¹⁰⁸ Sagan, *Pale Blue Dot*, p. 55.

mission in 1972, which answered a question Stewart Brand had been asking of NASA since 1966: “Why haven’t we seen a photograph of the whole Earth yet?” ([Fig 8](#)).¹⁰⁹ The message of the *Pale Blue Dot* photo takes Brand’s question to the extremes of photographic resolution. Earth is no longer the central focus; it is one, barely visible pixel among many. Any farther away and it would not be visible at all. The difference of twenty years of space exploration encouraged an even more humbling perspective on human values and ambitions in the face the ever-receding, ever-expanding mirror of the universe. Each of these images reframes the scale at which the world is imagined. The whole earth perspective displaces the skyscraper perspective of the World’s Fair. The Pale Blue Dot perspective reframes the whole earth perspective. Finally, the Black Marble image ([Fig 9](#))—the first time Earth had been photographed in its entirety at night—brings the perspective back from the outer limits of the solar system, to a different type of whole earth perspective. The focus of the Black Marble image is not on the beauty of the swirling white clouds, blue seas, and brown deserts, but rather, it serves as a map of resource consumption and economic disparity across the globe.¹¹⁰ Apollo 8 astronaut Bill Anders is oft-quoted on this duality: “We came all this way to explore the Moon, and the most important thing is that we discovered the Earth.” The journey outward into space is always also a journey back to Earth; to imagine alien perspective is necessarily a meditation on human perspective; the discovery of our collective insignificance is also a discovery of our collective importance; the

¹⁰⁹ Book length treatment of this photo: Robert K. Poole’s *Earthrise* (2008); also Robin Kelsey, “Reverse Shot: Earthrise and Blue Marble,” *New Geographies* 4 (2011). Stewart Brand will be the subject of the next chapter on “The Clock of the Long Now.”

¹¹⁰ Nick Axel and International Architectural Exhibition, *Dimensions of Citizenship* (Los Angeles, CA: Inventory Press LLC, 2018), p. 130. The American Pavilion at the 2018 Venice Biennale focused on the economic disparity expressed by the black marble image; “Visitors are shown places in the world with many people and no lights, and those with bright lights and no people, and are suspended between day and night and light and darkness—exposed to the political and social realities of being invisible in plain sight.”

path downward into Hades is always also a path forward into the future, and upward toward apotheosis and immortality.¹¹¹

Sagan would have us pursue knowledge, science, and the exploration of the universe simply for the sake of better knowing our place in it and who we are. Violence—in *all forms*—is anathema to this goal. He echoes Walt Whitman's *Leaves of Grass* and Jonathan Swift's *Gulliver's Travels* when he gives an example of what technology should do: "A blade of grass is commonplace on Earth; it would be a miracle on Mars."¹¹² Most of all, Sagan would have us build technologies that extend "human sense into far-off worlds." Sagan saw the *Voyager* missions as the ultimate example of this human-wide effort to remove the scales from our eyes. Regarding the Voyagers, he described them nobly:

Seeking not to control, threaten, wound, or destroy, these elegant machines represent the exploratory part of our nature set free to roam the Solar System and beyond... In their exploratory intent, in the lofty ambition of their objectives, in their utter lack of intent to do harm, and in the brilliance of their design and performance, these robots speak eloquently for us.¹¹³

It is their "essential harmlessness" that makes the Voyagers the epitome of the human ideal that Sagan would have us strive for. This sentiment recalls the farmer in Robert Frost's "The Star-Splitter," who, like Cincinnatus giving up the sword in favor of the scythe, sells his farm and uses the money to buy a telescope. He is even more radical than Cincinnatus. Frost's farmer

¹¹¹ Qtd in Rory Kennedy and Mark Bailey, 'Opinion | Looking Earthward From Space', *The New York Times*, 3 October 2018, section Opinion <<https://www.nytimes.com/2018/10/03/opinion/nasa-climate-change-earth-space.html>> [accessed 6 January 2019].

¹¹² Sagan, *Pale Blue Dot*, p. 284. Swift's line is "Whoever makes two ears of corn, or two blades of grass to grow where only one grew before, deserves better of mankind, and does more essential service to his country than the whole race of politicians put together." See: Jonathan Swift, *Gulliver's Travels: Based on the 1726 Text : Contexts, Criticism*, A Norton Critical Edition, 1st ed. (New York: Norton, 2002), Chapter 7.

¹¹³ Sagan, *Pale Blue Dot*, p. 125.

trades sowing fields for reaping stars. The farmer describes his telescope with the wisdom of Sagan:

...there isn't anything
More blameless in the sense of being less
A weapon in our human fight," he said.¹¹⁴

Sagan's "worthy goal" on which humankind ought to set its sights is the lofty goal of knowing the stars.¹¹⁵ For Sagan, the purpose of humankind will ultimately be determined by what role we choose to play in the universe, or what metaphor we imagine our lives as operating under. Wonderfully, or perhaps terrifyingly, we have the responsibility of choosing that metaphor for ourselves.

Sagan, a great admirer of mythology, recognized that a hero without a quest is no hero at all. He placed, as a god would, a divine branch for someone to retrieve—an alien maybe. And he hid that golden branch in the shadowy forests of space, so far-flung it would long elude any but the worthiest of heroes. It would require an intelligence of tremendous genius, time, and knowhow to coax the Golden Record down from its remote spot.

Imagined as an analogue of the Golden Bough, the Golden Record reflects on humanity: to retrieve the Golden Record would be an unprecedented technological feat. It would mean the apocalypse of the Anthropocene had been delayed long enough that some level of harmonious cooperation had allowed for the development of space technology capable of leaving the solar system, finding a distant speck of satellite, a golden needle in a haystack, grasping it, diverting it from its trajectory, and returning it home. Interpreted as Servius would, the Golden Record

¹¹⁴ "The Star-Splitter" in Robert Frost, *North of Boston: Poems* (New York: Dodd, Mead, 1977).

¹¹⁵ Vergil might qualify Sagan's sentiment. One of his characters, Palinurus, overcome gazing into the heavens, falls off the back of the ship and into the depths of the sea. Looking up at the stars, Vergil might warn his readers, is risky if one does it at the expense of one's duty.

becomes the symbol of the human species coming of age and choosing a path of virtue. Seen from the perspective of Fulgentius, then, the retrieval of the Golden Record would mean the development of technology and knowledge (*scientia*) balanced with wisdom (*doctrina*) to the point that humanity becomes collectively heroized, meriting the answers to the cosmos, seeing into the future. The very act of retrieving the Golden Record, just as the Golden Bough, proves the merit of the retriever.

CONCLUSIONS: FOR THE NOW

The Golden Record remains fast in the public imagination. This is part of its effectiveness as a future monument. Musicians have made concept albums from it from it, including a hipster reboot *The Space Project* (2014), and SETI-X's *Scrambles of Earth* an album that entertains a hypothetical remixed Golden Record sent *back* to Earth by aliens.¹¹⁶ A medley of movies riffed on the Golden Record.¹¹⁷ A recent documentary on Voyager, *The Farthest* (2017), won an Emmy for “outstanding science documentary.”¹¹⁸ As early as 1978, Sagan considered the possibility of making a commercially available to the public.¹¹⁹ This idea went dormant until a recent *Kickstarter* campaign took up the challenge of raising money to reprint a 4-LP boxed

¹¹⁶ Other songs include a myriad of pieces named after Carl Sagan. For example, Jenny Lewis' song “Voyagers,” as well as an eponymous album by the Norwegian band *Dagsrevyen*. *Scrambles of Earth* is available here: <<https://earthscramble.com/>>; *The Space Project* here: <<https://www.discogs.com/Various-The-Space-Project/release/5610149>>

¹¹⁷ Such as: *Star Trek: Voyager* (1995-2001); *Star Trek: The Motion Picture* (1979); *Star Trek IV: The Voyage Home* (1986); *Koyaanisqatsi* (1982); *Contact* (1997); *Starman* (1984); *The West Wing*, “The Warfare of Genghis Khan” (2004).

¹¹⁸ Deirdre Falvey, ‘Irish Film “The Farthest” Wins Emmy for Outstanding Science Documentary’, *The Irish Times* <<https://www.irishtimes.com/culture/film/irish-film-the-farthest-wins-emmy-for-outstanding-science-documentary-1.3649255>> [accessed 7 March 2019].

¹¹⁹ ‘For Future Time and Beings’, p. 44.

set. Their goal was to raise \$198,000. They raised nearly \$1.4 million.¹²⁰ And then it won a Grammy.¹²¹ Many have posited what would be on today's Golden Record—a thought experiment Carl Sagan anticipated.¹²² The poet Anthony Michael Morena proposed a number of his own revisions to correct the many omissions on the Golden Record in a book of poetry he wrote after a long, concerted meditation on the object.¹²³ His suggestions include: Tibetan throat singing, hip hop, a Mongolian Long Song, *The Rolling Stones* (“Satisfaction”), Fela Kuti, Norwegian black metal; Mos Eisley’s Cantina Band (from *Star Wars*), a *Girl Talk* mashup, Philip Glass, any sort of representative music from the Middle East.¹²⁴ What would you put on your own alien playlist? For the now, the Golden Record is just that: a creative writing prompt, a concept album, a literalized thought experiment that asks its audience to reflect on its place in the universe. It is a monument to the future, a vehicle for carrying our thoughts to the limits of temporal possibility. It is our best bid at immortality yet.

“A billion years. Think about that.”¹²⁵

~ ~ ~

¹²⁰ ‘Voyager Golden Record: 40th Anniversary Edition’, *Kickstarter* <<https://www.kickstarter.com/projects/ozmarecords/voyager-golden-record-40th-anniversary-edition>> [accessed 31 October 2016].

¹²¹ ‘60th Annual GRAMMY Awards’, *GRAMMY.com*, 2017 <<https://www.grammy.com/grammys/awards/60th-annual-grammy-awards>> [accessed 28 February 2018]; Calla Cofield January 31 and 2018 Entertainment, ‘Reprint of NASA’s Golden Record Takes Home a Grammy’, *Space.com* <<https://www.space.com/39549-voyager-golden-record-reprint-wins-grammy.html>> [accessed 7 March 2019].

¹²² ‘For Future Times and Beings’, p. 44.

¹²³ Morena is one of many poets to write about the Golden Record. Another is Srikanth Reddy, *Voyager* (University of California Press, 2011).

¹²⁴ Morena, p. 48; 59; 62; 71; 80; 81; 85; 89; 99; 102; 104; 111; 114; 120; 134; 142.

¹²⁵ Morena, p. 45.

Sagan isn't alone in his temporally expanded imagination. In California, environmental scientists, writers, and thinkers inspired by Sagan's cosmic temporalities conceived of a Goldilock's time frame—not too big so as to be incomprehensible, like the temporality of the cosmos, nor too small, so as to be myopic, like the temporality of a human life. Brian Eno called this timeframe “The Long Now,” and it exists somewhere around the boundary between human time and geologic time, ten thousand years or so. It is a response to the Anthropocene, and a recognition that human beings have long been a geologic force on the planet. In part to raise environmental awareness, and in part monumentalize themselves, this group of men constructed a colossal clock, aptly branded “The Clock of the Long Now,” to inspire a temporal ethic lasting an interval of ten thousand years: what decisions should human beings prioritize, or avoid entirely, when considering the ramifications of those decisions ten thousand years into the future? Understanding this clock is the subject of the following chapter.

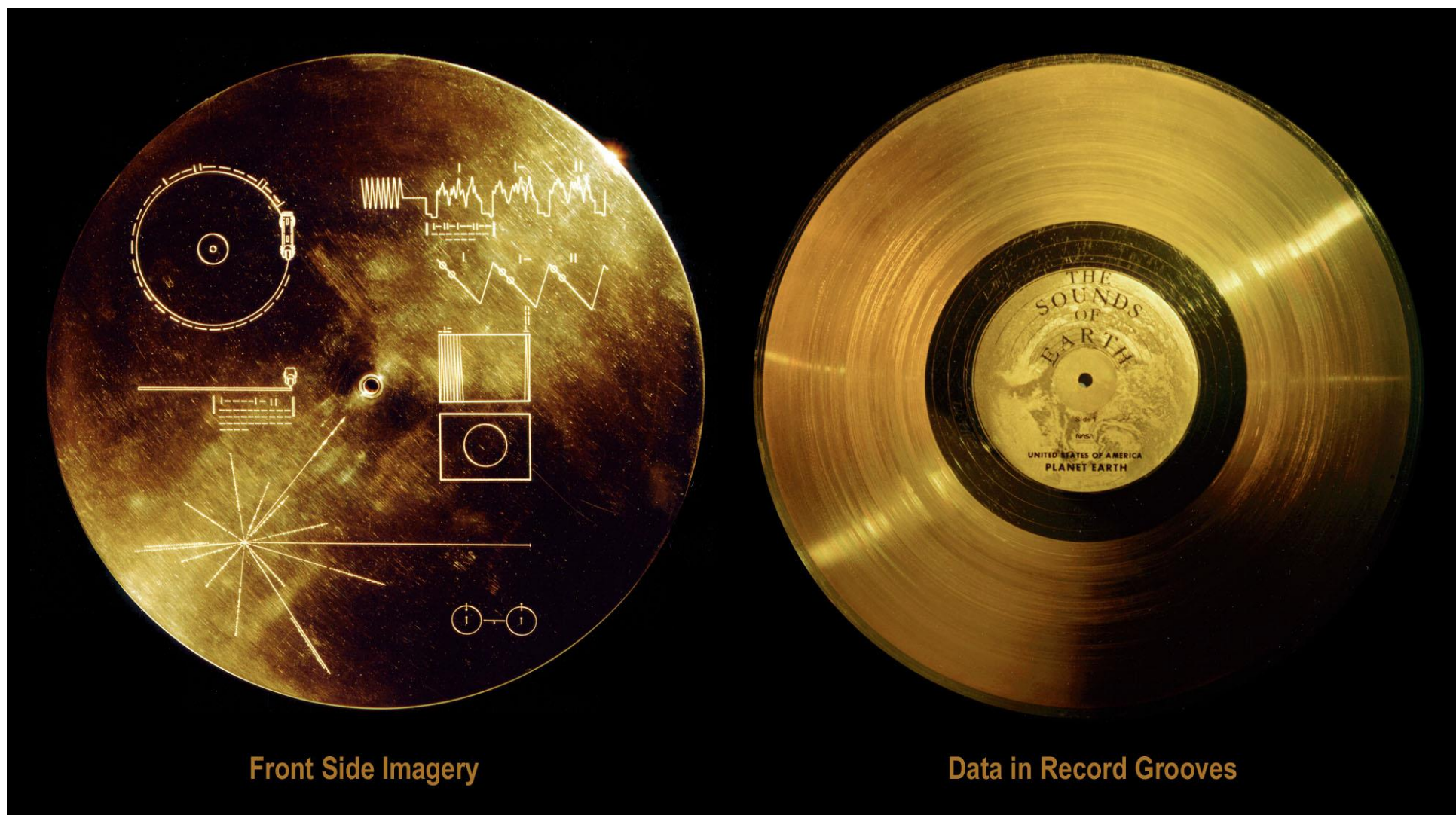


Fig 2 – The Golden Record. ([back to page](#))

Fig 5 - *Pale Blue Dot*. Earth is barely visible dot in the orange beam. ([back to page](#))



Fig 6 – *Earthrise*. ([back to page](#))



Fig 7 – *The Blue Marble*. ([back to page](#))



Fig 8 – Stewart Brand's pin. ([back to text](#))

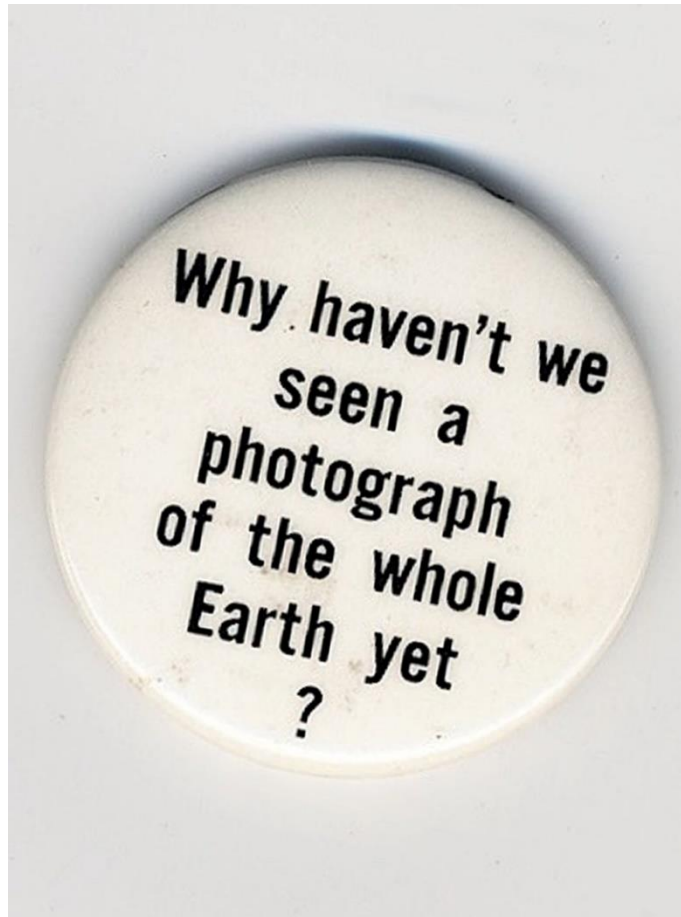
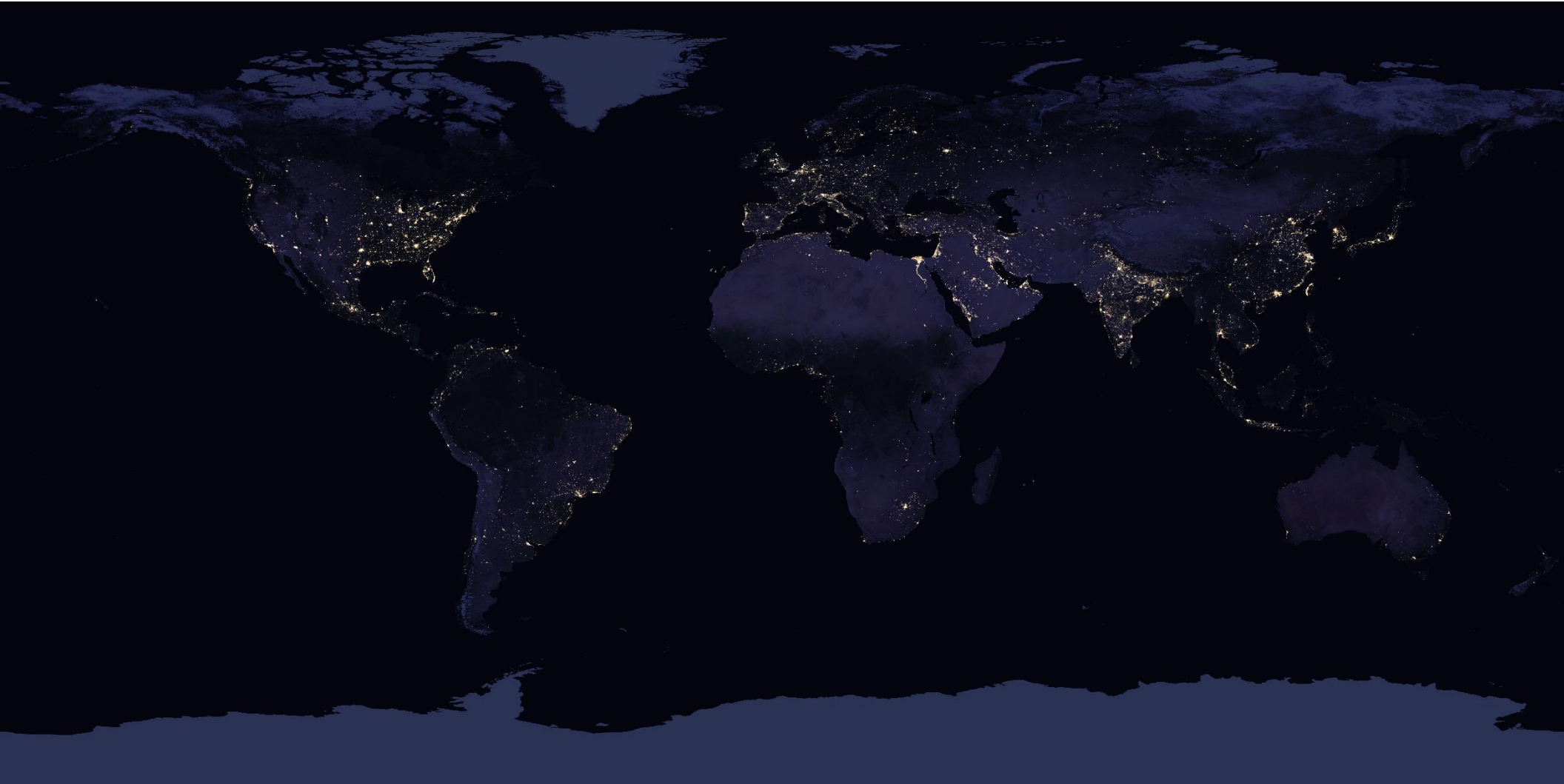


Fig 9 – The Black Marble. ([back to text](#))



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CHAPTER 4: THE CLOCK OF THE LONG NOW

*“So the future, which does not exist, is not a long period of time. A long future is a long expectation of the future. And the past, which has no existence, is not a long period of time. A long past is a long memory of the past.”*¹

—Augustine of Hippo

“The Clock ticked.”²

A man wakes up inside a colossal grandfather clock. He does not recall when he got there, but he knows that, for as long as he remembers—his entire life—he has been taking care of this clock, oiling its innards, adjusting its cogs, assuring its perpetual motion into perpetuity. Today, the day described in Langdon Jones’ science fiction short story “The Great Clock,” will be his last day on the job.³

Although the Clock is essentially a giant grandfather clock, it is also inscrutable, unknowable. It contains a labyrinth of spinning wheels, grinding together like gears of Henry Billing’s *Mobile Mural* ([link](#)), which Jones describes as “a mass of wheels, thousands upon thousands, interlocking in frightening complexity... Once, he had wondered whether he saw all the wheels or whether in fact there were many more, many more stretching away upward and

¹ Saint Augustine, *Confessions*, World’s Classics (Oxford; New York: Oxford University Press, 1991), p. 233.

² Langdon Jones, ‘The Great Clock’, *New Worlds Quarterly*, 160 (1966).

³ Langdon Jones surely owes something to “The Machine Stops” by E.M. Forster, *The Oxford and Cambridge Review*. (London: Archibald Constable & Co, 1909), and perhaps also to the overall apocalyptic “Last Day” subgenre of science fiction that describe a-thing-that-has-been-happening-for-a-very-long-time-suddenly-stops-happening, such as Ray Bradbury’s “There Will Come Soft Rains” in *The Martian Chronicles*, [1st ed.] (Garden City, New York: Doubleday & Company, Inc, 1950).

downward."⁴ Comprehending the clock is a little bit like staring into the into infinity created by two mirrors reflecting one another. From within, the clock is like the Plato's allegory of the cave, casting an inscrutable "shadow of wheels which formed an abstract pattern."

The Clock must be protected from the effects of entropy. Yet time is entropy. Within the clock, the one thing it does has no relevance to its own existence, has no reference. It is time measured against a blank ruler—no stars, no suns, no cycles, no nothing. Outside of the clock, we might suppose it is the absolute center of time, the Archimedean point from which all other temporalities can be compared. Every time it ticks, another second is tacked onto the present, allowing for more future. The Great Clock guarantees the continuance of the future for as long as the Great Clock keeps ticking and is protected from the entropic effects of the very thing it measures.

Narrativity is also bound to the clock. The line, "The Clock ticked," is repeated more than twenty-four times throughout Jones' short story and comes to symbolize both the monotony and inevitability of the onslaught of time, with all the perseverating horror of Edgar Allan Poe's "The Tell-Tale Heart."⁵ It is the phrase that links all the paragraphs in the story to one another. The Clock, which generates time, adds second after second to the present, but also line after line. It generates the story, with each repetition of the refrain "The Clock ticked" adding another paragraph. Thus, without the human element to maintain the clock, or a reader to read the story, both story and clock collapse. When the clock stops ticking, so too does the story. Both time and meaning come to an end.

⁴ See "The Futurama" section in Chapter 2.

⁵ Edgar Allan Poe, "The Tell-Tale Heart," *The Pioneer*, Vol. I, No. I (Drew and Scammell, Philadelphia, PA: January 1843).

Our protagonist is never named and has no companions. His boss is a smaller clock within the greater clock, a clock-within-a-clock, which tells him when it is time to go about his maintenance work. For him, time isn't measured in hours, but in the steady march of chores he must attend to. The clocktender eats his "breakfast" though there is little reason for him to call it breakfast. Not only does time not proceed for him in any normative fashion that would suggest any need for the cultural construct known as "breakfast," "lunch," and "dinner," but the food, which is a "completely tasteless" "white mash" "poured out" from a faucet like so much hamster kibble, recalls what Neo and the crew aboard the *Nebuchadnezzar* eat in *The Matrix*.⁶ Our hero is not Tantalus, reaching for grapes, or stooping for wine, nor is he Prometheus lashed to a mountain—our hero is Sisyphus, rolling a boulder up a mountain only to watch it roll down again.

He once wonders if there is a tiny man who lives in the clock-within-the-clock, tending to its wheels, pendulum, and escapement. There is a recursion of clocks in this story, a clock within a clock within a clock within a clock, and his question is a philosophical one: is there a fundamental frame from which to compare all time? Where is the first wheel, the source of movement for all the other wheels? Is there a first clock, a prime clock, from which all other clocks are set? And if yes, then who tends to that clock, and what clock does that clocktender use to schedule the maintenance necessary to keep that clock in time? It is "Turtles all the way down," as the expression of infinite regression goes.

Though he works within the clock, he does not know how the clock works, or who is without. Nor does he have any conception of what the clock measures, or whom it measures it

⁶ A clip of the scene is available [here](#). *The Matrix*. Dir. Andy Wachowski and Larry Wachowski. Warner Bros. Pictures, 1999. DVD.

for. He has never taken notice of this, nor questioned any of it. Time without differentiation is sameness.⁷ Thinking makes him bad at working. And yet he frequently approaches the precipice of ego-forming self-reflective existential questions, questions that threaten him with a fierce confrontation with the abyss—the question is: *WHY?* And since there has been nothing but sameness and absolute regularity for our Sisyphean hero, he has never had a second thought about any of it until today.⁸ He has lost his identity entirely in his work, unaware of life or death, unconcerned with the corner piled up with bodies of the clockminders who came before him, in varying states of decomposition.⁹ Time slowly digests his body as surely as it does the decomposing clockminders in the corner, as surely as Goya's *Saturn Devouring His Son*.¹⁰ On this day, however, our protagonist will have his fall from ignorance, which is a literal fall. He

⁷ The Ancient Greeks differentiated between counted time (*chronos*/χρόνος) and lived time (*kairos*/καιρός). The former indicates the objective, continuous, irreversible, accumulation of time, usually demarcated by a number that increases at some regular interval, which occurs regardless of human perception. The latter indicates subjective experiential time, or meaningful time, which must necessarily be experienced from the human perspective. Our protagonist tends to a clock that measures *chronos*, but he himself experiences neither *chronos* nor *kairos*.

⁸“One must imagine Sisyphus happy,” argues Albert Camus in 1942 essay “The Myth of Sisyphus.” Our protagonist, however, is not the heroic Sisyphus Camus imagines in his existential reading of the Greek myth. Rather, our protagonist is precisely the opposite. He finds neither identity nor meaning in his repetition. He is without agency. Amelia Groom describes the tragedy of Sisyphus, and by extension our protagonist, as the condition of a [slinky on treadmill](#): “condemned to eternal redundancy, where he can never be done with what he has nevertheless already finished.” What could be a more depressing metaphor for the human condition than the Sisyphean treadmill? Always running, yet going nowhere, “proceeding without progressing,” never done with what has already been finished, a step-on-step “perpetual repetition of dissatisfaction.” Amelia Groom, ‘Sisyphus’, in *Reality Considerations (for the sake of)*, ed. Eleanor Ivory Weber (Sydney: 55 Sydenham Road, 2012) 12-15.

⁹ This scene evokes Charlie Chaplin's *Modern Times*, in which the hapless Chaplin takes up a meaningless job tightening screws at a factory and finds himself slowly turned into an automaton until he is sucked into and eaten by the very machine he is meant to serve. Jones' scene also recalls *Moon* (2009), in which a lonely astronaut prepares to come to the end of his three-year stint mining resources on the moon, only to slowly realize that he is a clone, genetically engineered to die off every three years and be replaced with himself. Duncan Jones, *Moon*, 2009.

¹⁰ Francisco Goya, *Saturn Devouring His Son*, 1819-23, Museo del Prado, Madrid.

hits his head and is knocked to his senses. He sees, for the first time, everything around him with “eyes unclouded by time.”¹¹ He realizes with horror that entropy has taken a toll on his body, that he has suddenly time-traveled into the body of an old man, that all the while he has been reversing the effects of entropy on this clock, nothing has been reversing its effects on him.¹² For the first time ever, he is not physically able to complete the duties allotted to him by the clock-within-the-clock. The moment he understands time is followed quickly by the moment he realizes he is out of time and can longer fulfill his responsibilities. A euphoria seizes him...

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*Tick.*

Tock.

*Tick.*

An interval is the space between those words. Whether it takes your eyes a split second to traverse that interval, or a whole hour, a clock is anything that regularly measures that interval. Any measurement of an interval, of a duration, is called time, a concept which has defied non-

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<sup>11</sup> Jones is playing with several tropes here. One is, of course, the reference to the *lapsus* of Genesis or “fall” of Adam and Eve from a state of grace after eating from the Tree of Knowledge of Good and Evil. Before then, Adam and Eve wandered the garden in an atemporal state of unthinking bliss; Jones provides us the dystopian equivalent. But the reference to 1 Corinthians 13:12 of “seeing with eyes unclouded by time” or “seeing face to face” as a description of his moment of epiphany, awakening, and cognitive estrangement from this nightmarish landscape that had been so familiar, brings the reader into a confrontation with terror of being trapped in something horrible, yet being totally unable to perceive it. It takes a literal thump to the head, much like Twain’s protagonist Hank in *A Connecticut Yankee in King Arthur’s Court*, to knock our protagonist back into time.

<sup>12</sup> One might compare our protagonist to Rip Van Winkle (based on *The Golden Legend* “Tale of the Seven Sleepers”), who falls asleep for twenty years only to find the American Revolution has occurred during his absence. Our protagonist’s position is even more bleak: he is like a Rip Van Winkle who wakes up to find that the only thing different is the length of his beard. He wakes up to find out that nothing has changed at all, nor has anything changed ever. Washington Irving, *The Sketch Book of Geoffrey Crayon, Gent. No. 1*, 2 vols., C. S. Van Winkle, 1819.

circular definition for millennia. Time: it's that thing the keeps everything from happening at once.<sup>13</sup>

A pendulum, such as the torture device in Edgar Allan Poe's short story, measures time by demarking the regular arch of its swing, which is the interval. Time is measured by the amount of it necessary for the pendulum to traverse the distance of the arch.<sup>14</sup>

A grandfather clock, such as the one in Langdon Jones' story, converts the potential energy of a heavy weight into kinetic energy, regulated by gears, which puts a pendulum into finely tuned motion, the arch of which is the interval. Depending on the many possible ways it is constructed, a grandfather clock is accurate within a minute, and needs to be wound once a week or so to reset the potential energy of the weights.<sup>15</sup>

A quartz watch measures the vibrations of a bit of quartz crystal shaped into a tiny tuning fork, laser-trimmed to vibrate at a frequency of  $2^{15}$  oscillations per second when hooked up to a

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<sup>13</sup> The reverse-definition stated here, that time "is what keeps everything from happening at once," has been attributed to the physicist John Wheeler, the children's book author Madeleine L'Engle, but the earliest source for it is science fiction author Ray Cummings, *The Girl in the Golden Atom* (London: Methuen, 1922), p. 34.

<sup>14</sup> Edgar Allan Poe, "The Pit and the Pendulum," in *The Gift: A Christmas and New Year's Present for 1843*, (Cary & Hart, Philadelphia, PA, 1842). The goal of the Clock of the Long Now is to *keep* ticking, thus attesting to the continued survival of the human species. Poe's pendulum does the opposite, slowly descending upon the protagonist, prolonging his death by the torture of anticipating his slow, eventual bisection.

<sup>15</sup> Ernest L. Edwardes, *The Grandfather Clock; an Archæological and Descriptive Essay on the Long-Case Clock*. (Altrincham: J Sherratt, 1949);

Ernest L. Edwardes, *Weight-Driven Chamber Clocks of the Middle Ages and Renaissance*, Edwardes, Ernest L. *Old Weight-Driven Chamber Clocks, 1350-1850* ; v. 1 (Altrincham: J Sherratt, 1965).

battery.<sup>16</sup> One could say that, in a quartz crystal watch, every second contains 32,768 crystal seconds.<sup>17</sup>

An atomic clock, such as the one at the National Institute of Standards and Technology, measures the transition between two hyperfine levels of caesium-133.<sup>18</sup> There are precisely 9,192,631,770 caesium-133 intervals within every second. Barring some outside disturbance, this clock will remain accurate within a second for three hundred million years.<sup>19</sup>

The “Interval” is also the name of a “café-bar-museum-venue space” in San Francisco.<sup>20</sup> It serves as the headquarters of the Long Now Foundation, where time is measured by the duration of a glass of wine.<sup>21</sup> The Interval is the nexus of planning for a different sort of clock, one that sounds a bit like Langdon Jones’ clock. It is the brainchild of Stewart Brand, Danny Hillis, and Brian Eno, the flagship project of the Foundation. Unlike the quartz watch, or the atomic clock, which pack ever more seconds into each tick, this clock does the inverse, packing years into each tock. In effect, the goal of the Clock is to increase the amount of time available

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<sup>16</sup> This is known as the piezoelectric effect, which describes the property of certain types of crystals to translate mechanical force into electric force, and vice versa. In a nutshell, electricity makes quartz crystals vibrate, and if you shape the crystal into a tuning fork, it will behave like one, and vibrate very regularly, in the case of quartz watches, at  $C_{11}$  (32,768 hertz) or one octave above what human beings can hear. Michael A. Lombardi, ‘The Accuracy and Stability of Quartz Watches’, *NIST*, 2008 <<https://www.nist.gov/publications/accuracy-and-stability-quartz-watches>>.

<sup>17</sup> Michael A. Lombardi, ‘The Evolution of Time Measurement, Part 2 - Quartz Clocks’, *NIST*, 2011 <<https://www.nist.gov/publications/evolution-time-measurement-part-2-quartz-clocks>>.

<sup>18</sup> Geoff Brumfiel, ‘New Clock May End Time As We Know It’, *NPR.org* <<http://www.npr.org/2014/11/03/361069820/new-clock-may-end-time-as-we-know-it>>.

<sup>19</sup> ‘The Clock That Won’t Lose Time for 300 Million Years.’, *Lapham’s Quarterly* <<http://www.laphamsquarterly.org/time/miscellany/clock-wont-lose-time-300-million-years>>.

<sup>20</sup> “Café-bar-museum-venue space” seems a little wordy, but it’s how they describe it on their website. <<http://theinterval.org/>>.

<sup>21</sup> Not unlike J. Alfred Prufrock, who “measured out [his] life with coffee spoons.” T.S. Eliot, “The Love Song of J. Alfred Prufrock,” 1920.

to human beings by slowing down time. It is called “The Clock of the Long Now,” and its ambitious goal is to encourage a temporal-environmental ethics of long-term thinking.<sup>22</sup> They do not mean “long” in a merely generational, centennial, or millennial sense, but for the radically expanded interval of a full ten thousand years. What sort of decisions would one individually, or collectively as a community, society, nation, species, and planet, choose to make, or not make, if seriously considering the ramifications of those decisions ten thousand years into the future? Or, as Eno describes this temporal mindset:

More and more I find I want to be living in a Big Here and a Long Now...The trick is learning how to treat the last ten thousand years as if it were last week, and the next ten thousand years as if it were next.<sup>23</sup>

In so many ways, the idea of a ten-thousand-year ethic is a welcome one. It is a tremendously hopeful thought to imagine the earth so far into the future, to apply glacial thinking to social, political, environmental, and economic policy, to consider how such a zoomed-out perspective might re-weight one’s entire pendulum of values. It is a pleasing thought experiment in the way that the clock pulls us out of more familiar time cycles, the routine nine-to-five workday, the march of the days of the week, the monthly seasonal shift, the yearly checkups and tax filings, the four-year presidential term, the lifelong supreme court nominations—sufficiently zoomed out, as the clock asks us to do, we are put into a temporal space so large that what remains visible at such temporal heights reflects the accomplishments of human beings as a whole. It asks us to think like beings who live for expanses of time far exceeding the seventy-some years allotted to the average human lifespan, to consider, as Bruce Sterling does in *Holy Fire*, how society might change if people were to live long enough to see and experience the ramifications of their

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<sup>22</sup> From here on, any time I write “Clock” as a proper noun, I mean it to refer to the Clock of the Long Now.

<sup>23</sup> Qtd in Brand, *The Clock of the Long Now*, p. 28.

decisions, and not simply abdicate responsibility with the convenient excuse of death.<sup>24</sup> For Jones' clockminder who "had watched the twenty-foot Great Wheel very carefully for long periods, and had never seen it move a fraction of an inch," the Great Wheel represents what Timothy Morton calls a *hyperobject*—anything too big physically or too slow temporally to be perceived in human time (such as Global Warming, plate tectonics, or fingernail growth), yet nonetheless has a clear effect on human beings at larger scales.<sup>25</sup> The Clock of the Long Now asks us to think on a temporal scale that makes the movement of the Great Wheel visible, or the effects of Global Warming—clearly visible when viewed from the scope of a century, yet difficult to perceive from the vantage of day-to-day experience—real. Conversely, the nineteenth century German biologist Karl Ernst von Baer took this idea in the opposite direction, imagining what it would be like if human lifespans were far shorter, or rather, what it would be like if we lived inside of a quartz watch:

Imagine living a thousandth of the average human life span—that is to say, about 29 days—while our metabolic rate is sped up accordingly (80 years = ca. 29,200 days). In other words, imagine that the number of heartbeats over a human lifetime remains the same, but are now squeezed into a thousandth of the timespan, and the number of individual perceptions between two heartbeats also stays constant—somewhere between 6 and 10. While the conditions are imaginary and to a certain extent arbitrary, de Baer assured us, equivalent conditions can loosely be found in the insect world. Objects that move too fast for our normal perceptions, such as a bullet, would suddenly fall squarely within our experiential world. And the majority of sounds would suddenly appear very low, oscillating into our hyper-sensitive ears as if they were a mere thousandth of their normal vibration rate. Most importantly, the frame of our observation would shift radically: sun and moon would stay in the sky for long periods of time, and seasonal change would be so slow as to be imperceptible. As

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<sup>24</sup> Bruce Sterling, *Holy Fire: A Novel*, Bantam Spectra Book (New York: Bantam Books, 1996). In this novel, Sterling imagines a future where medicine has vastly expanded the average human lifespan, and how such a change would affect human ethics and structure of society.

<sup>25</sup> Morton, *Hyperobjects*. When the effect is negative, a hyperobject is the source of what Rob Nixon calls *slow violence*. Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, Mass.: Harvard University Press, 2011).

this short lifespan does not quite cover a lunar cycle, we would not observe any regularity in waxing and waning patterns.<sup>26</sup>

Clocks such as these are experiments in the elongation and contraction of time, which are two sides of the same coin. Similarly, the it-narrative animation *Das Rad* imagines what it would be like for two piles of rocks to have a conversation across millennia, observing in rock-time the sprouting of trees, the flickering of human settlements, and wondering how on earth those strange buildings are erecting themselves.<sup>27</sup> The humor of this short film is founded on the disjuncture between geologic vs human temporality. The two rocks carry on a casual, centuries-long conversation, struggling to comprehend the temporality of the ephemeral human society that develops in the valley below them. Ultimately, the humans develop a colossal, *Blade Runner*-esque city, which flickers before the rocks for an instant, before it is leveled by some sort of catastrophe. The rocks, relieved at their luck of not being swept up in the flood of civilization, return to their primary concern of keeping themselves clean of lichen.

Rock-time and human-time meet in the music video “The Box” from the electronica band *Orbital*. In it, a very slow-moving stop motion Tilda Swinton somberly regards a world that moves rapidly all around her. For her, human speed is very fast indeed, roads are nearly impossible to navigate because of the endless stream of cars flying by, and much of what flickers across the screen is practically invisible. What can be perceived depends on the temporal

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<sup>26</sup> Qtd paraphrase from Alexander Rehding, *Beethoven's Symphony No. 9*, Oxford Keynotes (New York, NY: Oxford University Press, 2018), pp. 117–20. Rehding translates from the original German: Karl Ernst von Baer, *Welche Auffassung der lebenden Natur ist die richtige?: und Wie ist diese Auffassung auf die Entomologie anzuwenden?* (1860) Reprint in Axel Vollmar, ed., *Zeitkritische Medien* (Berlin: Kadmos, 2009) pp. 45–60.

<sup>27</sup> Filmakademie Baden-Württemberg GmbH, *Das Rad (Animation)*, 2013 <<https://www.youtube.com/watch?v=HOPwXNFU7oU>>.

perspective of the perceiver.<sup>28</sup> Time, slowed down, or sped up, makes some things visible and others invisible.<sup>29</sup> The Clock is a literalization of the temporal metaphors of Baer, *Das Rad*, *Orbital*, and *Holy Fire*. But it is also a thought experiment that becomes remarkably problematic when moved from the laboratory of the thought-experiment into a remote colossal mountain cave in Nevada, manifested as a hundred foot monument to future-thinking.<sup>30</sup> At this point, the question of the ethics of the imaginary time-bending clock butts up against the means of its creation and impels consideration of whether the lessons learned from the idea of a clock are antithetical to the clock-made-real. Here the category of Future Monumentality becomes in part an exploration of the boundary blurred when science fiction becomes science fact.

### CLOCK AS FUTURE MONUMENT

The Clock of the Long Now is a future monument that responds to the growing threats of Global Warming, nuclear catastrophe, and the anxieties of the Anthropocene. It is built expressly to impel audiences to think of the future, the deep future, with an eye for the teleological purpose of human beings as a species. And, like the other future monuments I discuss in this research, it is monument built by white male technocrats whose personal legacies are bound to the monuments they make. Although future monuments ask audiences collectively

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<sup>28</sup> When art critic John Berger claimed “perspective makes the eye the center of the visible world,” he wasn’t accounting for time. We might amend his statement: “*temporal* perspective makes the *individual* the center of the physical world.” The goal of the Clock is to compel its audience to imagine other temporal perspectives. John Berger *Ways of Seeing*, Episode 1, *BBC*, 1972.

<sup>29</sup> Mario Lopez, *Orbital - The Box - HQ*, 2012  
<[https://www.youtube.com/watch?v=P5\\_G8exuIRc](https://www.youtube.com/watch?v=P5_G8exuIRc)>. Timothy Morton pointed me towards *Das Rad* and *Orbital* in *Dark Ecology* (2016).

<sup>30</sup> It’s unclear how tall the finished clock will be, but they will be big. The cave they drilled was 500 feet deep, so it very well could be 499 feet tall.



to remember the future, they nonetheless maintain the quality of the regular monument that asks future audiences to remember whoever created them. Finally, all three of these Future Monuments are bound up in an implicit and often explicit set of utopian political assumptions about what the future ought to look like, and who is, and is not included in that future.

Just what is this clock, and can we square the ethics of “long now” thinking with the values of, for example, Jeff Bezos, founder of Amazon.com, who is the major financial backer funding the project, and whose greatest gift to this planet has been Amazon Two-Day Prime? In a letter to shareholders written after Amazon’s 1997 breakout year, Bezos explains his business values: “*It’s All About the Long Term.*”<sup>31</sup> He mentions the phrase “long term” eight times, and refers to “long” this or that three times, emphasizing his expansive temporal view a total of eleven times in just over five pages.<sup>32</sup> Can a ten-thousand-year ethic be squared with a two-day one? What precisely is long-term about two-day thinking, and how are we to understand Bezos’ participation in this monumental endeavor? It is a sort of apology for his own role in the climate crisis—in the same way in the nineteenth century guilt-addled brewers might fund a college or hospital in penance for their drunken society-corrupting earnings?<sup>33</sup> Or has Bezos, like some temporal Ozymandias, made a bid at his own immortality by building this monument to himself—a giant, phallic shaped c(l)ock, penetrating a five hundred foot cave for eternity?<sup>34</sup> The same could be asked of Stewart Brand, progenitor of the *Whole Earth Catalog* and, more

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<sup>31</sup> Italics and capitalization are Bezos’s own.

<sup>32</sup> The document is roughly 1,600 words. “To Our Shareholders: - Shareholderletter97.pdf” <[http://media.corporate-ir.net/media\\_files/irol/97/97664/reports/Shareholderletter97.pdf](http://media.corporate-ir.net/media_files/irol/97/97664/reports/Shareholderletter97.pdf)>.

<sup>33</sup> My *alma mater*, Vassar College, was founded by one such guilty 19<sup>th</sup> century brewer. These are ideas in line with Peter Singer’s concept of “effective altruism.” Cf. William MacAuskill, *Doing Good Better* (2015).

<sup>34</sup> The same criticism could be leveled at the Trylon & Perisphere.

recently, with the technocapitalist environmentalism that he calls “ecopragmatism” and “ecomodernism”—can environmentalism be understood as a venture capital opportunity?<sup>35</sup> Just what does Brand mean by “responsibility” in the subtitle of his book outlining the project, *The Clock of the Long Now: Time and Responsibility*?<sup>36</sup> And how should one interpret the *Tomorrowland* aesthetics of the clock itself, which looks not unlike the *Astro Orbiter* at Disneyland ([Fig. 1](#)), designed by computer scientist and Disney Imagineer Danny Hillis, who has fashioned the clock explicitly to be a mythic ecotourist pilgrimage to the temple of time?<sup>37</sup>

### ECOPRAGMATISM, ECOMODERNISM, ECOCAPITALISM

The ethics behind Brand’s flavor of ecopragmatism are staunchly technophilic and capitalistic. In *The Whole Earth Discipline*, Brand re-states the technophilic motto of *The Whole Earth Catalog*: “We *are* as gods, and might as well get good at it.” Now, thirty years later, Brand tweaks his motto only slightly: “We are as gods, and *have* to get good at it.”<sup>38</sup> His faith in the future of human beings a century hence or ten millennia hence is technology; it is our collective

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<sup>35</sup> By “technocapitalist” or “ecocapitalist,” I mean Brand’s faith in the power of technology to perpetually produce new markets and solutions to problems and external pressures, even those that threaten the continued existence of life on this planet, such as global warming and nuclear war. In short, the technocapitalist does not view environmentalism and capitalism as anathema to one another, but rather, a middle road will naturally be found between the two in which technological market solutions will arise somehow to response to the pressures of environmental devastation. Brand has written on this in many places: Stewart Brand, *Whole Earth Discipline: An Ecopragmatist Manifesto* (New York: Viking, 2009); ‘A Manifesto for a Good Anthropocene’, *An ECOMODERNIST MANIFESTO* <<http://www.ecomodernism.org/>>; Brand, *Whole Earth Discipline*; Portola Institute, *Whole Earth Catalog*. (Menlo Park, Cal.: Portola Institute, Inc, 1969).

<sup>36</sup> Brand, *The Clock of the Long Now*.

<sup>37</sup> Sharp Productions, *Astro Orbiter (On-Ride) Disneyland*, 2013 <<https://www.youtube.com/watch?v=P288NInO86c>>; ‘Astro Orbiter - Magic Kingdom Tomorrowland’ <<http://www.wdwinfo.com/wdwinfo/guides/magickingdom/tom-astro.htm>>.

<sup>38</sup> Brand, *Whole Earth Discipline*, p. 20.

“obligation to learn planet craft,” to “hack civilization,” and to “finesse climate” before it “finesses us.”<sup>39</sup> “Finesse” is a strange word to use here, having just a few common definitions when used as a verb with an object: “to bring about by finesse or artifice”; “to avoid”; “to circumvent”; “to make a finesse with (a card)”; “to force the playing of (a card) by a finesse.” It is strange to use a verb that has multiple definitions tied to card games. It is as if Brand is unwittingly admitting he thinks of problem of Global Warming as some sort of game that he is gambling on, like the stock market, or a game of *Bridge*. The other aforementioned definitions I find equally perplexing: “to avoid” seems difficult to do with global warming, though perhaps possible though the *Survival Condo Project*, or space travel. “To circumvent” again suggests that Global Warming is somehow avoidable, something to be bypassed or outwitted “by artfulness or deception.”<sup>40</sup> The phrase is even stranger in its reversal, as Brand puts it “*before it finessees us*”—I am unclear what it would mean to be “finessed” by the environment. For Stewart Brand, Nature is seen in binaries: human vs nature; control or be controlled; dominate or be dominated, finesse or be finessed. If there is question over the role of human beings in relation to nature being one of dominion versus stewardship, Brand leans heavily away from the position with which he shares his name.

Brand’s primary critiques of environmentalists (who are not the same as ecopragmatists) is environmentalists are wrong about urbanization, and wrong about nuclear energy, and wrong about technology in general. Brand would have nuclear energy replace most (or all) of carbon emitting sources of energy. Nuclear waste can be stored for future generations to use with an as-

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<sup>39</sup> Brand, *Whole Earth Discipline*, p. 23; The idea that he might “hack civilization” comes from his Ted Talk *The Long Now* <[https://www.ted.com/talks/stewart\\_brand\\_on\\_the\\_long\\_now](https://www.ted.com/talks/stewart_brand_on_the_long_now)>.

<sup>40</sup> The topic of Survivalism is revisited later in the chapter.

yet-not-discovered technology as a power source.<sup>41</sup> Global warming could be solved, or deferred, by emitting reflective powders (sulfuric acid) into the sky to artificially lower the earth's temperature by increasing the albedo of the atmosphere, reflecting more sunlight—an event that naturally occurs during volcanic eruptions.<sup>42</sup> The idea of simulating a human-made volcanic eruption in order to induce a global winter would give most people pause, but not Brand. If the volcano strategy doesn't work, there's Option B, which rightly might be called the “Mr. Burns strategy”: launch a giant web of satellites into orbit between the earth and the sun to control how much sunlight warms the planet.<sup>43</sup> Brand is not alone in his technophilic convictions. Over at Arizona State University, one scientist, Klaus Lackner, is trying to engineer an artificial tree to suck up carbon from the sky, though he seems to see little irony in trying to build something that can easily be grown. Then there is the further irony that the volcano strategy would work against the mechanical forest strategy.<sup>44</sup> All of these strategies reflect the lengths eco-capitalists will go to preserve the current systems of consumption; for them, designing an artificial tree is an easier to imagine problem-to-solve than the problem of how to manage the trees that are currently being destroyed.

By Brand's panegyric estimations, the per-capita efficiency of cities is the solution to population problems. Notably, he breaks from the teachings of his former advisor, Paul Ehrlich,

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<sup>41</sup> In *The Whole Earth Discipline*, Brand claims (without citation) that the “nuclear waste per-person-per-lifetime is about the same volume as a can of coke.” Brand, *Whole Earth Discipline*, p. 74; ‘A Manifesto for a Good Anthropocene’, p. 23.

<sup>42</sup> For more on the volcanic strategy, see: David Biello, *The Unnatural World: The Race to Remake Civilization in Earth's Newest Age* (New York: Scribner, 2016), p. 224.

<sup>43</sup> Matt Groening, “Who Shot Mr. Burns?” *The Simpsons*, Ep. 128; Brand, *Whole Earth Discipline*, pp. 284–90.

<sup>44</sup> Biello, p. 209.

who wrote Malthusian alarmist best seller *The Population Bomb*.<sup>45</sup> Stewart Brand is staunchly anti-Malthusian and, conversely, believes in the power of technology to automagically provide the answers to any future problems that might threaten the species *homo sapiens*. The population, he estimates in “The Ecomodernist Manifesto,” is already beginning to decline, or rather, the rate of population increase is decelerating.<sup>46</sup> If everyone can simply be moved to cities, and then we “green the hell out of growing cities,” the detrimental impact of human beings would be reduced to the necessary minimum, affecting an insignificant footprint of the earth’s surface.<sup>47</sup> The rest of the planet could be left to re-green itself and replenish its biodiversity—though how precisely is unclear—perhaps through his *Jurassic Park*-esque side-project *Revive & Restore*, which aims to de-extinct various key symbolic species, like the Woolly mammoth, the Dodo, and the Passenger pigeon.<sup>48</sup>

There is a lot of faith necessary in ecopragmatism. Faith in cornucopianism, the optimistic belief that somehow there will always be enough resources to go around. Faith in capitalist market pressure to drive forward his anticipated but not-yet-developed innovation. Just as environmental pressures select for various evolutionary traits, Brand imagines that so too will the pressures of global warming select better and worse technological solutions and encourage the allocation of resources to the better ones. The faithful ecopragmatist has nothing to fear from

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<sup>45</sup> Paul R. Ehrlich, *The Population Bomb*, Sierra Club-Ballantine Book (New York: Ballantine Books, 1968) <[http://nrs.harvard.edu/urn-3:hul.ebookbatch.ASP\\_batch:ASP1002875032sixt](http://nrs.harvard.edu/urn-3:hul.ebookbatch.ASP_batch:ASP1002875032sixt)>; Paul R. Ehrlich, *The Population Explosion* (New York: Simon and Schuster, 1990).

<sup>46</sup> ‘A Manifesto for a Good Anthropocene’, p. 11. It is unclear what Brand’s source is for his population claims.

<sup>47</sup> If hell on earth is the greenhouse effect approaching Venusian levels, then one could take Brand’s statement, “greening the hell out of growing cities,” entirely literally. Brand, *Whole Earth Discipline*, p. 69.

<sup>48</sup> ‘Revive & Restore’, <<https://reviverestore.org/>>.

the coming environmental crisis. Rather, it is an opportunity, a chance to prospect on the apocalypse. One must have faith in the just-in-timeness of these solutions; faith in a *deus ex machina*; faith that the Clock might somehow decelerate the Great Acceleration and, somehow, turn back the clock, so to speak, on extinction and global warming. Brand's solution to every crisis is more engineering, which is perhaps the answer one should expect when asking an engineer. Global Warming, Brand would tell us, very well might be a good business opportunity.

### THE CLOCK AS CONCEPT

The Clock is difficult to describe, primarily because it is still being built, and won't be readily accessible to the public for many years to come. There are also two of them, the first presently being built in Van Horn, Texas, and the second in Mount Washington, Nevada. The intention is to build many of these clocks around the world. Regardless of its final incarnation, Brand, Hillis, and others do quite a bit to tell us what ideas are operating in their imaginations of this future monument. It exists in multiple sketches, iterations, and prototypes. One prototype is an orrery, an eight-foot-tall clock made of stainless steel that shows the revolutions of the planets at the *Interval* (Fig. 2).<sup>49</sup> In their description of the orrery, the Foundation outlines the history of orreries as artifacts of Enlightenment rationalism and the Scientific Revolution, symbols of the destabilizing and decentralizing Copernican revelation that human beings are not the center of the universe.<sup>50</sup> Simultaneously, the blog acknowledges that orreries mainly show up in

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<sup>49</sup> Ahmed Kabil, 'Long Now's Orrery Prototype For The 10,000 Year Clock', *Blog of the Long Now*, 2014 <<http://blog.longnow.org/02014/06/27/orrery-prototype-long-now-interval/>>.

<sup>50</sup> Kabil. The primary lesson we are to take away is that "the Orrery draws people into the orbit of long-term thinking and opens up a space for conversations about our place in the universe."

contemporary culture in sci fi and fantasy action flicks, such as *Tomb Raider* (2001) and Jim Henson's *The Dark Crystal* (1982)—the resonance between these orreries (particularly Jim Henson's) and the Long Now's orrery, and Disney's *Astro Orbiter* is striking. The real thing, the Foundation promises, will be four times as large, which perhaps will make a statement four times as powerful.<sup>51</sup>

There is a lot of information on the second prototype, which is meant to be a miniature version of the real thing, though they are constantly revising the details. The Long Now Foundation published a three-hundred-page book of engineering designs that carefully outline precisely the design of the prototype Clock. The book is all schematics, and few words. The cover has an imposing photo of the prototype clock, taken from a very low angle such that it towers above you, as it might when it finally manifests its colossal proportions ([Fig 3](#)). Inside, a brief "About" section states its purpose: "We hope that by distributing this document, the record of this Clock will be widely distributed and increase its chances of long-term survival. Please take care of your copy."<sup>52</sup> My own copy is a battered, well-thumbed, soft cover with a dogeared corner and a crease down the center.<sup>53</sup> The book is printed on generic 8.5 x 11 printer paper. Someone thought very little indeed about the design of this book and its longevity. Both Hillis and Brand outline the basic principles of the Clock:

- Longevity: display the correct time for ten millennia.
- Maintainability: with Bronze-Age technology, if need be.
- Transparency: obvious operational principles.
- Evolvability: improvable over time.

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<sup>51</sup> Another blog post describes the mechanical structure of the clock: Brown, 'Long Now's Orrery Prototype For The 10,000 Year Clock', *Blog of the Long Now*, 2014  
<<http://blog.longnow.org/02014/06/27/orrery-prototype-long-now-interval/>>.

<sup>52</sup> Hillis and Rose, p. 2.

<sup>53</sup> Incidentally, my copy was purchased, used, from Amazon Prime.



- Scalability: the same design should work from tabletop to monument size.<sup>54</sup>

Each of these principles constrict the form of the Clock and come with caveats. Displaying the correct time for ten thousand years is no small feat of engineering; Brand imagines a pendulum mechanism to maintain short term time, and a light mechanism which re-calibrates the clock daily, precisely at high noon.<sup>55</sup> In the absence of human beings, the Clock will be powered by harnessing the temperature gradient of the five hundred foot cave that contains it. Under “maintainability,” Brand and Hillis claim the use of Bronze-Age technology, but not a bit of it could have been made in the Bronze Age—every piece is machined using some of the finest industrial technology. “Transparence” is more or less a faithful claim; they make no effort to hide the mechanical workings of the clock. However, many references are made in the book of schematics to efforts that would “remove all machining marks. (to 800 grit)...the welding ground and sanded out.”<sup>56</sup> This is not quite the “form follow function,” principle of Louis Sullivan, or the greater idea of “honesty” in construction in design being intrinsically linked to the removal of illusion in favor of a clear and direct presentation of the thing itself and how the thing was made; rather, this is the effacement of the twentieth century engineering in an effort to gain an aura of 18<sup>th</sup> century horological craftsmanship, or, as Brand describes his temporal conflation, the illusion of “Bronze-Age technology.” The Clock has retrofuturistic aesthetics, simultaneously balancing its throwback mechanics against both the materials of its makeup (a highly refined austenitic stainless steel, AK Steel Type 316) and the process of precision

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<sup>54</sup> Brand, *The Clock of the Long Now*, p. 62.

<sup>55</sup> Brand, *The Clock of the Long Now*, p. 63. This is called a “phase-locked loop”; additional difficulties arise when one realizes that high noon doesn’t occur at the same time every day—high noon is a moving target. Brand further notes that in the case of clouds, volcanic eruptions, meteor impacts, or nuclear winter, the pendulum would still keep “close-enough” time until the disaster subsided.

<sup>56</sup> Hillis and Rose, p. 70.

machining necessary to its parts.<sup>57</sup> As for “Evolvability” and “Scalability,” Brand imagines a succession of increasingly larger clocks: the prototypes at eight feet; a city clock at twenty feet; and the desert clock, he says, is “hardly worth doing if it is less than sixty feet high.” “Evolvability” and “Scalability” simply mean “bigger.”

## THE CULT OF THE CLOCK

The real thing is meant to be big. Really big. Not just sixty feet big. More like hundreds of feet big. The bigger, the better. The bigger the clock, the smaller the people who experience it. The bigger the clock, the more convincing the message: time is big, you are small. Think bigger.

Stewart Brand described in a TED2004 how The Long Now Foundation purchased a hundred and eighty acres of Mount Washington in rural Nevada for \$140,000. Originally, the mountain was a 19<sup>th</sup> century beryllium mine, but long defunct, the mountain functions more like a naturally-made pyramid, complete with partially dug tunnels. The Long Now Foundation team often compares building the Clock to building the pyramids. Danny Hillis mentions the pyramids frequently, and Stewart Brand includes Lehner’s *The Complete Pyramids* as part of the “Recommended Bibliography” at the end of his book on the Clock of the Long Now, which he sums up in a single note “The most durable signal through time.”<sup>58</sup> Hillis has his own explanation as to why the pyramids:

Everybody has a picture of the Pyramids in their mind, and it sort of connects you to the past... We don’t have anything like that for the future. We don’t have a symbol

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<sup>57</sup> For more on this steel, see: ‘AK STEEL.pdf’  
<[http://www.aksteel.com/pdf/markets\\_products/stainless/austenitic/316\\_316L\\_Data\\_Sheet.pdf](http://www.aksteel.com/pdf/markets_products/stainless/austenitic/316_316L_Data_Sheet.pdf)>.

<sup>58</sup> Pyramids, incidentally, are a type of future monument as well. Brand, *The Clock of the Long Now*, p. 185; Mark Lehner, *The Complete Pyramids* (London: Thames and Hudson, 1997).

that connects us to the future. I think the world needs that, just for the joy of it, because it makes us more human to have that connection to the future.<sup>59</sup>

To preserve a clock for ten thousand years, the Long Now Foundation turned to the same technology that preserved the Lascaux paintings for twenty thousand years: a cave. Forget claims of Bronze-Age technology, caves are assuredly Stone Age, though the Foundation always adds a twentieth century twist to ancient technologies. In 2012, Jeff Bezos took to the blog to announce that the Foundation had completed drilling a new tunnel for the Clock. The hole is twelve-and-a-half feet in diameter, and five hundred feet deep. Bezos purchased a raise bore drill to do the job, and includes a four minute-video of this feat of spelunking on his mountain.<sup>60</sup>

Phallic associations are unavoidable. Typical of Long Now thinking is their hope to improve the Pisgah view from the mountaintop by purchasing all the surrounding valley, some 17,000 acres of land, in order to bulldoze the ranches, “re-nature” the landscape, and return it to the National Park system.<sup>61</sup>

The clock in the mountain, or as Brand describes it, the “mountain-clock,” is meant to be a temporal temple. To get to it, one is meant to take a pilgrimage, or hajj to the temple, just as surely as one might trek to Canterbury, Mecca, Rome, Mt. Fuji, or Santiago de Compostela.

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<sup>59</sup> ‘How to Make a Clock Run for 10,000 Years | WIRED’  
<<https://www.wired.com/2011/06/10000-year-clock/>>.

<sup>60</sup> Bezos, ‘Quick Update and Video of the Raise Bore Milestone - Clock Blog Updates - The Long Now’ <<http://longnow.org/clock/clockone/02012/jan/17/raise-bore/>>.

<sup>61</sup> “Pisgah view” Deuteronomy 34:1-4:

Then the LORD said to him, “This is the land I promised on oath to Abraham, Isaac and Jacob when I said, ‘I will give it to your descendants.’ I have let you see it with your eyes, but you will not cross over into it.”

Details about the land purchasing come from Brand’s Ted Talk: “Brand, Stewart. *The Long Now*. Ted 2004 <[https://www.ted.com/talks/stewart\\_brand\\_on\\_the\\_long\\_now](https://www.ted.com/talks/stewart_brand_on_the_long_now)>.

Though the Foundation explicitly denies that they are trying to create a temporal religion, it is hard to deny the connection when Brand approaches the prototype looking very much like he is dressed in the robes of a monk ([Fig.4](#)).<sup>62</sup>

Because it is meant to be the destination of a pilgrimage, the weary wayfarer, *homo viator*, seeking the meaning of life, must necessarily be challenged by the journey. It is, therefore, deliberately inaccessible—at Jeff Bezos’ insistence—because “the more inaccessible, the more people will value it.” There are no trails to the mountaintop. It is a difficult day’s climb, a trip meant only for the fit and able-bodied—the temporal temple is not interested in converts unfit for the journey. The altitude clouds your mind, Brand claims, “which is great for having a mythic experience!”<sup>63</sup> Danny Hillis also views the clock as a “mythic adventure,” which sounds similar to Joseph Campbell’s heroic cycle.<sup>64</sup> Hillis imagines a mythic trip to the Clock with the following seven stages:

1. The Image (what you imagine it will look like at the end)
2. The Embarkation
3. The Labyrinth
4. The Draw (something that draws you through the labyrinth)
5. The Payoff (hitting the goal). A *really* great journey will have a Secret Payoff (unexpected payoff).
6. The Return
7. Memento. Something physical, just yours. Souvenir.

When criticized that his vision for the Clock sounded like a Disneyland ride, Hillis replied, “Time *is* a ride, and you are on it.”<sup>65</sup> Imagining a trip to the Clock of the Long Now is at once a

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<sup>62</sup> Kabil.

<sup>63</sup> Stewart Brand, *The Long Now*, TED2004  
<[https://www.ted.com/talks/stewart\\_brand\\_on\\_the\\_long\\_now](https://www.ted.com/talks/stewart_brand_on_the_long_now)>.

<sup>64</sup> Joseph Campbell, *The Hero with a Thousand Faces*, Bollingen Series ; 17 (New York: Pantheon Books, 1949).

<sup>65</sup> Brand, *The Clock of the Long Now*, p. 69?

pilgrimage, a holy journey, another site on the southwest road trip, a temporal temple, or as Hillis describes, an epic Disneyland ride, complete with souvenirs.

In his 2001 science fiction *The Chronoliths*, Robert Charles Wilson imagines a world in which colossal monoliths suddenly begin appearing around the world celebrating the victories of a conqueror named “Kuin,” whose victories take place twenty years in the future.<sup>66</sup> These monoliths, called “chronoliths,” seem to have somehow been sent back in time by Kuin himself, foretelling his victories and inspiring a “cult of Kuin.” The cult of Kuin radicalizes, and endeavors to make Kuin’s conquest real, or at least be on the right side of future-history when it comes. Of course, there is a serious question of agency. The monuments seem to suggest that the future is inevitable, that the coming war and conquest is as much a fact as the chronoliths that have appeared around the world. On the other hand, perhaps the monuments are a gambit to make the coming conquest real by convincing enough people to believe in it. Whether or not Kuin is a real person who exists is never revealed, but the propaganda works all the same, destabilizing the international world order as more monuments appear on different continents celebrating more of Kuin’s victories, and the present gets closer and closer to the future these monuments anticipate. Kuin is something of a reverse-Ozymandias—the opposite of a shattered statue to a once-great emperor crumbling in a desert, proclaiming the victories of a once-great empire; rather, Kuin is a fully intact statue proclaiming the victories of a soon-to-be great empire by a man who very well might not exist at all. One can read the Clock of the Long Now as a chronolith. In its anachronistic retrofuturistic aesthetic, its sheer awe-evoking hugeness, in the idea that such clocks should be built all around the world to compel audiences worldwide to

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<sup>66</sup> Robert Charles Wilson, *The Chronoliths*, 1st ed. (New York: Tor, 2001).

believe in a collective imagination of the future as defined by Bezos, Brand, and the Long Now Foundation. The Long Now Foundation is nothing if not a proto-cult of Kuin.

When you prostrate yourself before this Temple of Time, to what extent is this a worship of Time, versus a worship of Brand? Brand considers himself nothing short of a godly figure with regards to time. The Interval, the Clock, the Temple, his de-extinction project, his excellent *branding* all put him in the position of the mythic progenitor of this pseudo-religion. He is one step small step away from becoming an L. Ron Hubbard. Or at the very least, certainly he has anticipated how easily such an apotheosis could occur over the course of a few hundred years of cultural amnesia. Such stuff, after all, is a classic theme in Science Fiction. It is the premise behind Heinlein's *Orphans of the Sky*, in which a future society on a generations-long space forget, by a series of unfortunate events, that they still live in a space ship, and mistake it for the whole universe.<sup>67</sup> It is the premise of E.M. Forster's "The Machine Stops," in which a society living within a complex subterranean machine to service their every need, forgets that the machine was built by their ancestors. Slowly the machine transforms into a god which they come to worship.<sup>68</sup> It is a common trope.<sup>69</sup>

Brand doesn't stop with a cult of time. He strongly believes that de-extinction is a useful avenue of scientific exploration, with all the confidence of Jesus raising Lazarus from the dead,

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<sup>67</sup> Heinlein, *Orphans of the Sky*, 309. "He knew that the feeling was irrational—probably there had been at some time in the past some person or persons called Jordan. Jordan might have been an early engineer or captain who codified the common sense and almost instinctive rules for running the Ship. Or, as seems more likely, the Jordan myth went back much farther than this book in his hand, and its author had simply availed himself of the ignorant superstitions of the Crew to give his writings authority."

<sup>68</sup> E. M. Forster "The Machine Stops" 1909.

<sup>69</sup> Another (900 page) example of this science fiction trope was directly inspired by the Clock of the Long Now, and certainly read by Stewart Brand: Neal Stephenson, *Anathem*, 1st ed. (New York, NY: William Morrow, 2008).

or Victor Frankenstein sparking life in the monster he subsequently refuses to take responsibility for.<sup>70</sup> Brand, in a doubly hubristic act, would tell us he can solve the problems of mass extinction simply by the powers of his own intellect and the use of even more technology. Yet he misses important lessons from the story of Lazarus. Brand hosted a TEDx conference on the topic of extinction, inviting speakers such as George Church (the Mammoth guy), who was inspired to a life of science by the 1964 World's Fair, and Ben Novak (the Passenger Pigeon guy), Beth Shapiro and many others scientists who are the main proponents of de-extinction.<sup>71</sup> There are multiple strategies de-extincting a species, which are called "Lazarus species," or "chimeras" because the method is to splice extinct DNA into the DNA of its nearest living ancestor, and see if the offspring is viable. The greatest success to date was with the Pyrenean ibex, or *bucardo*, that last of which (named "Celia") died in 2000. In essence, the DNA of the extinct ibex was extracted from Celia, and injected into the ovum of a domestic goat, which then acted as a surrogate for the ibex.<sup>72</sup>

Greek myths are rife with science fiction myths about perils of genetic engineering. The Minotaur, for example, was a half-man half-bull whose teratogenesis was a result of his mother building an elaborate contraption that would allow her to copulate with a bull. Proponents of de-extinction see no irony in the fact that the original Chimera—the one their chimeras are named after—was a monster, a fire-breathing thing with lion's head, a goat's body, and a serpent's tail.

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<sup>70</sup> Gospel of John: 11:1-44; Mary Wollstonecraft Shelley, *Frankenstein: The 1818 Text*, Penguin Classics (New York, New York: Penguin Books, 2018).

<sup>71</sup> Biello, pp. 106–7; TEDx: <<https://reviverestore.org/events/tedxdeextinction/>>; Beth Alison Shapiro, *How to Clone a Mammoth: The Science of de-Extinction* (Princeton: Princeton University Press, 2015).

<sup>72</sup> See: Alberto Fernandez-Arias, "The First De-Extinction," TEDx, <<https://reviverestore.org/events/tedxdeextinction/the-first-de-extinction/>>.



The hero, Bellerophon, had a time of troubles killing the Chimera. In the end, however, he managed to suffocate the Chimera to death. The first de-extinction suffered the same fate. Celia's genetic stuff was reborn from the domestic goat. The resurrected ibex was born with collapsed lungs. It couldn't breathe. After ten minutes of suffering, it too died of suffocation.

These "Lazarus species" give way to a different reading of the details of the story of Jesus resurrecting Lazarus. The story is quite dark when considered from the perspective of Lazarus. Jesus first let Lazarus die—he did not think to spare Lazarus the pain of dying, nor did the idea seem to have occurred to him. And then he waited four days while Lazarus's body festered. Only when Jesus is challenged by his followers ("But some of them said, "Could not he who opened the eyes of the blind man have kept this man from dying?"), does the idea of a miracle occur to him, not for the sake of Lazarus, but "for the benefit of the people standing here, that they may believe that you [God] sent me."<sup>73</sup> Lazarus has no agency here; the whole point of the resurrection is to glorify the resurrector. The Book of John tells us nothing more about what happens to Lazarus after this point, but one might infer that Lazarus fate was the same as the Iberian Ibex. Lazarus, resurrected into his old, failing body, would have to suffer and die all over again. Jesus killed Lazarus twice, simply to prove his own power. Perhaps this is why the de-extinction scientists choose the sexiest species (Mammoths, Dodos, Passenger Pigeons) to resurrect.<sup>74</sup>

Brand himself knows that "preventing extinction is a bargain compared to reversing extinction... if the Passenger pigeons are brought back, what is to stop us from eating them to

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<sup>73</sup> John 11:44.

<sup>74</sup> One scientist, quoted in David Biello's book, glibly mused: "The easiest species to de-extinct may be one of us: Neanderthals, Denisovans, maybe even Australopithecines. 'It's the most feasible, but the worst ethically,' says Stiller with a shrug." Biello, p. 126.

death again?”<sup>75</sup> But doing the hard work necessary to preventing the death of a species does not fulfill ecopragmatist narcissism. These technophilic solutions (de-extinction, shooting sulfates into the atmosphere, engineering artificial trees, constructing giant clocks) are all the self-aggrandizing pet projects of hyperwealthy technophiles, hoping to secure their legacy as benevolent great men by dressing up their hobbies in the language of environmentalism. Future monuments are always also legacy projects. So too for Stewart Brand. He seems to believe he can control time. Once asked how working on the Clock Project affected him, the then septuagenarian replied with what must be an understatement, “It’s made getting old fun.”<sup>76</sup> Rather, it has made getting immortal fun.

#### CONCLUSIONS: THE INTERVAL

Returning now, from Mount Washington to a stool in *The Interval*, that café-bar-museum off Marina Boulevard in San Francisco, I sit and take in the scene. It is a posh space, impeccably well-branded. They date everything with five integers to account for their ten-thousand-year outlook, and pre-empt another Y2K (or Y10k) crisis: the current year is 02019. Their logo—you can’t miss it—is the *decem milia*, the monolithic (and chronolithic) Roman numeral for ten thousand. X marks the clock:

X̄

There is much to buy here. I sit at the bar and peruse the menu, which is rather long. They have their own specially made gin, *Bristlecone Gin*, distilled from juniper berries harvested in the

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<sup>75</sup> Qtd in Biello, p. 127.

<sup>76</sup> He is now broaching the cusp of octogenarian. Brand, *The Clock of the Long Now*, p. 172.

forests of Nevada where you can also find bristlecone pines, iconic symbols of durability and longevity.<sup>77</sup> It comes in spherical flasks, which they will hang from the ceiling for you to reclaim whenever you visit, if you pay for it. (Fig 5) I decide on a glass of thirteen dollar Long Now wine. It has a Robert Parker rating of 92. I am relieved to learn it is not ten thousand years old.<sup>78</sup> I poke around their library. They boast three thousand five hundred books, a library called the *Manual for Civilization*, deemed “necessary to sustain or rebuild civilization.” Included in that library is Lucio Canfora’s *The Vanished Library*, a history of the Library at Alexandria, which the Long Now Foundation founders, like so many twentieth century Ptolemys and Callimachuses, are very consciously modeling their own collection on.<sup>79</sup> Should the world come to an end, the survivors could rebuild civilization from the libraries stored in the clocks.

I can’t help but wonder, when Danny Hillis lamented the absence of “a symbol that connects us to the future,” just who is the “us” he is referring to? It certainly doesn’t include people who cannot, for whatever reason, make a difficult climb up a mountain. It also doesn’t include anyone who cannot afford thirteen-dollar glasses of wine. Hillis’s “us” seems to be the

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<sup>77</sup> Though Rachel Sussman would remind us that Bristlecone Pines are far from being the oldest living things on the planet. Cf. Rachel Sussman, *The Oldest Living Things in the World* (Chicago; London: University of Chicago Press, 2014). For more about the gin, see: Mikl Em, ‘The Interval at Long Now: The Juniper Makes the Gin’, *Blog of the Long Now*, 2012 <<http://blog.longnow.org/02012/12/03/making-gin-from-juniper-berries/>>. Though I didn’t try the gin, I did find that the Long Now Foundation has blog post explaining how they make it. Lance Winters, the Master Distiller of the Long Now gin describes its flavor in a video:

“I’m getting this great burst of resin. It tastes in one bite, like forest, but then it opens up and you get a lot of that soft flesh in there, that sweetness. You get bright berry characteristics, like huckleberries, like blue berries, only more tart. And then it gives away to more pine in the finish...”—here Winters looks briefly consternated, then delighted— “and chocolate! I get a little bit of chocolate on the back palate.”

<sup>78</sup> Austin Brown, ‘Long Now Wine Gets High Marks’, *Blog of the Long Now*, 2008 <<http://blog.longnow.org/02008/11/13/long-now-wine-gets-high-marks/>>.

<sup>79</sup> Luciano Canfora, *The Vanished Library*, Hellenistic Culture and Society ; 7, California ed. (Corr. translation) (Berkeley: University of California Press, 1990).

Survivalists, those wealthy, white, male technophiles who have made a hobby of preparing themselves from myriad apocalypses.<sup>80</sup> They build bunkers far away from city centers (probable nuke zones) and imagine elaborate ways of absquatulating to their secret safe zones, stocked full of food and guns.<sup>81</sup> These are the bomb shelters of the 1964 World's Fair.<sup>82</sup> It is Kanye West and Kim Kardashian, who can hire private fire fighters in a pinch.<sup>83</sup> It is people who can afford

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<sup>80</sup> Sociologist Richard Mitchell includes demographic breakdowns of survivalists at the end of his book on the subject. Survivalists are, on average, 39 years old, 89.3% male, 96.8% white, 74.2% married. Most believe that the most likely "future crisis" scenarios are nuclear war (50.4%), economic collapse (37.5%), and alien invasion (14.1%).

Richard G. Mitchell, *Dancing at Armageddon: Survivalism and Chaos in Modern Times* (Chicago: University of Chicago Press, 2002), pp. 238–40.

<sup>81</sup> There is a fascinating TV Show, *Doomsday Preppers*, that conducts interviews with Survivalists. It ran for four seasons (2012-2014). Many books have been written on the peculiarities of doomsday scenarios in science fiction and in practice, and the cultivation of such a strange type of masculinity these people exhibit.

S. Rees, 'Doomsday Preppers: Season 1', *The Video Librarian*, 2013  
<<http://search.proquest.com/docview/1976922912/?pq-origsite=primo>>;

Gwendolyn Audrey Foster, *Hoarders, Doomsday Preppers, and the Culture of Apocalypse*, Palgrave Pivot, First edition. (New York, NY: Palgrave Macmillan, 2014);

Michael Sweeney, *Doomsday Preppers Complete Survival Manual: Expert Tips for Surviving Calamity, Catastrophe, and the End of the World* (New York: Random House Publisher Services, 2012);

Leisa A. Clark, Amanda Firestone, and Mary Pharr, *The Last Midnight: Essays on Apocalyptic Narratives in Millennial Media*, Critical Explorations in Science Fiction and Fantasy; 53 (Jefferson, North Carolina: McFarland & Company, Inc, Publishers, 2016);

Tea Krulos, *Apocalypse Any Day Now: Deep Underground with America's Doomsday Preppers* (Chicago: Chicago Review Press, 2019);

Casey Ryan Kelly, 'The Man-Pocalypse: Doomsday Preppers and the Rituals of Apocalyptic Manhood', *Text & Performance Quarterly*, 36.2/3 (2016), 95–114  
<<https://doi.org/10.1080/10462937.2016.1158415>>.

<sup>82</sup> See: "[1964 World's Fair](#)," in Chapter 2.

<sup>83</sup> Alexis C. Madrigal, 'Kim Kardashian's Private Firefighters Expose America's Fault Lines', *The Atlantic*, 2018 <<https://www.theatlantic.com/technology/archive/2018/11/kim-kardashian-kanye-west-history-private-firefighting/575887/>> [accessed 19 February 2019].

Survival Condominiums, fortified, luxury escape homes built, ironically, in decommissioned missile silos ([Fig 6](#)).<sup>84</sup> With no sense of irony, they declare:

Our objective when first approaching this project was to leave no stone unturned, and to ensure that every detail, from safety, feature and function, to style, comfort and luxury...every aspect of this endeavor had to be just right.

The finest survival condos, called penthouses (4,500 ft<sup>2</sup>) go for 4.5 million, though one secure the cheapest luxury condo at 1.5 million (900 ft<sup>2</sup>). It is Stewart Brand, who, prudently, lives nearby the *Interval* on an old 64-foot tugboat converted into a home, safe from the “problem with earthquakes, wildfires or rising sea levels due to global warming.”<sup>85</sup> One thinks of Edgar Allen Poe’s “The Masque of the Red Death,” where a wealthy prince brings all his friends to party within the walls of his castle to avoid a plague, while outside his hedonistic walls the Red Death wreaks havoc on humanity.<sup>86</sup> It is the awful irony that the very people who are profiting off the apocalypse (Jeff Bezos, Stewart Brand, Danny Hillis, the oil industry, et alia), are the very people who are best equipped to survive it. The Clock of the Long Now is as much a future monument as it is a survival condo, carefully planned, equipped, and prepped with all the amenities necessary to secure the safety of the privileged few.

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<sup>84</sup> <<http://survivalcondo.com/>>.

<sup>85</sup> Thomas Armstrong, ‘Stewart Brand Liveaboard in Sausalito’, 70.8%, 2009 <<http://70point8percent.blogspot.com/2009/05/stewart-brand-liveaboard-in-sausalito.html>>. From the interview:

Why a boat: The main thing is our houseboat community here, which is exceptionally congenial. The boat is inexpensive to live on, and you have no problem with earthquakes, wildfires or rising sea levels due to global warming.

Green living: I didn’t choose the boat because it’s green, but it is. It doesn’t take much to heat 450 square feet. Cooling is no issue on the water. We have solar panels and a demand water heater and use biodiesel fuel when we cruise.

<sup>86</sup> Edgar Allan Poe, "The Masque of the Red Death: A Fantasy," *Graham's Lady's and Gentleman's Magazine*, May 1842.

For all its moralizing, the one thing that is clear from *The Interval* and *The Long Now Foundation*: the ethics of long-term thinking need not be separated from the basic tenets of capitalism. Reflecting on the clock, I wonder to what extent it is a future monument meant to invoke humility in the face of a gigantic, temporal sublime, or if it is a self-congratulatory monument celebrating the aspirations of a handful of aging engineers and billionaires reassuring themselves by reimagining their own obsolescence as an apotheosis. Long-term thinking is expensive, and not everyone can afford it. Future thinking is the privilege of the rich.

I think of our clocktender, still stuck inside the great clock, coming to his senses in the clock. “I’m old!” he cries, “I’m old...” passing from manic glee to abject despair he picks up a sledgehammer and realizes his own legacy. “I’ll fix you; I won’t even give you the pleasure of running quietly down, as you would have done with me. Oh no, my friend, you shall die violently.” Here our Sisyphean hero alights upon a solution to his existential trap that never occurred to Sisyphus: *destroy the boulder*.<sup>87</sup> And with one strong slow swing, he deforms a wheel and watches as the damage propagates, rippling through the labyrinth of cogs, gears, and wheels. Sparks rain, steel groans, splinters crack and, like so many statues of Ozymandias and towers of Babylon, the great clock comes crashing down...

And then there was no time.<sup>88</sup>

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<sup>87</sup>A nearly identical plot takes place in a YouTube video of a cat interacting with a metronome. Every tick of the metronome seems to jilt the cat—time seems to visibly assault the poor thing. Ultimately, the cat makes the same decision as the clockmaker to destroy the metronome. Peter J Stavroulakis, *Snooky and the Metronome* <<https://www.youtube.com/watch?v=kdmd5fenroU>>.

<sup>88</sup> Langdon Jones.





Fig. 1 - *Astro Orbiter* at Disneyland ([back to page](#))



Fig. 2 – Orrery at the *Interval*. ([back to page](#))



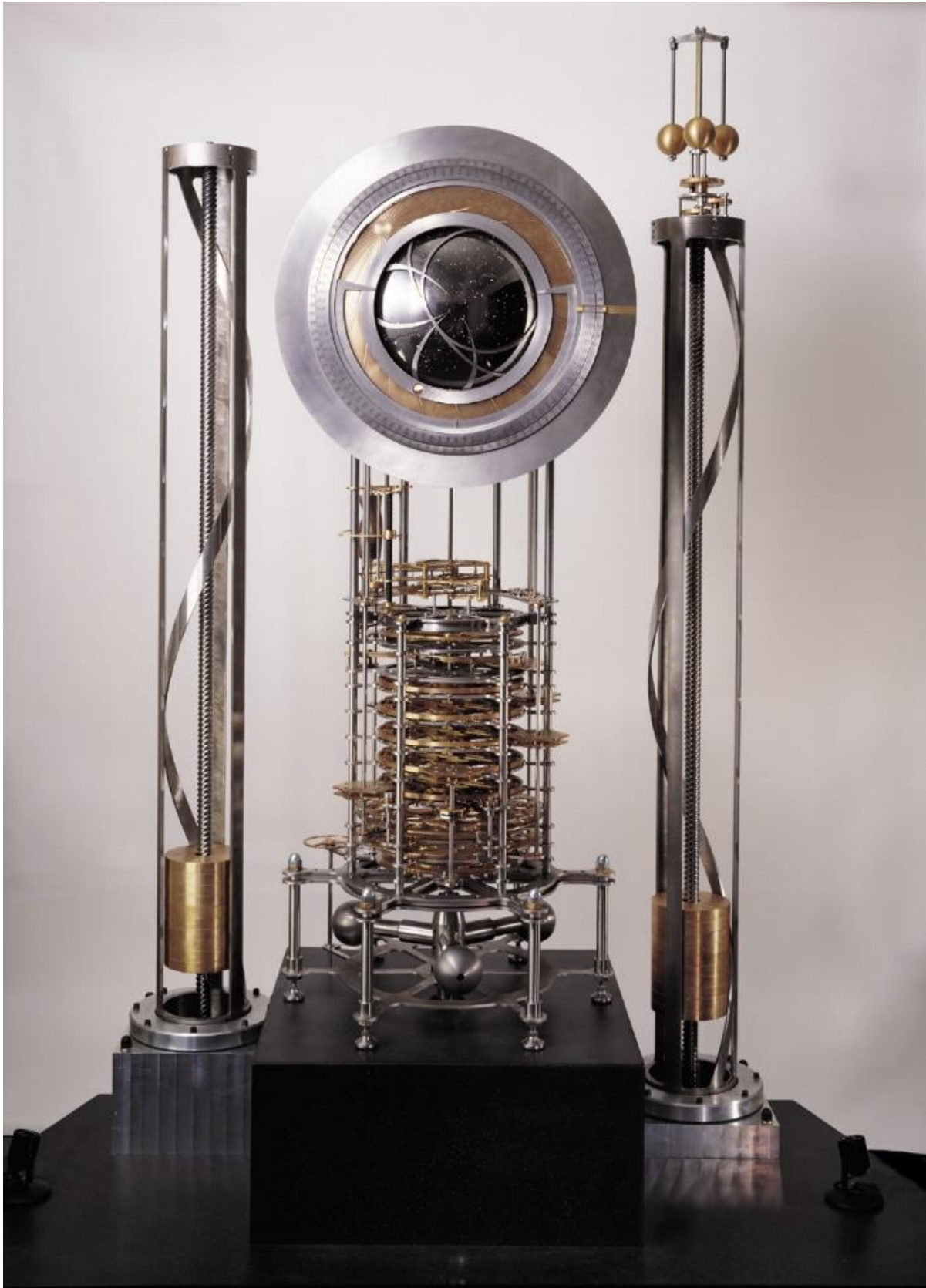


Fig. 3 – Prototype Clock of the Long Now ([back to page](#))



Fig. 4 – Brand and the Prototype Clock. ([back to page](#))



Figure 5 – The Interval at the Long Now Foundation. Whiskey bottles are hung above the bar. ([back to page](#))



Fig 6 – Survival Condo Schematic ([back to page](#))

## CHAPTER 5: CONCLUSIONS ~ DIMENSIONS OF FUTURE MONUMENTALITY

Future monuments are monuments expressly built to manifest an imagination of the future. Coincidentally, the monuments discussed so far have all come in pairs: two Voyagers, two Golden Records, two World's Fairs, two colossal clocks. They share a number of other characteristics that are not so coincidental. They are all legacy projects, sometimes brazenly so (i.e., Robert Moses, and the Long Now Foundation), sometimes more subtly so (Carl Sagan, for example, included an EKG of Ann Druyan thinking about how much she loves him, and added the voice of his own son as the very first greeting on the Golden Record).<sup>1</sup> All examples discussed have been made by wealthy, white, male technocrats. All of them express a somewhat naïve, optimistic faith in the power of human technological innovation to solve the problems of the present. Importantly, each future monument has made a claim to speak for human beings collectively. This claim is never fulfilled. None of these monuments include everyone in the futures they represent.

I have leveled many critiques at these specific monuments, unpacking the many ways they have missed the mark, or failed to manifest the ideals they claim to represent. Despite their many failings, the practice of reflecting on, imagining, and building future monuments is a good one. My hope is that these critiques will be useful to others engaged in the difficult question of what it means to manifest an ethical imagination of the future. So long as there is more future, there will surely be more future monuments.

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<sup>1</sup> Ron Cowen, 'The Echoes of Hearts Long Silenced', *The New York Times*, 21 December 2017, section Science <<https://www.nytimes.com/2014/12/16/science/the-echoes-of-hearts-long-silenced.html>> [accessed 2 October 2018].

How much future is there?—that depends on whom you ask. By the measure of the 1939 New York World’s Fair, there was little reason to even conceive of any sort of end to it; the future had no limit. Nevertheless, most exhibitions looked forward towards a temporal horizon extended no farther than the 1960s. For the Golden Record, the future is cosmically huge, but only from the vantagepoint of some alien observers—not necessarily so for us. The problem with cosmic temporal perspectives is there very well may be too much future. For the Long Now Foundation, the future ought to project as far forward as recorded human history: ten thousand years in both directions. This limit is defined anthropocentrically (that is, in relation to the span of human history), yet it also attempts to find the Goldilocks temporal scale between the myopia of the individual lifespan, and the incomprehensibility of the cosmic timespan. This scale is the border between human temporality, and geologic temporality.

Are there normative claims on futurity?—I suggest three major veins. The optimistic claim is evinced by all three monuments. I have variously described this attitude towards the future “technophilic,” “*deux ex machina*,” “cruel optimism” (Berlant), and “human adaptive optimism” (Oreskes). Optimism is not necessarily wisdom.<sup>2</sup> The fatalistic claim, that the world is on an inevitable crash course with Armageddon, is not one that produces future monuments, so

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<sup>2</sup> From Old English, originally: wise + doom. To be wise about one’s doom is to have wisdom.

Wise: *witen* (Old English) “to know” *witan* (Gothic) “to know” *videre* (Latin) “to see” *vidati* (Sanskrit) “to know” To know one’s doom.  
Doom: *dom* (Old English) “judgment, law;” *doms* (Gothic); *dhaman* (Sanskrit); *themis* (Greek); related “to think, to form an opinion, to believe.” To know one’s end, or one’s judgment is to have wisdom. Greek makes the connection crystal clear: *oida* = I have seen (perfect tense) = I know (present tense). As in Socrates: *oida hoti ouden oida*. [Thank you to Alexander Rehding for the Greek addition here].

Taken from an eschatological perspective, wisdom is knowing that Christ’s judgment is coming, *memento mori*, ephemerality of the physical world, etc. Taken from an environmental perspective, wisdom is something like foresight, understanding global warming, knowing our collective fate and thus being prepared for it, whether body or soul. Prophets have wisdom. Future Monuments are about projecting wise-doom.

much as it produces bomb shelters, Doomsday clocks, and Rapture Indexes.<sup>3</sup> The evangelical anticipation of the hoped-for Second Coming has been replaced with the idea of nuclear, or environmental apocalypse, an end of the world that requires no intervention whatsoever by a Judeo-Christian god. The third vein is what I call the “ostrich strategy”: bury your head in the sand and pretend like there is nothing wrong. This is perhaps the most popular tactic. Boris Groys demonstrates this strategy in his book, *Introduction to Antiphilosophy* (2012), “And so, the answer to the question: ‘How should we conceive the apocalypse?’ has to be: ‘Just don’t think about it!’”<sup>4</sup>

Are there other examples of future monumentality?—absolutely. The case studies for this dissertation were chosen because they are so *quintessentially* future monuments, though in different ways. The 1939 World's Fair is perhaps the most explicit future monument, in its overt effort to reify an imagination of the future, complete with appended manifestos. The Golden Record is a quintessential future monument simply because of its astounding permanence. The Clock of the Long Now is, in concept, an excellent future monument, with the caveat of its many shortcomings when moved from concept to object. However, the principles at work with each of

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<sup>3</sup> The fatalist perspective, rather than future monuments, produces articles like: David Wallace-Wells, ‘When Will the Planet Be Too Hot for Humans? Much, Much Sooner Than You Imagine.’, *Daily Intelligencer*, 2017 <<http://nymag.com/daily/intelligencer/2017/07/climate-change-earth-too-hot-for-humans.html>> [accessed 16 October 2017]. Wallace-Wells has expanded this article into a book.

Jem Bendell’s “Deep Adaptation” paper is another example of the genre. It’s been heralded as “so depressing it’s sending people to therapy.” ‘The Study on Collapse They Thought You Should Not Read – yet’, *Professor Jem Bendell*, 2018 <<https://jembendell.wordpress.com/2018/07/26/the-study-on-collapse-they-thought-you-should-not-read-yet/>> [accessed 12 March 2019]; Zing Tsjeng and Jamie Clifton, ‘The Climate Change Paper So Depressing It’s Sending People to Therapy’, *Vice*, 2019 <[https://www.vice.com/en\\_us/article/vbwpdb/the-climate-change-paper-so-depressing-its-sending-people-to-therapy](https://www.vice.com/en_us/article/vbwpdb/the-climate-change-paper-so-depressing-its-sending-people-to-therapy)>.

<sup>4</sup> Benjamin Kunkel, ‘Just Don’t Think about It’, *London Review of Books*, 8 August 2013, pp. 33–37; Boris Groys, *Introduction to Antiphilosophy* (London ; New York: Verso Books, 2012).



these monuments are also at work with analogous objects. The analysis of the 1939 World's Fair potentially extends to all World's Fairs, science festivals, utopian communes, Tomorrowlands, and any debates over contested spaces and gentrification. The discussion of the Golden Record applies to all space trash, quite literally everything left in space, from Musk's "Star Man" to the millions of bits and pieces of satellite stuff left in orbit around Earth. The Clock of the Long Now has numerous analogues, including ones only briefly touched upon in this research, such as the Doomsday Clock and nuclear waste. Beyond the three objects outlined in this research, however, are examples of the category not relegated to the confines of the United States—international imaginations of what the future ought to be.<sup>5</sup> There are also undoubtedly plenty of examples of future monumentality that exist beyond the confines of the 20<sup>th</sup> century examples explored in the preceding pages. These are for another book.

Does monument A, B, or C qualify as a Future Monument?—a fair question. I think it's less important to define whether or not a given monument fully fits the form of the procrustean definition I have provided. First and foremost, future monumentality is a quality, or dimension, of *all* monuments, and the presence of that quality in a given monument is necessarily a matter of degree. To what degree does a given monument ask its readers, critics, and audiences to explicitly think about what sort of future it implies or anticipates? To think about future monumentality is to ask of any monument: "What sort of futurity is embodied by this object?" The examples discussed thus far happen to be explicit in their intentions and efforts to address this question. But one could look to other, less conventional, future monuments.

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<sup>5</sup> Such as the 5 billion dollar "Death Star" built in Kazakhstan. James Palmer, 'Kazakhstan Spent \$5 Billion on a Death Star and It Doesn't Even Shoot Lasers', *Foreign Policy* <<https://foreignpolicy.com/2017/06/15/kazakhstan-spent-5-billion-on-a-death-star-and-it-doesnt-even-shoot-lasers/>> [accessed 27 April 2019].

Take, for example, the recent debates around the removal of Confederate monuments from various public spaces. These monuments demonstrate that future monuments can also be menacing. While Confederate monuments reflect the efforts of various white supremacist groups to create a usable past more fitting to their racist agenda, they simultaneously anticipate, reify, and endeavor to affect an alternative future—one in which the Civil War is simply one lost battle in a greater war extending across centuries and into a future where white power has regained racial dominance.<sup>6</sup> It is not just the past that they commemorate, but also the future they anticipate that makes Confederate monuments so insidious and abominable. To remove them, then, is to foreclose the future they reify. Confederate monuments demonstrate that not all futures are necessarily just. The risks inherent to creating a “usable past” also extend to usable futures.

Future Monuments demand that audiences think science fictionally. They speculate on the future. They are a vehicle for imagining alternative worlds. What are the greatest existential threats to human existence? At what point do human beings become *too* reliant on technology? What if time weren't a line? Would you want to see the future, if you couldn't change it? Future monuments throw down a gauntlet, a challenge to audiences that interact with them. They dare us to make a given future a reality. Thinking through future monuments is fundamentally about imagining how the world as it currently is could be different. Paradoxically, they reveal much about the intentions, ethics, and priorities of their makers, even as they endeavor to manifest an imagination of how we can become not us.

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<sup>6</sup> Jess Bidgood, ‘Confederate Monuments Are Coming Down Across the United States. Here’s a List.’, *The New York Times*, 16 August 2017, section U.S.  
<<https://www.nytimes.com/interactive/2017/08/16/us/confederate-monuments-removed.html>> [accessed 28 February 2018].

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