

“Why not pitch the whole enterprise at the highest level possible?”:

Speculative Radicalism and the Planetary Topics

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This dissertation problematizes the hegemony of “critique” within the humanities in general and communication studies in particular. I argue that critique in the current mode, a reading and engagement practice that valorizes suspicion and purports to unmask allegedly concealed ideologies, does not equip scholars or students with the imaginative capacity necessary to confront the problems of the Anthropocene. Drawing upon the resources of speculative realism and speculative fiction, I propose *speculative radicalism* as an alternative practice. Speculative radicalism is an affirmative mode of reading, engagement, and theorizing that encourages the imagining of alternative future ways of living and modes of production, proceeding stepwise from a posited point of difference, or “novum.” Kim Stanley Robinson’s Mars Trilogy is offered as a model of invention in the speculative radicalist mode.

With the goal of elaborating how speculative radicalism operates in this context, I repurpose the rhetorical topics of invention, or *topoi*. I argue that to fully appreciate the Mars Trilogy, one must understand that its applicable topics are, in fact, the planetary features of Mars itself: its gravity, landforms, and more. I develop and analyze this list of the *planetary topics* in the context of the Trilogy. In addition, I use the planetary topics to reevaluate established critical readings of the strategy video game series *Sid Meier’s Civilization*, as well as Robert Zubrin’s nonfiction space advocacy monograph *The Case for Mars*. I conclude that a reading of these

artifacts informed by the planetary topics can yield more nuanced judgements than those produced by the prevailing style of academic critique; furthermore, this conclusion points the way toward the development of a speculative radicalist mode of engagement and imagination that is capable of meeting the challenges of the Anthropocene.

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Preface

While working on this dissertation, I received help and inspiration from a number of different sources worthy of special acknowledgement. First and foremost, I am grateful to the members of my dissertation committee. Brent Malin and David Marshall both provided me with invaluable guidance at every stage of the project, including working as sounding boards for ideas, offering writing advice, and reading multiple drafts of manuscripts. Calum Matheson and Annette Vee were also most generous with their time and resources, and I am thankful for their insights and suggestions. In addition, John Lyne provided me with extremely helpful advice and direction over the course of the project. I also owe incalculable thanks to my writing group, including Tim Barr, Olga Blackledge, Piper Corp, Chloe Hansen, and Birney Young for their patience and insights while reading and discussing drafts of the project too rough and germinal to expose to the harsh light of publicity in any other venue.

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1.0 Introduction

The coming decades will present humanity with challenges and opportunities on an unprecedented scale. It is clear that successfully addressing the numerous vectors of impending ecological collapse—not only climate change, but soil erosion, ocean acidification, biosphere collapse, and more—will require a massive reimagining of society. Yet existing academic attitudes and methodologies are not currently up to the challenge: while the sciences warn of rapidly approaching planetary boundaries and propose technical solutions, the humanities have traditionally operated largely within a “give us your best ideas, and we’ll tell you what’s wrong with them” paradigm of ideology critique. What is needed is a reorientation of the humanities toward a more generative, inventional mode of inquiry capable of synthesizing scientific findings with cultural narratives and institutions to produce comprehensive visions of a livable human future. My dissertation investigates artifacts participating in this mode of inquiry, which I call speculative radicalism. “Radical” comes from the Latin *radix*, meaning root: a radical theory is not one that breaks with all others, but which makes copious connections and offers a root for future activity. As a paradigm for humanistic scholarship and pedagogy, speculative radicalism builds a bridge from the insights of the sciences to newly imagined futures.

Chapter One of this dissertation attempts to answer two questions: what exactly is wrong with the practice of ideology critique as it has traditionally been practiced, and what, if anything, might improve or replace it? With that goal in mind, I assemble a constellation of theorists who share my dissatisfaction with critique’s largely unquestioned dominance of high theory within the humanities. As it turns out, there are numerous allies to call upon for the first task, that of problematizing critique as traditionally practiced. A host of theorists from a wide variety of

disciplines including Bruno Latour, Jodi Dean, Mark Fisher, Peter Sloterdijk, and P.J. Salazar have offered a variety of perspectives on why critique has “run out of steam.” After examining the work of these critics of critique, what becomes apparent is that ideology critique suffers primarily from an inability or disinclination to make an affirmative case for credible alternatives.

A learned incapacity to imagine alternatives also filters down to the general public in a modified form, due in part to the dominance of ideology critique and the associated staking the humanities’ purported reason for continued existence on its presumed ability to teach “critical thinking.” In practice, this has combined with the polarizing effects of social media echo chambers to ensure wider access to the entry-level tools of the hermeneutics of suspicion, ensuring that almost anyone can rapidly problematize and summarily dismiss the arguments of anyone else without expending much effort. The disciplines infused by ideology critique, including rhetorical studies, had become all sail and no ballast, or to use a gaming idiom, “glass cannons:” well-adapted to deconstruct and destroy, but not to stake out and defend anything of their own creation. Or rather, perhaps the problem is critique’s own formidable, yet inflexible and ossified canon: its current assumptions and practices have been heavily shaped by European thinkers and their American derivatives who were active in the 1960s, 70s, and 80s. There is an evident fear running through both Western Marxism and poststructuralism that in making an affirmative case for anything they run the risk of being accused of utopian totalitarianism linked to really-existing socialism of the Soviet Union. Safer to stay on the sidelines, lobbing an occasional critical bomb into the fray while maintaining a safe distance than to risk articulating any affirmative position.

Perhaps eschewing speculation in favor of critique was even a measured and wise position to take in the mid-twentieth century; however, at least three items of world-historical importance have changed since most of critique’s canon was written: the collapse of the Soviet Union as a

credible alternative to free market capitalism, the fragmentation of a dominant society of discipline by widespread access to the World Wide Web in the developed world, and the declaration that the Earth had entered the epoch of the Anthropocene. Under these conditions, promoting and teaching the skills of critique without an impetus to make a corresponding affirmative gesture simply perpetuates the claim that there is no alternative to the dominant ideology while blurring the line between well-intentioned social critic and conspiracy-theorizing internet troll. As Latour observes, the most serious case of this lies in the realization that counter-enlightenment critiques of science had been twisted and weaponized by climate change deniers.

By this time thinkers and artists working from the margins of the humanities had also already begun to question the hegemony of critique and to address the lack of affirmative imagined futures representative of their own experiences. Notably, Afrofuturist literature, art, and especially music had begun to use depictions of affirmative alternative futures to confront stereotypes of Blackness as defined by fatalism and tyranny of the now, even when those stereotypes are reproduced by well-intentioned social critique.¹ Importantly, however, Afrofuturism and other imaginings of alternative futures react not only against critique, but also against the tendency of some classic and golden age science fiction to elide histories of colonialism and racial oppression in an overhasty progressive march toward imagining harmonious, colorblind techno-optimal futures. As “a program for recovering the histories of counter-futures,”² Afrofuturism and other alternative futurisms address not only the speculative ontology but also “hauntology” of the future,³ negotiating the gap produced by the melancholia for the alternative future that was lost or

¹ Ytasha Womack, *Afrofuturism: The world of black sci-fi and fantasy culture*. (Chicago: Lawrence Hill Books, 2013), 11-12.

² Kodwo Eshun, “Further Considerations of Afrofuturism,” *CR: The New Centennial Review* 3, No. 2, (2003), 301.

³ Mark Fisher. “The metaphysics of crackle: Afrofuturism and hauntology.” *Dancecult: Journal of Electronic Dance Music Culture* 5, no. 2 (2013): 42-55.

destroyed by imperialism and colonialism, and the affirmative future that can still be pieced together from the wreckage. Increasingly, all of humanity now finds ourselves in need of imagining this type of recuperative, more circumspect, yet still affirmative future, as the impending climate crisis is in the process of cancelling the futures of everyone not belonging to the emerging trillionaire class.

Contemporaneously to my own investigations into the works of ideology critique's skeptics, the new philosophical movements of speculative realism, object-oriented ontology, new materialism, and related trends had begun to announce themselves. These nascent movements also have taken aim at the current state of ideology critique, often locating the perceived problem with the extreme social constructionist positions of the linguistic turn, which they fault as ill-equipped to theorize the problems of the Anthropocene. Yet as trenchant as they can be in their takedowns of the linguistic turn, their account of what kinds of writing or methods should replace it often remains unsatisfying. Nevertheless, in the course of my research into these movements, I stumbled upon an interesting commonality: nearly all of the thinkers associated with speculative realism and related movements cite Kim Stanley Robinson's Mars Trilogy for many of their most compelling arguments and examples. At the time I had not yet read the Mars Trilogy, though I was familiar with Robinson's work from *The Years of Rice and Salt*, an alternate history that imagines the world without the influence of European culture due to it being effectively eradicated by a more virulent version of the Black Death.⁴ Taking the plunge into *Red Mars* myself, I soon concluded that the novels possessed clues toward developing the affirmative antidote to critique that speculative realism was unable to provide.

⁴ Kim Stanley Robinson, *The Years of Rice and Salt*. (New York: Bantam, 2003).

Upon closer reading of both the Mars trilogy and the speculative realists, I concluded that speculative realism often seems to owe so much to the Mars Trilogy as to be almost derivative of it. For instance, Levi Bryant illustrates his distinction between an object's "local manifestations" and its "virtual proper being" by reference to Robinson's descriptions of the differences between the bodies of native Martian humans and those born on Earth.⁵ Timothy Morton relies upon the Trilogy to develop his concepts of the always-already reflexive "ecological thought" and the interconnection of the "mesh," Morton's term for the interdependence of all things.⁶ Yet, as I will seek to illustrate, all of these concepts are both preceded and surpassed by Robinson's own "areoformation," or the process by which humans and the Martian landscape both simultaneously inform each other, as chronicled in the Trilogy's copious descriptions of natural and cultural processes. Because the very concepts that the speculative realists are attempting to mint can only be realized within a fully-textured particularity, they are unable to capture and surpass it with the attempted move to philosophical generality. Instead, perhaps they should have created their own alternative thickly described speculative data points to demonstrate the viability of an alternative state of affairs. Here, speculation (at least in Robinson's mode of thick observational description), and its invention via what I call the *planetary topics* of invention, trumps theory: because of the interconnectedness of the mesh, there can be no Mortonian mesh in general, only the mesh *of* a teeming, fully-populated lifeworld. Thus, I make the argument that we should thoroughly embrace the speculative, but relax the hold of the real or the actual in favor of the possible. This is what I call *speculative radicalism*, or the art of making detailed and comprehensive, but speculative connections that are "radical" in the sense of their rootedness, or interconnection.

⁵ Levi Bryant, *Onto-Cartography: An Ontology of Machines and Media* (Edinburgh: EUP, 2014), 40-41.

⁶ Timothy Morton, *The Ecological Thought* (Cambridge: Harvard University Press, 2010) 56-58.

With the concept of speculative radicalism, I attempt to intervene in an admittedly somewhat esoteric debate between the speculative realists, along with their OOO and New Materialist fellow travelers, against practitioners of the more established schools of critique informed by the linguistic turn. The fight is essentially over what degree of social constructivism we should embrace, and is often framed as a struggle over who should have the rights to the prestige term “materialism.” The speculative realists want to reclaim the term materialism as having to do with its perhaps more obvious sense of the importance of physical matter—the extent to which our social being is constrained and shaped by such things as the quirks of our biology or the properties of silicon. Conversely, as I discuss in greater detail in Chapter One, the definition of materialism favored by the practitioners of critique is one that they ostensibly trace to Marx’s unity of the social relations of production and the forces of production; however, under the influence of Western Marxism’s almost exclusively academic humanist gatekeepers, the cultural and linguistic determination of the relations of production has been emphasized at the expense of the more physical forces of production. Though the debate is somewhat esoteric, the stakes are high. While the speculative realists worry that excessive deference to ideas of social constructivism has blunted the response to very real ecological problems, the critics worry that a return to “hard” materialism could lead to potentially reactionary technological, economic, or even biological determinisms.

I have chosen to focus on Robinson’s work, and the Mars Trilogy in particular, from among the vast archive of possible texts of utopian literature because it cuts the Gordian knot of the materialism debate with its emphasis on particularity and planetary detail, realized through copious descriptions of the many social and scientific processes mobilized to make a human civilization work, on the planet Mars specifically. This enterprise reveals how any seriously-considered work

of social construction must inevitably encompass both definitions of materialism. As a literary work, the Trilogy is unique in its thick descriptions of Martian landforms and their sustained interactions with humans over centuries stretching from something very much like our own lived present into the distant, utopian future. By explicitly walking the reader through the processes of “areoformation” that connect the physical features of Mars to the Martians’ newly emerging gender and other cultural norms, Robinson’s Trilogy differs from a utopian text such as Le Guin’s *The Left Hand of Darkness*,⁷ in that the origins of the latter’s androgynously-gendered, utopian society are not explicitly temporally charted or accounted for in terms of direct interactions with planetary features. In my choice to focus on the Mars Trilogy and its closer focus on the planetary topics, I am not suggesting that this brand of invention is necessarily superior to or more original than these other more thematically-oriented works; rather, I am exploring the way in which this uniquely “topical” mode of invention in utopian SF literature offers a resolution to the materialism debate in a way that may help us think our way out of or around pressing contemporary ecological problems.

Chapter two of the dissertation engages in a close reading of the Mars Trilogy, with the goals of both adding something original to scholarship and commentary on the Trilogy itself, and to ascertain why the literary work seems to exceed the readings of its many philosophical admirers. To this end, I focus to a greater extent than existing commentary has on the planet Mars itself as a source of invention, or what I have called the planetary topics. Inspired by the topical tradition of rhetoric or the *topoi*, the planetary topics are commonly accepted points of significant planetary difference that pose problems that require speculative innovations in human society and culture to

⁷ Ursula K. Le Guin, *The left hand of darkness*. (London: Hachette, 2012). Though their approaches and styles certainly differ, Robinson was heavily influenced by Le Guin. During his time at UC San Diego, Robinson studied with both Le Guin and Frederic Jameson.

overcome. For instance, try to imagine, briefly, how many things might be different for a society on a world with one-third of Earth's gravity? Certainly sports, architecture, and the layout of cities would differ, and perhaps these differences would radiate outward to impact all aspects of a culture and society. And this is only one topic, the constraints and possibilities multiply when several of them are considered together. If taken seriously and approached inventively, they can be a productive source of speculative novelty, as the projection or repetition of old or established lifeways and patterns of thinking will not sufficiently address their provocations. I argue that the Trilogy manages to be a more satisfying elucidation of the principles aimed at by the speculative realists in part because it proceeds from these topics, rather than from theory: it is only through a more fully realized particular example that we can retrospectively grasp the general.

Chapter three shifts the focus to the long-running and popular *Sid Meier's Civilization* series of video games. From among the vast and growing archive of video game strategy titles, I have chosen to focus on the *Civilization* series because, as I will show, it invites and encourages a style of practice with the planetary topics of invention that is of a piece with the Mars Trilogy, yet it has conspicuously garnered a much less favorable reaction from academic critics than Robinson's novels—a disjunction I find revealing. Because of the well-developed archive of critical materials on *Civ* that does not exist for many other video games in the genre, it is an ideal site to highlight both the differences in method, as well as what is at stake, in the confrontation between my judgement informed by the planetary topics and the readings performed by more established schools of narratological and media criticism. As I will argue, by looking at the topics that inform the actual decisions made by players of the game, one might come to a more nuanced and favorable conclusion about what forms of imagination the games encourage than if one were to rely more exclusively upon the thematic focus of the critics.

Largely because of their historical subject matter and gameplay that sometimes embraces expansion and conquest, the games of the *Civ* series have been a favorite target for ideology critique. I argue that in the rush to label *Civ* as promoting a pernicious ideology, the critics generally misunderstand the game in one of two reductive ways. Either they reduce the game to its apparent narrative content (the narratological approach), or they reduce it to the identity of its coded operations (the games as media approach). While such readings are perhaps plausible critical readings given the actuality of the game's source materials, I argue that these reductive readings do not reflect the texture and character of anyone's actual gameplay experiences (except perhaps the critic who plays the game only to impart their own critical worldview upon it). Using evidence from my own playthroughs of *Civ* games, corroborated by evidence from other players taken from various fora and fansites, I argue that the game is best described as the experience of slowly coming to grips with a precarious and dynamic planetary situation. Attention to the specific features of the game, its own use of the planetary topics, and most importantly, the actual decisions made by players can anchor a more grounded and nuanced form of criticism for *Civ* and other strategy games.

Chapter four returns to the process of building a speculative human civilization on Mars, however this time through the nonfiction science writing and advocacy of Robert Zubrin. Like *Civilization*, Zubrin's *A Case for Mars* was chosen to help elucidate exactly what the planetary topics are and how they function both for invention and criticism. For this, I posit invention and criticism by means of archetype as the opposite or other of the planetary topics. As I will argue, Zubrin's text shifts noticeably and sharply in tone and orientation between instances when his invention relies primarily on the topics, as in the case of his more reserved scientific passages, to when he writes primarily in the archetypal mode, such as his frequent paens to the frontier and

western civilization. This contradiction or dichotomy within the text itself is what makes it a relevant artifact for this dissertation, and helps me to further explicate the features of invention and criticism by means of the planetary topics, and to differentiate from other schools of criticism.

Together, the artifacts making up the primary source archive for this dissertation were chosen because they are all in some way particularly suitable for developing the concept of speculative radicalism by means of the planetary topics. I agree with Rita Felski that the unmarked term and practice of “critique” has become so thoroughly colonized by what Ricouer described as the hermeneutics of suspicion that it has dispensed with the specificity of the latter name and thus tended to erase or disqualify alternative modes of reading or engagement. As I hope my analysis makes clear, approaching the materials I engage with through the framework I have proposed yields a richer and more nuanced account than when interpreted exclusively through this more normalized “critical” approach.⁸ In some cases, such as Robinson’s Trilogy, my approach offers additional resources for engaging with what is already a canonical work. In other cases, in particular the *Civilization* series, I make judgments about the game that differ sharply from the bulk of prior critical opinion.

I do not mean to suggest that the artifacts I have chosen are the first or the only examples that can be read as post-critical, or that I am the first to attempt to move beyond critique. In addition to the numerous theorists who have problematized critique mentioned in this introduction and in greater detail in Chapter One, it should be noted that scholars working in the field of composition studies have begun to reformulate pedagogies that encourage students to view themselves as makers as much or more so than as critics.⁹ In addition, many feminist authors have engaged in

⁸ Rita Felski, *The Limits of Critique* (Chicago: University of Chicago Press, 2015), 2-3.

⁹ See generally Ian Bogost, *Alien Phenomenology* (Minneapolis: University of Minnesota Press, 2012); James J. Brown and Nathaniel Rivers. "Composing the carpenter's workshop." *O-Zone: A Journal of Object-Oriented Studies*

utopian speculations, often organized around imagined alternative regimes of gender roles, family structure, and caregiving,¹⁰ and numerous feminist theorists have offered affirmative models for rethinking the human relationship to both the natural world and technology.¹¹ The works of these fellow travelers are significant in their own right and also seek to move beyond critique. I see my own analysis as complementary to these approaches even as I situate my analysis within a narrower discussion of materialism and speculative realism, focused in particular on planetary and ecological concerns.

It might be observed that, although my archive draws from seemingly disparate genres and media, I have tended to select artifacts featuring somewhat analogous styles of representation and engagement, namely literary realism, “hard” science fiction, and strategic simulation conducted at very large or planetary scales, and indeed, much of my argument here is in fact an unapologetic defense of these oft-critiqued styles. Though in earlier decades thinkers of a poststructural bent may have had good reason to interrogate the assumptions underpinning then-prevailing grand narratives, we now struggle more acutely with a learned incapacity to imagine alternative narratives to a neoliberal order that has fully appropriated postmodernism as its *de facto* official ideology. Building upon thinkers such as Jameson and Mark Fisher, I argue that it is important for both scholars and students to recover the skills required to engage in “cognitive mapping” at the

1, no. 1 (2013): 27-36. Bogost issues a call for an emphasis on getting to know objects through technically skilled “carpentry;” Brown and Rivers imagine how such carpentry might be put to use in the composition classroom to help recapture an “actionist” spirit of rhetoric.

¹⁰ Jane Donawerth and Carol A. Kolmerten, eds. *Utopian and Science Fiction by Women: worlds of difference*. (Syracuse: Syracuse University Press, 1994). 1-2. The authors note that works comprising a feminist “literature of estrangement” encompassing utopian fiction, science fiction, and fantasy comprise a distinct literary tradition which has thrived in part because “gender roles can be more easily revised when the reader is estranged from her ordinary world.”

¹¹ For a study of techno-optimist, post-critical feminism and other affirmative trends in feminist theory, see generally Maureen McNeil, “Post-millennial feminist theory: Encounters with humanism, materialism, critique, nature, biology and Darwin.” *Journal for Cultural Research* 14, no. 4 (2010): 427-437; and also Maureen McNeil, “Techno-triumphalism, techno-tourism, American dreams and feminism.” In *Transformations*, ed. Sarah Ahmed et al., (Routledge, 2005, 240-253.

planetary scale, hence my ambition to develop a specifically *planetary* topics. As Robinson's character Sax Russell asks, in reference to rational, step-by-step, scientific speculation and striving toward the possibility of utopia, "why not pitch the whole enterprise at the highest level possible?"¹² Yet, though I argue that my defense of these styles is important and necessary, I do not mean to suggest that other styles and scales do not also make use of an explicit or implicit planetary topics to grapple with the problems of the Anthropocene. For instance, in future research it would be interesting to discover what results might obtain if one analyzed the planetary topics of a series of works informed by magical realism and other aesthetic styles often used by writers seeking to empower and convey the experiences of the marginalized.

Perhaps there has never been a more crucial time to take up the challenge of imagining the new. Nearly every week, a new source proclaims a crisis, if not the imminent death of the humanities in the American university. Of particular concern is the continued dominance of the critical paradigm, and the overwhelming reliance upon "critical thinking" as a signifier of the value these disciplines impart. As Felski notes, disciplinary overinvestments in critique's presumed inherent radicalism and its unstated axiom that "whatever is *not* critical must be *uncritical*" has tended to disallow or prevent the development of alternative styles of reading, theorizing, and engagement.¹³ I see speculative radicalism as an important possible supplement to critique and critical thinking—a grounds to claim that we also develop skills and heuristics for the generation of affirmative possibilities. Of course, disciplinary existence is only the least of our worries; our very planetary existence is threatened. The habits of thinking, research, and teaching of the

¹² Kim Stanley Robinson. *Blue Mars*. (New York: Bantam, 1996), 64.

¹³ Rita Felski, 3.

humanities that have up to now been dedicated to critique have value, if they can be turned toward affirmative purposes. This dissertation speculates on how that might occur.

2.0 “A science fiction novel we all co-write together”: Speculative Radicalism as Post-critique

A specter is haunting critical communication studies—the specter of speculative thought. In recent years, a loose association of approaches often grouped under the heading of speculative realism, but also including Object-oriented ontology (OOO), new materialism, new realism, and the various acronymic projects of Bruno Latour (ANT, AIME) have challenged the critical humanities on several of their most closely-held assumptions, including the taken-for-granted centrality of human subjects and the primacy of discourse in constructing and maintaining social relations. Critical attempts to exorcise the specter frequently proceed from the claim that speculative realism’s attempts to decenter human relations by locating them within a “flat ontology” of equivalence with nonhuman objects is an apolitical move that reverses the gains of the critical turn or otherwise forecloses the possibility of a radical politics. Such critics find an unspoken conservative or reactionary desire in speculative realism’s foregrounding of nonhuman objects at the expense of critiquing cultural, historical, and political constructs. Yet speculative realism and its kindred thinkers argue that the critics have it backwards: it is their turn to realism that envisions the next step for political radicalism, while the moribund school of critique, having been fully internalized by the system it was originally developed to provoke, has “run out of steam.”¹⁴

¹⁴ Bruno Latour, “Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern.” *Critical Inquiry*, 30 no. 2, 225–248.

This essay initially sides with speculative realism in this dispute. In addition to finding concordance with the frustrations articulated by Latour and speculative realism, I assemble a trajectory of work that has thoroughly problematized critique's ability to adapt to the affective, institutional, and technological conditions of late information capitalism. Specifically, I argue that by its focus on producing terminal, affective judgements, contemporary critique not only finds itself comfortably in accordance with the prevailing ideology of cynical reason, but also fails to address the most significant impediment to contemporary social change: a lack of imagined alternatives. In contrast, I argue that speculative realism is motivated by two political desires: first, to break through the current impasse built up around critical thought and second, to imagine more just or even simply novel ways of ordering and relating to the world's objects. However, though enthusiastic about speculative realism's project, I acknowledge that some critics register incisive objections that inform my position here. First, I argue that speculative realism's followers and critics alike err when they essentialize the movement by focusing predominantly on the "realism" rather than on the "speculative", as evidenced in the tendency (among both supporters and critics) to define all of speculative realism as proceeding from a rejection of "correlationism", or the closed loop between the thinking subject and ontology such that thinking becomes being.¹⁵ By rushing to embrace realism at all costs, speculative realism theorists risk becoming no less lackeys of "actualism" than the critics themselves.¹⁶ Second, following Brent Malin, I observe that too often, and perhaps especially when dealing with media and communication objects, speculative realism authors seem to know comparatively little about the very objects that they theorize, resulting in descriptions of idealized objects that fail to bear the imprints of the economic, legal and technical

¹⁵ Quentin Meillassoux, *After finitude: An essay on the necessity of contingency*. Translated by Ray Brassier. (New York: Continuum, 2006), 10-11.

¹⁶ Roy Bhaskar, *A Realist Theory of Science*. New York: Routledge, 2013.

systems that have formed and informed them.¹⁷ Yet ultimately, even Malin's call for a more grounded, contextualized critique of political economy, which interpellates both speculative realism and its critics alike, also ultimately fails to exorcise the specter, as it addresses speculative realism's claims to realism but remains silent on the more pressing axis of speculation.

Taking a cue from a recent flashpoint in this dispute involving Graham Harman, Alex Galloway and Malin over whether speculative realism and OOO constitute "radical thinking," I argue that what is needed is a *speculative radicalism* that retains the speculative desire present in speculative realism, with the more meticulous level of detail demanded by Malin's political economic approach. Though critique has become enamored with the common understanding of what it means to be radical, i.e. to advance a critique or position that is simply extreme or distant from the norm, as in a "radical break," the original meaning of radical, from the Latin *radix*, has to do with roots. Radicalism, then, is to create or propose something with the potential to be the root of future activity. Again following Latour, I argue that such a radicalism must play out "close to the roots", eschewing idealist criticism for a focus on thingly interaction.¹⁸ Speculative fiction, and in particular Kim Stanley Robinson's Mars Trilogy, provides a model. And while Robinson's literary speculative radicalism anticipates, and in many ways surpasses academic speculative realism, the theoretical texts nonetheless assist in problematizing and warding off a merely critical reading of the novels.

¹⁷ Brenton J. Malin "Communicating with Objects: Ontology, Object-Orientations, and the Politics of Communication." *Communication Theory: A Journal of the International Communication Association* 26 no. 3, (2016): 236–254.

¹⁸ Bruno Latour. "On some of the affects of capitalism." Lecture given at the Royal Academy, Copenhagen, 2014: <http://bruno-latour.fr/sites/default/files/136-AFFECTS-OF-K-COPENHAGUE.pdf>

2.1 The Ontology of Critique

While critique originated as a project opposed to the interests of capital and associated oppressive social structures and continues to view itself in this light, numerous thinkers have begun to question the extent to which it still fulfills this function. As Latour's formulation suggests, critique once had the "steam" to mount a meaningful challenge to capital and the assumptions of the status quo, but has now run its course. He shows how unmasking the assumptions undergirding our social institutions, including science and rationality themselves, has become commonplace and passé. Worse and even more alarming, the now well-rehearsed roteness of the critical pose, which he characterizes as a two-step parlour trick rapidly oscillating between fetishistic misdirection and unjustified assertion of fact, now leaves the tools of critique within easy reach of conspiracy theorists and demagogues.¹⁹ Rhetoric and communication scholars are also familiar with this process of weaponizing the basic moves of postmodern critiques of science in order to create "manufactured controversies," most notably to engage in bad faith problematizations of climate science.²⁰

Furthermore, media technology and rapid circulation have assisted capitalism's ability to commoditize and neutralize even the most critical communications. Jodi Dean's "communicative capitalism" explains why, in the era of ubiquitous cultural critique, "there is no response" to critiques, protests, or political messages of any kind.²¹ Under communicative capitalism, the "use value" of a message's content is implicitly devalued in comparison to its "exchange value" in

¹⁹ Latour, "Why critique has run out of steam," 230.

²⁰ Leah Ceccarelli, "Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate." *Rhetoric & Public Affairs* 14, no. 2 (2011): 195-228.

²¹ Jodi Dean, Communicative capitalism: Circulation and the foreclosure of politics. *Cultural Politics* 1 no. 1, (2005): 51.

circulation and replication—political communications no longer necessitate or even imagine a response, they merely seek increased circulation. Critique thrives in conditions of communicative capitalism. By ignoring and even eschewing a focus on effects, solutions or alternatives, critique does not require or anticipate a response, instead content with circulation and replication as a boutique commodity in increasingly insular enclaves. It becomes simply another commodity to be circulated, more grist for the mill. Although communication studies has previously taken up Dean's work to show communicative capitalism assists in capital's capture, normalization and circulation of various activist discourses, it has not yet sufficiently addressed what it means for the discipline's own critical paradigm.

Perhaps most arresting are those thinkers who have begun to suspect that, far from fomenting resistance, the habits of mind, aesthetic, and general culture encouraged by critique are actually in perfect accordance with the ideology of late information capitalism. In an environment oversaturated with both critical and conspiracy theorists, the dominant post-critical ideology has become what Sloterdijk calls "enlightened false consciousness." Enlightened false consciousness is well aware of and has fully internalized the observations and objections of critique, but remains either unable or unwilling to act on them in any practical way.²² Because of this learned reluctance or inability to act, enlightened false consciousness ensures that acting against better knowledge is no longer a paradox or anomaly in need of explanation, rather it is our default habitus. Thus, not only are we desensitized to the most common critical arguments, but even on the occasions where new revelations are produced we are inoculated against them in advance by an internalized cynical reason. Sloterdijk even observes that the affect of "chic bitterness" encouraged by enlightened

²² Peter Sloterdijk, *Critique of Cynical Reason*, translated by Michael Eldred. (Minneapolis: University of Minnesota Press, 1988), 5.

false consciousness is widely regarded by some corporate and institutional cultures as a healthy attitude, as something of it is necessary to keep going in these times.²³ Thus it is not a stretch to suggest that once-insurrectionary critique has fused completely with the ruling ideology it purports to deconstruct.

Reacting against the production of critique which merely exacerbates and perpetuates enlightened false consciousness, recent thinkers have attempted to problematize the growing rift between knowledge and action. McKenzie Wark argues that Althusser's "relative independence of the superstructure" was an important and unfortunate watershed in justifying critical theory's retreat into the "bourgeois disciplines" such as semiotics and literary theory.²⁴ Wark goes on to advocate for the rehabilitation of a "vulgar" Marxist alliance of hackers and manual laborers, counterposing it to the "genteel" Marxism of "hypocritical theory."²⁵ Among the speculative realists, Bryant argues for a similar dichotomy between semiotic politics—paradigmatically, critique—and thermodynamic politics—paradigmatically, a strike, suggesting that the two have been problematically decoupled, and the latter devalued relative to the former.²⁶

The field of rhetorical studies has also recognized the problems associated with the waning efficacy of critique. If enlightened false consciousness is a diffuse, low-intensity melancholy enervating the public sphere, those continuing to engage in the production of critique perhaps suffer most acutely. P-J Salazar diagnoses this melancholy in practitioners of critique, specifically the rhetorical critic, whose lost object is rhetorical culture itself.²⁷ Like Sloterdijk's modern cynic,

²³ Ibid, 5-6.

²⁴ McKenzie Wark, *Molecular Red: Theory for the Anthropocene*. (New York: Verso Books, 2015), 268-269.

²⁵ Ibid, 218-220.

²⁶ Bryant, *Onto-cartography*, 72-73.

²⁷ Philippe-Joseph Salazar, "Rhetoric on the Bleachers, or, The Rhetorician as Melancholiac." *Philosophy & Rhetoric* 41 no. 4, (2008): 358.

the critic continues to work, despite the fact that rhetorical culture, or the norms and conditions that make the action of a rhetorical audience possible, no longer exist. As Dean would have it, there is no response, and mere circulation of commodity-critique for its own sake is the new norm. This lack of a rhetorical culture and institutions contributed to the field's turn away from traditional rhetorical criticism and toward critique of ideology, or critical rhetoric as called for by McKerrow.²⁸ Suddenly, nearly anything could be considered a rhetorical text, and the act of "unmasking" the ideological assumptions of a work or utterance was now considered a critical, radical act. But what ends does the unmasking serve? Does critical rhetoric possess a theory of teleology that justifies its continued reliance upon unmasking as the sole value of critical production? To the extent that it has one, I suspect that it continues to presume an audience governed primarily by the social technologies of discipline, and has not adequately attended to the social shifts associated with a move to a society of control.²⁹ As Salazar has it "the practice of rhetoric is contingent upon what people do with speech," and in the absence of a rhetorical audience capable of effective response, the critic is forced into a "retirement on the bleachers" of public life.³⁰

Indeed, critique's demystification of ideology is now largely obsolete as a praxis purporting to aim at radicalism. Not because we live in a post-ideological age—far from it—but because the dominant ideology no longer needs to take the trouble to mystify itself as it faces no serious

²⁸ Raymie McKerrow, "Critical rhetoric: Theory and praxis." *Communications Monographs*, 56 no. 2, (1989): 91–111.

²⁹ Gilles Deleuze, "Postscript on the Societies of Control" *October* 59, (1992), pp. 3-7. As Deleuze explains, while discipline is a relatively stable "mold," which can thus in principle be revealed and smashed, control is a more flexible "modulation" that uses the actions and desires of the governed for their own subjugation. Just as hedge funds leveraging financial derivatives can profit off of even the contracting movement of a bear market, control society turns the energies of would-be liberatory activists against themselves, perhaps especially their appetites for unmasking and mold-smashing.

³⁰ Salazar, 368-369.

challengers. “There is no alternative” is the clearest possible statement of the ideology of late capital’s otherwise amorphous and deconstructivist tendencies, an aesthetic-ideological complex that Fisher calls “capitalist realism.”³¹ At an earlier phase in its development the capitalist superstructure expounded a utopian and progressive narrative highlighting its professed virtues of technical and social dynamism, yet this is not the case today. Capitalist realism no longer finds it necessary to proclaim that capitalism is good, it simply maintains that there is no alternative. Having deconstructed all illusions and embraced the view that all political systems are exploitive and corrupt, one must now only attempt to survive by choosing the lesser evil, eschewing the utopianism of solutions or progress. This “anti-mythical myth” is also the ethos of deconstructive critique, now internalized by the culture industry and repackaged for its own ends.³²

While these recent critiques of critique are both trenchant and timely, it must also be observed that they are not entirely new: by the mid-twentieth century, the founders of critical theory and cultural studies had already foreseen the danger. Seeking to overcome criticism’s bourgeois and aristocratic roots, Raymond Williams warned against a style of criticism overly preoccupied with “fault-finding” and the production of judgment as a final value. In place of the rush to judgment underwritten by the “social confidence of a class,” he advocated a turn toward “a definite practice, in active and complex relations with its whole situation and context.”³³

Even as Williams attempted to liberate critique from its gentrified past, Adorno had already anticipated the full assimilation of ideology critique into late capitalist circulation. In an era in which “there are no more ideologies in the authentic sense of false consciousness” there is less to

³¹ Mark Fisher. *Capitalist Realism: Is There No Alternative?* (New York: Zero Books, 2009), 8.

³² *Ibid*, 10.

³³ Raymond Williams. *Keywords: A Vocabulary for Culture and Society*. New York: Oxford University Press, 1983, 75-76.

fear from leaving a supposedly dominant ideology unremarked upon than from the habit of “judging intellectual phenomena in a subsumptive, uninformed and administrative manner and assimilating them into the prevailing constellations of power which the intellect ought to expose.”³⁴ With modern ideology operating not as idea or myth but rather as an unopposed praxis, the routinized pronouncements of the critics provide, at best, diversion or entertainment while “even the most extreme consciousness of doom threatens to degenerate into idle chatter.”³⁵ Yet for Adorno the anti-intellectual “actionism” of the 1960s did not offer a viable alternative largely because they imagined no alternative: “at this time no higher form of society is concretely visible.”³⁶ Significantly, armchair cultural critics and actionist mass movements both suffer from the defect: in the reactive rush to respond to the latest exigency and pronounce upon the concerns of the moment, they both neglect the sustained contemplation of alternative visions of society. Thus, we should understand both Williams and Adorno as recognizing a need to move away from a critique that produces terminal identifications and toward a more sustained and open-ended form of inquiry.

Yet the practice of critique has taken the opposite course, and intensified the fetishization of identification. Between Williams’ suspicions of the cultivated affect of smug confidence stemming from cultural critique’s roots and Adorno’s warnings of the assimilation and formalization of ideology critique, we can locate what Malin calls the “affective formalism” of the contemporary critic.³⁷ In a situation in which no radical action is possible, cultural phenomena can

³⁴ Theodor Adorno, “Cultural Criticism and Society.” In *Prisms*. Translated by Samuel and Shierry Weber. (Cambridge: MIT Press, 1983), 33, 29.

³⁵ *Ibid*, 33.

³⁶ Theodor Adorno, “Resignation.” In *Critical Models: Interventions and Catchwords*, edited & translated by Harry Pickford, New York: Columbia University Press, 2005.

³⁷ Brenton J Malin, “Communicating with Objects: Ontology, Object-Orientations, and the Politics of Communication.” *Communication Theory: A Journal of the International Communication Association*, 26 no. 3, (2016): 240.

only be differentiated by the affects or passions they purport to contain. This accounts for the critical urge to pronounce a determination that film A is radical while film B is reactionary, when in actuality they are both first and foremost commodities in circulation. In the following section, after establishing the context for the broader dispute between ideology critique and speculative realism, I examine Malin's account of a particular exchange between Alexander Galloway and Graham Harman as a telling synecdoche which brings the impasse between critique and speculative realism into starker relief.

2.2 The Critique of Ontology

Various commentators have offered numerous, sometimes mutually incompatible critiques of speculative realism's explicit or implied ontological claims. While many find fault with the hubris of the "break" with correlationism, Wolfendale instead faults speculative realism for not going far enough in that break, arguing that it effectively capitulates entirely to the correlationist unknowability of objects.³⁸ In contrast, Golumbia contends that correlationism never existed as dogma in the first place, and speculative realism thinkers ignore the rich tradition of post-Kantian realist philosophy, particularly within Anglo-American analytic schools.³⁹ While I agree with Golumbia's critique to a certain extent, as correlationism is too often deployed by some speculative realism thinkers as a straw man to justify omissions and begin from scratch with an allegedly new philosophy. However, he is wrong to assume that because there were and are thriving post-Kantian realist traditions that speculative realism reacts against nothing. As Ferraris, one of these often-

³⁸ Peter Wolfendale, *Object Oriented Philosophy: The Noumenon's New Clothes*. Lulu Press, 2014.

³⁹ David Golumbia, "Correlationism": The Dogma that Never Was. *Boundary 2*, 43 no. 2, (2016): 1–25.

elided post-Kantian realists, demonstrates, the hegemonic thought of an era may not necessarily be attributable to any particular thinker, rather it may be a blend of positions, spontaneously held by many but espoused rigorously in print by no one. Thus though correlationism may indeed never have existed as explicit dogma, the prohibitions and limitations against which speculative realism reacts exist in the influence of “Foukant” and “Deskant,” mashups of Foucault and Kant, and Descartes and Kant respectively.⁴⁰ Claiming that “reality is constructed by power and subjectivity”, Foukant and Deskant are more akin to vague, yet influential political ideologies than rigorous philosophical dogmas. It is these ideologies, of a piece with capitalist realism and enlightened false consciousness, that I understand speculative realism as reacting against. Thus, concluding that the speculative realists have, at least, a legitimate grievance against a pervasive and influential discourse, I turn my focus to political and ethical critiques of speculative realism.

Focusing on the realist break with correlationism, critics of the movement warn that the preoccupation with nonhuman or absolute realities outside of human experience at best ignores the pressing ethical concerns of human politics and at worst reproduces current unjust political realities. Both of these claims are evident in media theorist Alexander Galloway’s critiques of speculative realism in general and of Graham Harman in particular. Gesturing toward a number of speculative ontologies (speculative realism, OOO, Badiou’s set-theoretical ontology), Galloway argues that they bear a “homological resemblance” to the computer programming languages that enable and undergird contemporary information capitalism, a homology he finds problematic. He asks, “Why do these philosophers, when holding up a mirror to nature, see the mode of production reflected back at them? Why, in short, is there a coincidence between today’s ontologies and the

⁴⁰ Maurizio Ferraris, *Introduction to New Realism*, translated by Sarah de Sanctis. (New York: Bloomsbury, 2015), 24.

software of big business?”⁴¹ Purporting to perform a classic Marxist critique of bourgeois philosophy, Galloway suggests that these New Ontologists have simply forgotten the historicity of their claims, unwittingly internalizing the implicit assumptions of the current mode of production, which is yet again seeking to obfuscate and mystify itself by masquerading as a new and objective philosophy.

There are already two problems with Galloway’s argument. First, a programming language is not a mode of production. Rather it is but one of the many technical forces of production, which, only in synthesis with the social relations of production, amount in Marx’s work to a mode of production.⁴² For someone adopting the mantle of Marx, as Galloway purports to, this is a serious error: if the ultimate aim of Marxist critique is to surpass the current mode of production through careful attention to the contradictions and instabilities opened up by incongruities between the forces and relations of production, a critical practice that presumes them as always-already identical has failed before it has begun. Second, and more significantly, Galloway fails to reflectively consider the ideological implications of his own activity as a producer of the boutique commodity known as “critique.” In pointing the critical finger so quickly at the speculative realists he elides the question of his own critical and political practice. How can Galloway be sure that he too has not internalized the assumptions implicit in the mode of production? It is not a large leap to expand his own litany of suspicious bourgeois characters (“the dot-com exec, the Obama supporter, the OOO philosopher...”) to include one more: the cultural critic.⁴³ As I have shown,

⁴¹ Alexander Galloway. “The Poverty of Philosophy: Realism and Post-Fordism.” *Critical Inquiry*, 39(2), (2013): 347–366.

⁴² Karl Marx, “Preface to The Critique of Political Economy.” In *Karl Marx and Frederick Engels*. New York: International Publishers, 1968.

⁴³ Alexander Galloway. “A response to Graham Harman’s ‘Marginalia on Radical Thinking.’” *An und für sich*. June 3, 2012: <https://itself.wordpress.com/2012/06/03/a-response-to-graham-harmans-marginalia-on-radical-thinking/>

there is a large and growing body of literature problematizing exactly Galloway's brand of critique, and showing that it too participates in and perpetuates an ideology associated with the mode of production, a point Galloway does not acknowledge. While commentators of the stature of Adorno and Williams continued to identify as critics, they nevertheless wrote with great sophistication of the critic's own fraught and even contradictory place in society; Galloway on the other hand wears it as a badge of prideful identification, supposing it makes that him somehow different from other, identically-situated bourgeois academics.

How is it that the cultural critic, whose stock and trade is careful, even suspicious exegesis, can remain silent about the broader effects of their own praxis? Malin offers an answer in detecting an implicit "ontology of affective formalism" in both Galloway's critiques of speculative realism and his larger body of work. Affective formalism "defines the political being of objects in terms of the affective energies they are presumed to contain."⁴⁴ An affective formalist approach analyzes a text or artifact on a purely representational level, ignoring its participation in broader economic production and circulation, making it a form of "Marxism without Marx."⁴⁵ Malin contrasts Galloway's affective formalist reading of the show *24*, which "depends upon using close reading to demonstrate how *24* reflects feelings and anxieties that are central to contemporary American political life" with Malin's own "onto-materialist" approach, which locates the political being of the show within a much knottier context of television production practices, DVD marketing strategies, and media regulation legislation.⁴⁶ Malin goes on to detect affective formalism in Galloway's critique of Harman, whom Galloway singles out for his claimed political awakening in response to the Mubarak regime's crackdown against the Arab Spring: "it took the events on the

⁴⁴ Malin, 237.

⁴⁵ Ibid, 242.

⁴⁶ Ibid, 241-242

street to shake me from slumber, and I have not yet recovered from that experience.”⁴⁷ As Galloway has it, this is a “classic case of liberal neutralization”, and Harman’s newfound political commitments are merely an “affective emotional response to the sight of blood.”⁴⁸

As Malin argues, the form that Galloway’s critique takes tells us more about Galloway’s own unreflective political ontology than it does about Harman: “it is Galloway as much as Harman for whom affective responses are central. [For Galloway] Harman’s particular affective investments... presumably tell us all we need to know about his political being. Ontology here becomes a question of enduring emotional investment.”⁴⁹ Thus for Galloway, Harman’s political being is defined not through the teleology that results from his works, nor even through the deontological rightness or wrongness of his acts, but his very affective state, that Galloway presumably can divine from Harman’s writings. Malin’s naming of this affective formalism helps explain how critique is able to continue on with business as usual despite the now well-established objections I have assembled. Affective formalism is an accelerated form of enlightened false consciousness, as it no longer even perceives the rift between critical knowledge and action, instead reformulating the enthusiastic circulation of critical knowledge as action, indeed as the only action possible. It unites Adorno’s fears that critique become either actionist or assimilated: in the rush to pronounce judgment upon everything and thus registering the genuineness of one’s radical passions, the critical act is standardized and reduced to more grist for the mill of communicative capitalist circulation.

⁴⁷ Graham Harman and Derick Varn, “Marginalia on Radical Thinking: An Interview with Graham Harman.” *Symptomatic Commentary*. September 22, 2014: <https://symptomaticcommentary.wordpress.com/2014/09/22/marginalia-on-radical-thinking-an-interview-with-graham-harman/>

⁴⁸ Galloway, “A response to Graham Harman’s ‘Marginalia on radical thinking’”

⁴⁹ Malin, 240.

Affective formalism ignores the larger economy and ecology into which its critiques are introduced, again making it problematic for a critic adopting the mantle of Marxism as Galloway does. Arguing for a blanket rejection of not only speculative realism/OOO but the entire recent ontological turn in continental theory, Galloway is quick to presume that critique itself “has” a politics, which is presumably under threat by the speculative turn:

Phenomenology has a politics, to be sure: beyond the ravages of modern life, the return to a more poetic state of being guided by care and solicitude. Social constructivism has one too: throw out the violence of patriarchy, logocentrism, and all the rest. Have no illusions, this is what is at stake with the recent return to the absolute evident in theoretical discourse from Meillassoux to Badiou, and even evident in other authors such as Žižek and Susan Buck-Morss.⁵⁰

The question that Galloway fails to ask here is, what is it to “have” a politics? The Young Hegelians and Utopian Socialists “had” a politics also, yet Marx was not impressed with the form this “having” took. Despite expressly identifying himself with Marxist materialism, which he opposes to realism,⁵¹ Galloway seems to return to a pre-Marxist idealism in presuming that one’s critical affect or pose determines one’s social being, rather than the other way around.

The question I raise here of the ontological status of a political practice or idea, and how it might persist, function and replicate in a larger ecosystem of contemporary objects, is of a piece with some of the strains of speculative realism Galloway positions himself so steadfastly against. It is also the type of speculation that has become crucial in a political-economic context in which critique of spectacular capitalism is an integral part of the spectacle itself. There is something of an irony in that it is often the self-avowed critical social constructivists like Galloway who insist upon the eternal relevance of their theoretical positions, while it is Harman, the theorist of objects

⁵⁰ Galloway, “The Poverty of Philosophy,” 357.

⁵¹ Ibid, 365.

and ontologies, who reminds us that “philosophy is historical because any statement can turn into a platitude once the surrounding conditions have changed, and philosophy is more about outflanking platitudes than about making eternally true propositions.”⁵² Latour similarly observes that critique’s formerly incisive statements have now become worthless banalities in a new societal context, available for any conspiracy theorist to use in bad faith.⁵³ To act as a critic today, in our era of enlightened false consciousness and communicative capitalism, is to produce a thing that has very different effects in circulation than the same act undertaken in an earlier era. At minimum, a critic must be sensitive to the operation of the vast ideological, regulatory, and media apparatuses that enable the circulation, acceptance, and misuse of their critical products.

Let us return now to Malin’s account of the Galloway-Harman dispute to investigate Malin’s onto-materialism, which interpellates both affective formalist critique and speculative realism alike. Malin’s argument against speculative realism and its critics, like Galloway, is that they both forget that under capitalism objects are, in fact, not only objects, but *commodities* enmeshed in a mode of production at every point of their existence, a fact each camp overlooks in surprisingly similar ways. While Galloway remains exclusively focused on the ideals of individual critics or media artifacts, says Malin, Harman and other speculative realism thinkers remain interested only in the ideas of objects. For instance, Malin points to Harman’s use of the idealized “bridge effect,” rather than the really-existing bridge, which must contend with economic and social realities of “tolls, traffic jams, construction, and sidewalks full of pedestrians and bicyclists.”⁵⁴ Thus despite their vociferous dispute over the status of objects, Malin claims that

⁵² Harman and Varn

⁵³ Latour, “Why critique has run out of steam”

⁵⁴ Malin, 245-246.

both speculative realism and its “materialist” critics are actually idealists who often seem to know very little about the objects about which they write.

In a telling example, Malin turns to Levi Bryant’s narration of how the computer game SimCity enabled his own “conversion experience” from a philosopher primarily interested in textual analysis to an interest in Object-oriented thought. Bryant notes how the resistance of objects encountered in the game, “the real properties of roads, powerlines, pollution, and so on” taught him that texts and signifiers are not the sole authors of social relations.”⁵⁵ Malin rightly observes a problem here, as Bryant conflates the operation of things in the real world with their algorithmic representations within a computer game that is not only a representation, but also itself a commodity, imprinted by the economics and conventions of the digital gaming industry.⁵⁶ Malin’s onto-materialist critique is a much more difficult one for speculative realism to recover from than Galloway’s affective formalist Marxism without Marx. He accepts speculative realism’s own rallying cry of “to the objects themselves!” but shows that when we investigate the objects, we find only commodities that cannot be understood if we ignore or bracket the context of the social relations of production.

2.3 Speculative Radicalism

Malin’s onto-materialism illustrates why speculative realism cannot simply be about realism: through detailed description of media objects’ physical properties and their embeddedness in networks of social relations, he provides a more thoroughly realist account of existing objects

⁵⁵ Bryant, *Onto-cartography*, 5.

⁵⁶ Malin, 246.

than either Galloway's cultural critique or speculative realists like Bryant. However, Malin does not address the speculative dimension of speculative realism, which, as I have argued, is its animating political desire and should be refigured as its central characteristic. When asking "of what Golden Gate Bridge do we speak if do so without reference to tolls, traffic jams, construction, and sidewalks full of pedestrians and bicyclists?" Malin sets up a binary choice between relating to the bridge object as the infinite bridge-as-idea, which he attributes to Harman and speculative realism, versus the particularity of the really-existing bridge, embedded in a dense network of social relations, which he claims for onto-materialism.⁵⁷ However, that choice should not be understood as a binary. In fact, there are multiple other Golden Gate Bridges available to speak of between the bridge-as-idea and the really-existing bridge: namely, the potential future Bridges about which we may speculate.

It is perhaps notable that Malin's bridge exemplar, the Golden Gate, is frequently and iconically subjected to Hollywood's forces of speculative destruction. And while speculating about how the Golden Gate object might interact with rampaging kaiju or invading aliens might not seem intellectually prepossessing, how it might handle the imminent climate emergency certainly is. While the Golden Gate itself may be structurally safe for the foreseeable future, some studies project the flooding of the nearby Bay Bridge's toll booths, as well as surrounding streets, no doubt impacting both bridges' future abilities to handle "tolls, traffic jams, construction, and sidewalks full of pedestrians and bicyclists." Speculation requires a flexible relaxing of at least some of an object's current context. Indeed, an exact description of the really-existing bridge in all its embedded social context, if it were possible, would join the fully generic bridge-as-idea in possessing zero interest and relevance as a political topic. Such a bridge would be an utterly known

⁵⁷ Ibid.

quantity, rendered static by its thick matrix of immutable relations, and thus of no interest to political deliberation. While this observation has a Borges story-like quality to it, it is why Harman rightly rejects relational ontologies: if everything were determined by its context and relation to everything else, everything would remain frozen in its current state. For change to be possible, there must exist in every object a reservoir of undeployed potential which has not yet entered into relations with any other thing: what Harman calls the object's withdrawal.

The opposition between an accurately naturalistic, yet static critique and a more inchoate yet dynamic speculation is clarified further by returning to debates over literary naturalism versus realism within twentieth-century Marxist literary circles. Lukács argued against the thick description of early capitalism's effects on social life favored by naturalist authors such as Flaubert and Zola, in favor of traditional "epic" narrative dramatization epitomized by Homeric poetry or the novels of Tolstoy.⁵⁸ Lukács first makes an aesthetic judgement: what makes the narrative style epic, and therefore timeless, is its capacity to depict the dynamic development of characters as participants in a social scene rather than as observers. This is of more lasting interest and higher aesthetic merit than mere description, which eschews the responsibility of judgment and instead reduces a scene to descriptive detail or symbolic meaning, rendering all characters and events mere *natures mortes*.

Importantly for my purpose here, in his critique of naturalism Lukács positions himself against both the downward, or atomistic, reduction to description of scenic detail, but also what we might call the 'upward reduction' to the merely symbolic, in which a particular component of a scene "assumes an importance which does not arise out of the subjective importance of the

⁵⁸ György Lukács, "Narrate or Describe." In *Writer and Critic and Other Essays*, edited & translated by Arthur Kahn. (New York: Grosset & Dunlap, 1970), 110-115.

events, to which it is scarcely related, but from the artifice in the formal stylization.”⁵⁹ For example, while the naturalist Zola engages in social commentary on the prostitution of the theatre of his day under capitalism, this commentary is only achieved through the non-procedural symbolic artifice of a literal prostitute acting in the theatre. In contrast the epic style “depicts *how* the theatre *becomes* prostituted under capitalism,” with its characters as dynamic participants in these very social processes.⁶⁰ As Lukács shows, nothing ever seems to act or move under its own power in the works of the naturalists, rather predestined characters and scenes are always already woven together in a thick network of relations with preassigned symbolic meaning.

It is perhaps surprising to find a similarity between Lukács’s Marxist critique of nineteenth-century literature and Harman’s object-oriented critique of contemporary social theory. Yet what Lukács describes is of a piece with what Harman calls “duomining”, or the simultaneous downward or “undermining” reduction of an object to its component parts with the upward “overmining” reduction of the object to its effects.⁶¹ In general, the sciences or positivist philosophical theories tend to undermine actual objects by reducing them to chemical, molecular, or atomic interactions; however, social theory does little better by overmining objects and reducing them to epiphenomena of grand theoretical categories.

Per Harman, what duomining misses is exactly the object itself: the emergent entity that is greater than the sum of its parts but also less than the sum of its current relations. The naturalists’ failure to critique a mode of production to Lukács’s satisfaction is a result of an aggressive duomining. In the reduction to both scenic detail and symbolic artifice, the missed object is exactly the mode of production itself: human beings in motion, simultaneously determining and being

⁵⁹ Lukács, 115.

⁶⁰ Ibid, 114.

⁶¹ Harman, “Immaterialism” 7-11.

determined by their environment in a feedback loop that can only be rendered as a dynamic process. Importantly, Harman concedes that undermining, overmining, and duomining are the only forms of knowledge possible.⁶² This is why the disciplines that are not “forms of knowledge,” but nonetheless have artistic cognitive value, have a special call to represent objects. For Harman art, architecture and philosophy occupy this special place, for Lukács it is the novel; thus the novel has a special call to represent the mode of production in Lukács’s thought.

Speculative realism reacts against an approach to theory and philosophy which is merely critical, just as Lukács reacted against the mere description of the naturalists. In seeking to elevate itself to the status of a form of knowledge, critique sacrifices the ability to represent the dynamism of objects like a mode of production. Though it purports to be serious and tough-minded, as Donald P. Verene notes, critical thought is actually comic in form, as it retains in principle the possibility of the happy outcome: that one can become freer of error.⁶³ Yet it achieves this only by radically restricting its scope of activity, retreating from the responsibility of suggesting alternatives. Thus, later in his career Lukács accused the critics of the Frankfurt school of having taken up residence in a “Grand Hotel Abyss”, enjoying their performance of critiquing the depravities of consumer capitalism even as it doomed the world. I argue we should understand this statement not as a call for anti-intellectual actionism, of which Adorno had good cause to be suspicious, but rather as a call for speculative thought.

Fortunately, the genre of speculative fiction already performs the tasks of representing the dynamism of a mode of production, although it is not always read in the most productive way. Broadly, there are three ways one might read and interpret speculative fiction. The first, most

⁶² Ibid, 12

⁶³ Donald P. Verene, *Speculative Philosophy*. (New York: Lexington Books, 2009), xi.

common or naïve approach, is to read it as prediction, as in a listicle advertising “these 15 sci-fi books that actually predicted the future.” Foregrounding prediction is clearly contrary to a radical politics, as it will always privilege adjacent probabilities which are extrapolations of current trends, merely giving us the present back in future clothing. The flaws of predictionism have been recognized by communication scholars interested in speculative fiction.⁶⁴ However, I argue that the second, critical approach to speculative fiction suffers from largely the same problem. As the critical reading has it, speculative futures do not tell us anything about the future at all, rather they merely tell us about the conditions of the work’s production, such as the psychology of the author, the subconscious cultural desires of the time, and the like. Though it purports to be more sophisticated than the naïve predictive view, this approach suffers from the same fetish of the actual: in striving above all else to be free from error, they both restrict the possibility space that might otherwise be obtained from speculation and we remain trapped within an inescapable presentism. Though the critical reading piously refuses to extend this presentism into the future like predictionism does, by refusing to proffer an alternative vision it nonetheless allows the default future of the current present to continue unopposed.

In contrast to the artificial binary either for or against predictionism, the most provocative readings of speculative fiction eschew both prediction and commentary on the present to instead speculate upon a multiplicity of possibilities. In his theoretical writings, SF author Kim Stanley Robinson has argued that futuristic speculative fiction must be read as producing a kind of “double vision” analogous to 3D glasses, blurring both the predictive and critical readings and superimposing them upon each other: an extrapolative future which might conceivably come to

⁶⁴ Gina Ercolini & Pat Gehrke, “Writing Future Rhetoric.” *Theorizing Histories of Rhetoric*, edited by Michelle Ballif. (Carbondale: SIU Press, 2013).

pass, superimposed over an analogical similarity to present conflicts. The result is a spectral vision of the process of History itself, extending from the past, through the present and into a possible future.⁶⁵ Yet importantly, and perhaps against McKerrow's Foucauldian "permanent criticism" without direction or telos, these extrapolative possible future Histories are avowedly non-infinite. While a predictive prophecy insisting that we have but one possible future is not very interesting, the observation that the possibilities are infinite is similarly uninteresting. But the careful development and curating of several distinct possibilities, differing in their desirability and direction, is very interesting indeed. Thus, Robinson's *Three Californias*, often mislabeled as a trilogy, is more properly understood as a triptych, a set of three different possible futures for the California coast, curatorially positioned together for rhetorical effect: apocalypse, dystopia, utopia. In such works, the capacity to critique the present is not blunted by attachment to particular, elaborated alternatives, as McKerrow, Foucault, Ercolini and Gehrke seem to fear, instead it is amplified by copious descriptions of physical, biological, and social processes which suggest that any of the three futures are equally plausible.

We should similarly reject the binary posited by both Jacoby and Moylan counterposing an allegedly dangerous, potentially totalitarian "blueprint utopianism" to a poetic, inchoate and therefore presumably harmless "critical" or "iconoclastic utopianism."⁶⁶ While we should certainly be wary of falling for arid, inflexible blueprints which limit imagination, it does not have to be that way, as Robinson's *Mars Trilogy* demonstrates. By the very copiousness of its blueprinting the processes of scientific, political, and nonhuman labor required to give rise to the Martians' fragile

⁶⁵ Kim Stanley Robinson, "Dystopias Now." *Commune 1*. November 2, 2018. <https://communemag.com/issue/fall-2018/>

⁶⁶ Jacoby, Russell Jacoby, *Picture Imperfect: Utopian Thought for an Anti-utopian Age*. New York: Columbia University Press, 2005; Tom Moylan. (1986). *Demand the impossible: science fiction and the utopian imagination*. New York: Taylor & Francis, 1986.

utopian toehold on their planet, the Trilogy highlights contingency and laborious constructedness rather than inevitability. Further, as Terry Eagleton has argued, there is a certain irony in Jacoby's too-rigid prescription for poetry over blueprints: the anti-blueprint critics take the easy way out, following their own prescriptive meta-blueprint against blueprints, absolving themselves of responsibility for the hard business of actually imagining a plausible future.⁶⁷ The drafting of blueprints, and the art of appraising them, requires a faculty of social imagination that must be exercised, lest it atrophy with disuse.

Recall now the two desires that I have proposed as animating speculative realism as a movement: first, the desire to transgress the borders of current rigorous academic thought, to think the unthinkable, to see objects as something other than deterministic billiard balls or as placeholder commodities symbolizing social status within the social relations of production. This strain of speculative realism is represented by Ray Brassier and Eugene Thacker, often finding inspiration in the literary genre of horror. The second desire is to impose a new speculative order upon the universe of things, a new aesthetics, cartography, or even ethics for being in and with the world of objects. This strain is represented by Morton, Bryant, and Bogost, and often finds inspiration in speculative fiction. Harman's work bestrides the two, once pursuing a Lovecraftian "weird realism", but later proposing a concise, even snappy, list of rules for speculating about the being and symbioses of social objects, including potential alternative histories for the Dutch East India Company.⁶⁸ Certainly the two desires are linked, as there can be no transgression without rules, and no new rules without transgression of the old. Furthermore, these two desires should not run

⁶⁷ Terry Eagleton. "Just My Imagination." *The Nation*, May 26, 2005: <https://www.thenation.com/article/just-my-imagination/>

⁶⁸ Graham Harman. *Weird Realism: Lovecraft and Philosophy*. New York: Zero Books, 2012; Harman, *Immaterialism*, 114.

far afield of other more established theoretical frameworks. Just as Lacanian psychoanalytic theory observes the confrontation and overlap of the orders of the symbolic and Real, where the weirdness of the Real is produced as a lack or fissure in the representative power of the symbolic, Deleuze and Guattari theorize that every deterritorialization implies also a concomitant reterritorialization, and vice versa. Even recent work recovering the topical tradition of rhetoric can be grouped here: Marshall sees the dual faculties of *ingenium* and *iudicium*, observing similarity and desecrating difference, as the forces animating the *ars topica*.⁶⁹

Marshall argues that the topical tradition should be understood not as a method for repeatedly interpellating us with the received commonplaces of the past, as many have it, but rather as a tool for discovering, and importantly naming, new articulations.⁷⁰ We might understand Robinson's task in the Mars trilogy similarly. One of the novels' most intransigent political conflicts is the dispute between Green and Red factions over the desirability of anthropocentric terraforming. On Mars, familiar commonplaces in ecological debates between conservation and human utility are inverted: conservationist Reds (as in the color of Mars) wish to protect the beauty of lifeless, bare rock and the sublimity of ancient and massive landforms; while the interventionist Greens seek to create a biosphere. Bridging the divide becomes the life's work of Sax Russell, the superlative objective scientist and erstwhile arch-Green. Only through the practiced honing of his observational skills, attuning himself to the "haecceity" (thisness) of each individual form does he come to appreciate the partially-terraformed Mars for what is, neither "spoiled" former rock wilderness nor a lesser biosphere: "Not nature, not culture: just Mars." Sax comes to this awareness by honing his faculties of both discernment and of naming: new colors, new landforms, new

⁶⁹ David L. Marshall, "Warburgian Maxims for Visual Rhetoric." *Rhetoric Society Quarterly*, 48 no. 4, (2018): 364.

⁷⁰ *Ibid*, 365.

varieties of fragile almost-biomes, names to be added to the *sensus communis* of both science and natural beauty, a subject that will be explored in greater detail in chapter two of this dissertation.

Although it may have much in common with Marshall's implementation of the topical tradition of rhetoric, speculation also challenges, or perhaps extends it in important ways. The use of the classical topics might produce novel articulations as Marshall describes, but is conditioned by the exigencies of the case at hand. As such, the classical rhetorical topics are a topics of adjacency. This is the case in multiple senses with Marshall's use of curated image tables, depicting subtly different body postures proximate to each other in both tabular space and in the potentiality of movement, as a visual topics: "such a table is an array of stances that a body can take up... on account of the adjacency or admissibility of those stances."⁷¹

Speculation requires something like a topics of the non-adjacent, or perhaps penadjacent: what theorists of speculative fiction, following Suvin, call the "novum."⁷² The novum itself is a leap, something alien, neither present nor necessarily even adjacent to the reader's reality; however after the leap the entailments of the novum are understood as adjacent to it. This non-adjacent adjacency is an important part of the speculative desire: it produces "cognitive estrangement", the particular pleasure/pain of making sense of an apparently rule-governed but alien world, thus simultaneously partaking of both disorienting and reorienting strains of speculative thought.

Consider Robinson's speculation on how the simple act of running might look on Mars:

So they jogged down the canyon floor, in the steady Martian lope that Nirgal had perfected, and had tried with partial success to teach to Coyote. Art was

⁷¹ Ibid, 366. However, some rhetoricians might object that the classical topics are not exclusively characterized by adjacency. For instance, Cicero's list of topics includes "contraries" and "consequents," which underlie common used oratorical strategies of non-adjacency: "if we adopt policy x we cannot also have its contrary y" or "how will future generations judge this action." This shows that the rhetorical tradition has always included a penadjacent speculative dimension; however, this dimension has more often been subordinated to concerns of the moment or "the situation," especially in American Rhetoric & Communication studies.

⁷² Darko Suvin, *Metamorphoses of science fiction: on the poetics and history of a literary genre*. New Haven: Yale University Press, 1979.

not graceful-his stride was too short, and he stumbled frequently-but he kept up. Nirgal began to feel the loose joy of running, the boulder ballet of it, the rapid crossing of long stretches of land under his own power. Also the rhythmic breathing, the bounce of his air tank on his back, the trancelike state that he had learned over the years, with help from the issei Nanao, who had been taught lung-gom on Earth by a Tibetan adept. Nanao claimed that some of the old lung-gom-pas had had to carry weights to keep from flying away, and on Mars it seemed entirely possible. The way he could fly over rocks was exhilarating, a kind of rapture. He had to restrain himself. Neither Coyote nor Art knew lung-gom, and they couldn't keep up, though they were both pretty good, Coyote for his age, Art for his recent arrival on Mars. Coyote knew the land, and ran in short mincing dance steps, efficient and clean. Art bombed over the landscape like a badly programmed robot, staggering often as he hit wrong in the starlight, but keeping up a pretty good head of steam nevertheless. Nirgal ranged in front of them like a dog. Twice Art went down in a cloud of dust and Nirgal ran over to check on him, but both times Art got up jogging, and in their intercom silence he only waved to Nirgal and ran on.⁷³

Such ekphrastic descriptions of running in Martian gravity, and the subtle variations in style and skill between recent arrivals from Earth, longtime residents, and native-born Martians are common in the Mars trilogy. Yet it is not only a scenic detail with a crude symbolic meaning about the heightened affinity for the landscape of the native born or some such, as it might be in the naturalist style denounced by Lukács. Rather Robinson uses the motif of the distinctive, low-gravity efficient “Martian lope” on a smaller, oceanless planet as a small component of a procedural simulation which goes on to imagine the cultural institution of a “Round-the-world” ultramarathon, which in turn entails its own cultural practices and customs. Whether or not, in some distant future, running in Martian gravity turns out in actuality to be conducive to such a thing is not the point, nor is it very illuminating to psychoanalyze Robinson’s evident love of wandering wide open spaces. Rather, the faculty to recognize and articulate how such a thing might be plausible by making an extended series of inferential connections, radiating outward from the novum, is the key: recall

⁷³ Kim Stanley Robinson, *Green Mars*. (New York: Bantam, 1994), 286.

that the essential feature of speculative radicalism is that it acts as a “root” for future activity. Again here we observe both actions of speculation: the weird realism of wrapping one’s mind around the complex act of running at a third of Earth’s gravity, followed by the reterritorializing move of making plausible inferences radiating outward from it. The process of imagining an alien gravity underscores how this is in fact an object-oriented inventional process—we are never more an object than when we are caught, literally, off-balance. We must first put ourselves in the place of an object subject to unfamiliar forces, then moving from there recover our subjectivity.

If we are indeed to analyze speculation as a topical process, the question becomes where should we look for topical resources—from the archive of past human wisdom and achievement, or to Meillassoux’s *Great Outdoors*?⁷⁴ Combining Robinson’s use of gravity as a novum with Marshall’s recovery of the topical tradition, perhaps we should understand these non-adjacent topics of speculation as a *planetary topics*. When the novum is a planet, it demands you build an entire world, making one connection after another while also raising continual objections each demanding their own solutions, which in turn create more problems. Yet the planet also provides the raw ingredients to imagine these solutions, in the form of our imperfect scientific knowledge about them. In the hands of different speculators, these same initial conditions might be mobilized to justify different output commonplaces, but the planet demands that all authors show their work by dealing with the physical exigencies. Thus, Robinson’s achievement is to show, using the same planetary topics, not only *that* a syndicalist utopia might be possible under the conditions where others have routinely imagined a Martian version of a libertarian wild west, but also *how*. This extended performance is different than the application of the classical topics of adjacency, at least as described by Marshall. Though Marshall shows how they can be used to invent new forms even

⁷⁴ Meillassoux, *After Finitude*, 7.

as they look to classical sources, it is invention of a limited duration, characterized by a “lightness of touch” or “ability to move into and then out of a mask.”⁷⁵ According to Marshall this is not a bug but a feature, as it is productive of a kind of freedom. However, I argue that there are good reasons to supplement this light and dexterous imagination with a longer, dedicated, even completionist approach.

Why might speculative radicalism, as conducted via something like the planetary topics be desirable? I argue that there are several political reasons. First, it resists the situational, binary decisionism that is baked into so many of our deliberative practices: Aff or Neg, Guilty or Not Guilty, choose the lesser evil, Should we build the wall? Recalling Adorno, no higher form of society is presently visible: we are not simply one good decision away from a breakthrough; rather we need the ability to imagine a sustained chain of decisions capable of leading to an alternative vision. Second and similarly, as Jameson (Robinson’s onetime doctoral advisor) has argued, the postmodern appetite for fragmentary narratives and filmic jumpcuts is aligned with, and reinforces the everyday temporal disruptions of neoliberal life, or what Lauren Berlant calls the “crisis ordinariness.”⁷⁶ Robinson’s planetary worldbuilding resists this tendency, insisting that a sustained performance of the reterritorializing motion of speculation is at least as important as deterritorialization. And finally, returning to Lukács, the proceduralist prose produced by the planetary topics is necessary to render the dynamism of a mode of production. As I have argued, Robinson’s achievement is that he does not produce a static utopia, but rather describes one series of processes by which such a society might come about. It is not merely an allegory for a particular class conflict, it is the stuff with which such conflicts can be thought.

⁷⁵ Marshall, 368

⁷⁶ Lauren Berlant, *Cruel Optimism*. (Durham: Duke University Press, 2011), 9.

Nancy Struever notes that one of the virtues of the topical tradition is that it takes the form of a list, rather than a system, and thus adding to the list of questions enriches, rather than collapses the framework.⁷⁷ This is in evidence in Robinson's return to the Trilogy's universe in a short story collection *The Martians* which poses new questions: what conflicts might arise after the uneasy accords between Red and Green factions fray, what if humans had never gone to Mars, how might deeply buried and undiscovered Martian archaebacteria resist the warming of the planet?⁷⁸ If the classical topics are, as Struever describes, "wrestling holds" for gaining argumentative purchase on a social conflict, the planetary topics are the grounds upon which such conflicts take shape.⁷⁹ Developing a facility with the planetary topics is now of public importance: as Robinson has frequently argued that we are all now, in effect, "living in a big science fiction novel we all co-write together."⁸⁰

A reading of Robinson's thickly rendered Mars, with its copious connections drawn between processes at chemical, biological, and cultural scales, demonstrates that while Malin's critique that speculative realist philosophy often seems to know little about its objects, this observation does not necessarily apply to a speculative realist literary performance. This is because they have different tasks: while the literature represents the speculative object, the philosophy cautions us against falling for either the predictionist or critical readings. That it is possible to be both rigorous and speculative is the lesson we should take from the Mars Trilogy, and we should

⁷⁷ Nancy S. Struever, "Topics in History," *History and Theory* 19 no. 4, (1980): 72.

⁷⁸ Kim Stanley Robinson, *The Martians*. New York: Random House Publishing Group, 2000.

⁷⁹ Struever, 69.

⁸⁰ Robinson, Kim Stanley, "Science fiction: the realism of the 21st Century." interview by Richard Lea. *The Guardian*. August 7, 2015: <https://www.theguardian.com/books/2015/aug/07/science-fiction-realism-kim-stanley-robinson-alistair-reynolds-ann-leckie-interview>

supplement Malin's call for an onto-materialism of communication and media studies by subjecting it to the speculative turn.

One might take up Malin on his suggestion that intangibles such as media regulatory decisions or court cases must also be understood as objects, a position with which Harman would enthusiastically agree.⁸¹ An alternate media history speculating upon the entailments of different regulatory decisions could be attempted. Such a speculative radicalism would surely hone the faculty of perceiving connection and disconnection, and would be an occasion to truly know these decisions as objects that can be playfully manipulated, rather than as events deployed as totems. As Harman observes, "objects as events are echoes of objects as objects."⁸² Before any court case was reduced by history to a mere outcome or decision, it was a complex, withdrawn object, brimming with moving parts and potentialities. We might even invoke Vico's *verum factum*: if the true is the made, to truly know an object, whether an intangible one such as media regulatory history or a speculative one such as human civilization on Mars, is not to observe it or memorize facts pertaining to its outcome, but rather to play with, making and unmaking it repeatedly in all its possible variations.

⁸¹ Malin, 250.

⁸² Harman, *Immaterialism*, 122.

3.0 “Historical analogy is the last refuge of people who can’t grasp the current situation”:

The Planetary Topics of the Mars Trilogy

In this chapter I expand upon the idea of the planetary topics, introduced in chapter one, as one possible set of tools for achieving speculative radicalism. To this end, I first situate my conception of the planetary topics amongst two existing bodies of scholarship: the trajectory of SF literary theory following Suvin’s theories of cognitive estrangement and the novum, and the topical tradition of rhetoric. Second, I return to the Mars Trilogy to illustrate a more complete list of the planetary topics themselves, and use examples from the trilogy showing how they can be used to both create and evaluate speculative human societies. Finally, I make the case for speculative radicalism via the art planetary topics against its likely critics.

3.1 Cognitive Estrangement and the Novum

Both ideology critique and speculative radicalism aim to show us that much of commonly accepted, everyday reality is contingent and constructed by processes both arbitrary and often sub-optimal. As such they must each participate, at least momentarily, in the defamiliarizing gesture that the Russian formalist tradition calls “estrangement.”⁸³ Yet while critique swiftly moves on from the moment of estrangement towards problematizing, interrogating and historicizing past and present reality according to a fully formed theoretical system, speculative radicalism prolongs the

⁸³ Victor Shklovsky, “Art, as Device,” *Poetics Today* 36, no. 3, trans. Alexandra Berlina (2015): 151-174. The Russian *ostranenie* is a neologism coined by Shklovsky, variously translated as “estrangement” or “defamiliarization.”

moment by offering a sustained development of alternative possible worlds. Furthermore, speculative radicalism must persuade us not only that our present world is contingent, but that another one is in fact plausible, and builds a case for this world with warrants and inferences. Thus, it aims at a particular species of estrangement, similar to what Suvin calls “cognitive estrangement,” and which he argues is both unique and proper to science fiction literature.⁸⁴

Suvin’s concept of cognitive estrangement is compelling, and one I would like to appropriate to describe the agenda of all speculative radicalisms including but also extending beyond science fiction literature. However, his theorization of the “cognitive” aspect is sometimes thin, at times equated simply to “science” or even just “reason” that proceeds from the novum toward inevitable, deductive conclusions.⁸⁵ He is closer to the mark when he argues that his identification of cognition with science should be understood more broadly, like the German *Wissenschaft*: on this account, it comes to mean something more like inquiry.⁸⁶ Yet he still characterizes the cognitive element as rooted in an ineluctable chain of logic that by necessity leads somewhere, as in this passage opposing science fiction to myth: “Where the myth claims to explain once and for all the essence of phenomena, SF first posits them as problems and then explores where they lead...”⁸⁷ The notion that science fiction is essentially a process of inevitable deduction is naïve. Even if SF novels were in pure simulations and not artistic authorial constructs, it would be foolish to presume that the simulation itself was not itself contingent and arbitrary with the

⁸⁴ Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre* (New Haven: Yale University Press, 1979).

⁸⁵ Ibid, 7.

⁸⁶ Ibid, 13.

⁸⁷ Ibid, 7. While this idea is very similar to what I am proposing, I argue that Suvin and his followers come too close to suggesting that certain outcomes inevitably follow from their respective nova. Thus, I emphasize that nova, or as I call them, topics, are inflection points or sites of possible invention, rather than “hegemonic,” determinative features. This is why, as I will show in the following chapter, the iterative, combinatorial speculation required by video games is a necessary supplement to the synthetic speculation of SF literature.

possibility of turning out vastly differently the next time even if run with the same initial conditions.

Rather than a species of deduction, the cognition in cognitive estrangement should be understood as proceeding through an accumulation and linkage of uncertain, conditionally plausible arguments. We are invited to make a series of possible, but non-necessary inferences, making cognitive estrangement a rhetorical, as much as a logical process.⁸⁸ Proceeding from a point of difference or initially implausible novum, an author must persuade us that certain outcomes, events or worlds are plausible; our acceptance of the plausibility of these arguments is the ultimate criterion for success. And importantly, it must go about persuading us in a particular way: not by asking us to assent in advance to the stylistic grandeur of myth (or conversely the quaintness of fable), or even by assenting to the formal temporal narratological pattern which characterizes a mystery (or any other genre), explaining why it has been observed that science fiction is not itself a genre, but a mode of inquiry that can exist across multiple traditional genres.⁸⁹ Rather, science fiction and cognitive estrangement proceed by assembling inductive, probabilistic arguments around a particular novum or nova. In contrast to the repetition of mythical archetypes, the particularity of the novum is key: as Suvin observes, “It does not ask about The Man or The World, but which man? In what kind of world? And why such a man in such a kind of world?”⁹⁰ However, readers must be persuaded to accept the contingent particularity of such a world through

⁸⁸ SF cognitive estrangement often trades in both necessary and non-necessary inferences, though the latter tend to be where the interesting speculation resides. Consider, for instance, an SF novel or speculative thought experiment in which human civilization has spread throughout the solar system, and the physical limits imposed by the speed of light necessitate that a greater fraction of humanity has now moved permanently outside of the near-instantaneous communication that characterizes McLuhan’s “global village.” The limits on communication speed is a necessary inference, but how such a society might evolve in order to accommodate itself to the change is non-necessary.

⁸⁹ Damien Broderick, *Transrealist Fiction: Writing in the Slipstream of Science* (Westport: Greenwood Press, 2000), 40.

⁹⁰ Suvin, 7.

an aggregation of literary arguments and evidence surrounding the novum. Thus, not only can it be said that the cognitive aspect of cognitive estrangement is rhetorical, but within the rhetorical tradition, it is defined by the canon of invention by means of the topics.

The rhetorical topics are forms potential arguments might take, or once again, “wrestling holds” to gain purchase on a contested issue.⁹¹ They are heuristic tools for shaping subject matter into an argument that has a chance at acceptance by a community. In this way they resemble and are antecedent to the Suvinian novum. In science fiction narratology, nova are germinal sources of difference which, in the hands of a skilled author, can be used to shape doxastic understandings about the workings of the world into an argument to justify an effect of greater difference. Similarly, in the rhetorical tradition the significance of the topics lies in the art of the topics, or the ability to apply the *topos* to the case at hand.

Carl Malmgren offers a narratological mapping of various different types of nova in existing science fiction literature that in many ways resembles treatises on the rhetorical topics: it takes the form of a list, is an interventional heuristic, and requires nuance and imagination in the application to produce results. He offers a chart indicating the various possible “world components” which might be changed to offer a science fictional novum: actant, social order, object, planet, science, theory, scientific fact, historical fact, or natural actant.⁹² My contribution is to examine in greater detail the varieties of the particular novum, “planet.” A planetary novum is a particularly rich source of estrangement that produces its defamiliarization by presenting a plausible alternative world. Moreover, characteristics of planets as elaborated by planetary science gives us a list of locations to gain purchase on worldbuilding efforts, a list I call the planetary

⁹¹ Struever, 69.

⁹² Carl Malmgren, *Worlds Apart: Narratology of Science Fiction* (Bloomington: Indiana University Press, 1991), 18.

topics. To develop these planetary topics, I turn to Kim Stanley Robinson's Mars Trilogy as a particularly rich and compelling performance of planetary worldbuilding.

3.2 The Topics of the Mars Trilogy

Kim Stanley Robinson's Mars Trilogy is widely regarded by critics as a superlative work of science fiction literature. While the titular subject matter of the novels *Red Mars*, *Green Mars* and *Blue Mars* is the human exploration, settlement, and gradual terraforming of the planet over the course of centuries, the novels are often lauded for their contribution to thought and debate on Earthly political themes. The Trilogy has been noted for its contributions to theorizing processes of radical democracy,⁹³ the ethics of scarcity and post-scarcity,⁹⁴ the proposal of an alternative eco-economics,⁹⁵ and exploring a tentative synthesis of science with postcolonial theory.⁹⁶ It is also an important entry in the utopian literary tradition, performing a nuanced Utopia-in-process that unfolds historically over the course of centuries rather than the static Platonic visions for which the genre has often been criticized.⁹⁷ Stylistically, Robinson's unadorned yet data-laden prose marks a sharp turn away from the postmodern style of the Cyberpunk era.

While all of these observations are important, and many in fact motivate much of my own interest in using the Trilogy as a model for speculative radicalism, my own contribution here

⁹³ William Burling, "The Theoretical Foundation of Utopian Radical Democracy in Kim Stanley Robinson's *Blue Mars*," *Utopian Studies*, Vol. 16, No. 1 (Spring 2005): 75-96.

⁹⁴ Amedeo D'Adamo, "The people beyond Mars: Using Robinson's Mars trilogy to understand post-scarcity," *Thesis Eleven* 13 no. 1, (2015): 81-98.

⁹⁵ Robert Markley, "Falling into Theory: Simulation, Terraformation, and Eco-Economics in Kim Stanley Robinson's *Martian Trilogy*," *MFS Modern Fiction Studies* 43 no. 3, (1997): 773-799.

⁹⁶ Elizabeth Leane, "Chromodynamics: Science and Colonialism in Kim Stanley Robinson's *Mars Trilogy*," *Ariel* 33 no. 1, (2002): 83-104.

⁹⁷ Fredric Jameson, *Archaeologies of the Future* (New York: Verso, 2005), 393-416.

focuses on a type of superlative that has as yet received little attention: consider that among canonical literary works, the Mars Trilogy is surely superlative in its descriptions of dust, both in nuance and quantity. Moreover, the Trilogy's preoccupation with dust is emphatically not with the symbolic variety evidenced in, for instance, *The Great Gatsby*, where the recurring motif of dust represents the crumbling facade of the gilded age, yet itself has no agential impact upon the plot. In the Mars Trilogy, dust is the key topic the First Hundred scientists to settle on Mars must contend with and orient themselves around. Shortly after arrival on the planet, two members of the engineering team discuss the dust: "It's going to be hard to keep our clothes clean, that dust even gets through the wrist locks, and the waist zippers are like open holes." "Well yeah, those fines are micron-sized! We're going to have worse trouble from it than dirty clothes, I can tell you that. It's going to be getting into everything, our lungs, our blood, our brains..."⁹⁸ The super-fine Martian dust even becomes embroiled in one of the novels' signature topics of political aesthetics, the opposition between a "Green" faction that favors terraforming Mars with the ultimate goal of making it more Earth-like and habitable for plants and other organisms, and a "Red" faction that appreciates and wishes to preserve Mars in its pristine state. For arch-Red Ann Claybourne the dust is one site of contestation against the opposing Green faction's inability to see and appreciate the sublimity of Mars for what it is, independent of a narrow anthropocentric utility calculus: "Stop calling it dust! That's like calling actual dust 'gravel'. They're fines! FINES!"⁹⁹ Dust is just one component of the Martian regolith, the surface layer of a rocky planet composed of loose material above solid rock. The regolith is a key feature conditioning the imagined potentialities for human life on the planet, and is therefore one of the planetary topics.

⁹⁸ Kim Stanley Robinson, *Red Mars* (New York: Bantam Books, 1993), 104.

⁹⁹ Robinson, *Red Mars*, 108.

While many critics have observed in passing that in the Trilogy ultimately “Mars itself is the star of the show” their own analyses typically make this tribute, yet then quickly proceed to focus on the work’s contribution to historical and political theories. These things are important, perhaps they are even the ultimate goal motivating my own project of speculative radicalism. However, in order to arrive at them in a sophisticated and plausible way, I argue that we should in fact take seriously the planetary features themselves, like the dusty regolith, as a starting point for literary and rhetorical invention using the planetary topics. In this chapter I offer a theoretical justification for treating scientific knowledge of the features of planets as a topics in the rhetorical sense as derived from the classical *topoi*. If the *topoi*, and later *loci* and commonplaces, are figural places of invention, the planetary topics reference literal, planetary places that can similarly be mobilized to imagine new concepts and simultaneously argue for their acceptance and plausibility. The art of invention by means of the planetary topics is one important means of engaging in what I have called speculative radicalism, or the accumulation of imaginative yet plausible inferences extrapolating outward from a given topic (or novum) towards potential alternative futures.

My project differs from prior work such as Knoespel’s cataloguing of the *topoi* of the Mars Trilogy, in that the topics he observes and compiles from all have a focus in human cultural institutions: Economic Theory and Practice, the History and Sociology of Science, Language and Psychology, Mathematics and Computing, Music, Myth, Religion, Philosophy/Literature/Visual Arts, and Political Theory.¹⁰⁰ These are all no doubt important subjects in the Trilogy, yet here Knoespel is using *topoi* to designate something more like a theme, or the subject matter of a discourse, rather than for its particular significance in the rhetorical tradition as a tool for finding,

¹⁰⁰ Kenneth Knoespel, “Reading and Revolution on the Horizon of Myth and History: Kim Stanley Robinson’s Mars Trilogy,” *Configurations* 20 no. 1-2 (2012): 133-136.

forming, and constraining potential arguments. Categorizing the *topoi* of the Trilogy as historical and cultural themes misses the importance of its setting on Mars itself, what Suvin would call the work's hegemonic novum, which functions as a *topos* for shaping content in a way similar to the classical rhetorical sense. Working with the content of these broad historical and cultural themes, the planetary topics are rather forms that shape those themes around localized and particular questions in need of particular answers, just as on Mars the question of aesthetics and politics is shaped in a particular way by the features of the dusty Martian regolith. The themes Knoespel organizes around could as readily be treated in a narrative of any genre such as myth or fantasy; however what is unique about the Mars trilogy is how those themes are shaped and constrained by planetary processes. Precisely what is of greatest interest in a work like the Mars Trilogy are the imaginative preconditions and entailments of human cultural adaptations to a planet that are not already captured by a thematic treatment of human culture.

Similarly my study differs from Wark's treatment of the novels as Bogdanovist "tektology" of the invention of new root metaphors for dealing with the encounter between labor and nature.¹⁰¹ Wark reads the various characters of the novel as representing different "conceptual personae," or possible ethical subject positions of the scientist-citizen simultaneously battling the recalcitrance of nature and human politics. Again, what I call the planetary topics are no more reducible to subject positions or root metaphors than they are themes; rather they are argumentative and conceptual handholds for grasping unfamiliar planetary features, which when simultaneously

¹⁰¹ McKenzie Wark, *Molecular Red* (New York: Verso 2015), 193-194. Some disambiguation is needed here. Wark bases much of their theorizing on the theoretical writings of Alexander Bogdanov, a heterodox, quasi-anarchist Bolshevik who challenged Lenin's positions on ideological and political grounds. In the Mars Trilogy, the fictional character Arkady Bogdanov, putatively Alexander's descendant, is one of the First Hundred scientists to colonize Mars and a major political and ideological force shaping events on Mars. Significantly, in the Mars Trilogy Arkady Bogdanov's ideas are not the sole key to interpreting the events of the trilogy, but are rather just one point in the synthesis that becomes Martian culture.

treated with both the rigor of the scientist and the imagination of the author can give distinctive shape to a wide variety of root metaphors and conceptual personae.

The Mars Trilogy is a useful starting point for my plotting of a germinal list of the planetary topics, as it is a notably thorough treatment of the known planetary features of Mars and their potential interactions with human culture. In this chapter I produce a list of the planetary topics that impact the Trilogy and an account of the speculative radicalist invention generated by them. With the goal of producing such a list in mind, I first turn to the rhetorical tradition and recent theorists of the topics to assist in sketching the contours of a planetary topics.

3.3 From the Classical to the Planetary Topics

What exactly are the rhetorical topics? It seems that there is a great deal of confusion, due in part to the current use of the signifier “topics” as a contemporary gathering place for a wide variety of classical concepts. Notably, Aristotle differentiates the *koinoi topoi*, an aspirationally comprehensive list of potential arguments applicable across any subject matter, from the *idia*, or generally accepted statements germane only within the established rhetorical genres of the time. For instance, the *topos* of “the possible and the impossible” might be equally applied to debates on the status of psychoanalysis as a presumptive scientific theory (falsifiability) as to the prospect of terraforming Mars, while the *idia* “crime must be punished” presupposes a particular time and placebound attitude within the genre of judicial rhetoric. Twentieth-century argumentation theory calls this difference “field invariant” versus “field variant” warrants.¹⁰² Or perhaps more precisely,

¹⁰² Michael Leff, “Commonplaces and Argumentation in Cicero and Quintilian,” *Argumentation* 10 no. 4 (1996): 445.

Sara Rubinelli explains that while *idia* represent doxastic content waiting to be formed into an argumentative premise, the *topoi* are general guides for argumentation that only generate arguments when used to shape doxastic or field-specific content.¹⁰³ The *topoi-idia* division has become particularly confusing because the literal translation of *koinoi topoi* into Latin as *loci communes*, and then to English as “commonplaces,” strikes the modern reader as having more in common with the Aristotelian *idia* than the more general *topoi*. Adding to the ambiguity, the *koinoi topoi* are developed in both Aristotle’s *Topics* and the *Rhetoric*, where they receive a different inflection when put to the purpose of dialectic and rhetoric respectively.

Perhaps the confusion is not our fault: McKeon tells us that the topics and commonplaces were equally ambiguous in the original Greek.¹⁰⁴ Then the Latin tradition would subdivide the topics in a different way, as Cicero describes “arguments that are inherent in the very nature of the subject” versus “others brought in from without.”¹⁰⁵ Owing to this diversity, Leff has called the attempt to provide a complete and coherent history of topical invention a “fools errand.”¹⁰⁶ Thus I leave the questions of disambiguating exactly what the rhetorical topics were in antiquity and throughout history to the historians. Nevertheless, rough generalizations have been made by those attempting to use the tradition to address modern problems: “Rhetors use common topics to develop effective arguments, and they use commonplaces to actuate an audience’s existing understanding of a situation to lend credence to complex ideas.”¹⁰⁷ Thus it seems that there are

¹⁰³ Sara Rubinelli, *Ars Topica: The Classical Technique of Constructing Arguments from Aristotle to Cicero* (Germany: Springer Netherlands, 2009), 66.

¹⁰⁴ Richard McKeon, “Creativity and the Commonplace,” *Philosophy and Rhetoric* 6 no. 4 (1973): 199.

¹⁰⁵ Cicero, *Topica*, trans. H.M. Hubbell (Cambridge: Harvard University Press, 1960), 387.

¹⁰⁶ Michael Leff, “Up from Theory: Or I Fought the Topoi and the Topoi Won,” *Rhetoric Society Quarterly* 36 no. 2 (2006): 205

¹⁰⁷ Derek Ross, “Common Topics and Commonplaces of Environmental Rhetoric,” *Written Communication* 30 no. 1 (2012): 91.

two different, yet inextricably related functions of the topics: to invent new ideas and arguments, and to gather support and ensure acceptance of them.

William Nothstine encounters a similar relation in suggesting that investigating the possible readings of the “place” metaphor endemic to the topical tradition (*topos*, *locus*, commonplace) can open up new dimensions of our understanding of the topics. Specifically, he argues that there are two prevailing readings of the place metaphor operative in the topics, the Cartesian-epistemic and the Heideggerian-ontological.¹⁰⁸ The Cartesian-epistemic reading, which Nothstine claims remains dominant, views topical space as an abstract mapping of possible arguments.¹⁰⁹ As evidence, he argues that the Cartesian view understands the topical tradition through its own linguistic commonplaces: rhetoricians talk about “lines” of argument that exist in abstract topical space, waiting to be discovered by the orator independent of their subjective attitude towards them.¹¹⁰ In contrast, the Heideggerian-ontological reading of the place metaphor understands place as the “horizon” of an embedded subject who understands themselves “not simply as being, but as being in a particular set of circumstances.” Though he argues that this reading has been subordinated in rhetoric and argumentation to the Cartesian-epistemic, Nothstine suggests that the commonplaces at work in our everyday language of communication and argumentation nevertheless betray some awareness of it: “I can see where you’re at,” “Do you see where I’m coming from,” “Put yourself in my position,” etc.¹¹¹ Using this reading of the place metaphor, the critic can apply the topics to the discourses of the other, in order to pursue a greater

¹⁰⁸ William Nothstine, ““Topics” as Ontological metaphor in contemporary rhetorical theory and criticism,” *Quarterly Journal of Speech* 74 no. 2 (1988): 151-163.

¹⁰⁹ Nothstine, 153. Historians of the topics may object to Nothstine’s characterization of the dominant view of the topics as “Cartesian,” noting that Descartes specifically rejected the topical method. Yet I think this does not entirely negate his point. Even if transmitted separately from the topical tradition, the Cartesian reading of the “place” metaphor is now irreversibly linked with Cartesian thought.

¹¹⁰ Ibid, 154.

¹¹¹ Ibid.

understanding of the uniqueness of that other's horizon and view on the world.¹¹² While he accepts the importance and continued utility of the Cartesian metaphor for many purposes, he recommends an increased sensitivity to the Heideggarian for speaking and listening to the uniquely human dimensions of the other's world.

But what if these two metaphorical senses are not as discrete or opposed to each other as Nothstine supposes? In realist speculative fiction which attempts to evoke "being-there" where the "there" has as its referent a literal place, another really-existing planet, the Cartesian and Heideggarian approaches to place are unified. Keeping in mind Nothstine's metaphor of the horizon of embedded being, consider one of Robinson's accounts of being embedded on another *planetary* horizon, specifically the effort to imagine how it feels to approach from below Mars' Great Escarpment separating the planet's northern lowlands from the southern highlands:

"Not a mountain range, one now sees, but a cliff, extending from north and south from horizon to horizon, etched in the usual spur-and-gully formation of cliffs everywhere, and somewhat saw-toothed at its top, but massively solid for all that—the etchings without any depth, like the brushing you see on certain metal surfaces. And each day, when it stands over your horizon at all, it's closer. It tends to stay over the horizon longer, but never all the time, as very often you drop into the next sink in the sunken land. But eventually, continuing roughly eastward, every time you are not in the depths of a pothole, the cliff positively looms over the world to the east, towering over the horizon, which stubbornly remains no more than five kilometers away. So at that point you have two horizons, in effect; one near and low, the other far and high."¹¹³

This passage from a short story published after the Trilogy is an extended, speculative account of encountering two planetary features of Mars which differ greatly from the familiar scale of Earth simultaneously. On a smaller planet, the horizon is much nearer and tighter. But at the same time, owing to the reduced gravity, landforms such as the described massive cliff produced by the

¹¹² Ibid, 159.

¹¹³ Kim Stanley Robinson, "The Way the Land Spoke to Us," in *The Martians*, (New York: Bantam, 199), 73.

Martian Dichotomy are vastly larger than their counterparts on Earth. The two effects together can produce a “double horizon” to the perception of a human expecting a horizon line in its familiar, Earthly scale. Robinson’s achievement here is to make something that is quite familiar—gazing at and walking toward the horizon—seem quite strange indeed. Our experience of the horizon, something so familiar that it is deployed by Nothstine as a metaphor without a second thought to what produces it, is revealed to be embedded in and constructed by the most fundamental underlying planetary processes. But the most crucial point is that this is achieved through the unity of what Nothstine calls the Cartesian and Heideggarian functions of a planetary *topos*, in this case horizon. It requires an abstract, Cartesian conception of space to compare the relative sizes and geographies of Earth and Mars, and its effects on a literal horizon, which is then populated by Heideggarian, embedded subjects with an attitude and intentionality towards it. When described in Robinson’s realist prose, it simultaneously performs the two topical functions identified by Nothstine: generating new “lines” of argument, while simultaneously embedding a subject within that horizon.

“Horizon” is thus one effect generated by attending to a list of what I call the planetary topics. They are sites of invention that arise from the comparison of two planets, and the process of speculating what human habitation on the alien world might look (and feel) like. They are simultaneously literal places or features of both really-existing and imagined worlds, and heuristics for speculative invention of how humanity might adapt to planetary difference. In many cases, they provide an occasion to reimagine the relations between human beings, and between human beings and the nonhuman world. Before engaging in a close reading of the Mars Trilogy to derive the planetary topics I review the most salient points from contemporary scholars of the topical tradition of rhetoric.

As discussed in chapter one, Struever notes that one of the great advantages of the topical tradition is that it takes the form of a list rather than a system, thus the addition of a subsequent point or observation to the list does not necessarily break or invalidate the entire system.¹¹⁴ She makes this observation in the course of a critique of Hayden White's *Metahistory*, which notably argues that the four master tropes of rhetoric (metaphor, synecdoche, metonymy and irony) prefigure and structure the choices of emphasis and tone available to historians.¹¹⁵ However, for Struever, White's treatise is a Procrustean effort to reduce the richness of historical argument to texts alone, and then to reduce those texts to the rhetorical canon of style (which is further reduced to the tropes) all in the name of making things fit the tetradic model. She argues that historical practice should be understood not as a stylistic literary performance, but rather as an evolving series of arguments governed by the inventional topics. The important point is that the topics "represent a very complex, open-ended list of approaches" that can evolve to incorporate new methods of discovering the content of argumentation (such as those provided by advancements in science and technology, for instance) while still appealing to "an available repertoire of civil behavior."¹¹⁶ Thus, for Struever topical thought distinguishes itself from overwrought, systematic theoretical frameworks.

So too, the planetary topics is an open-ended list that resists a deterministic systematicity. In a thorough implementation of the planetary topics, the questions posed by each individual *topos* must each be answered in turn, rather than hand-waving thematic solutions. The difference is illustrated by an exchange from *Red Mars*, occurring after additional colonists have joined the First Hundred and some elements of Martian society have begun to contemplate independence

¹¹⁴ Struever, 72.

¹¹⁵ Hayden White, *Metahistory* (Baltimore: Johns Hopkins University Press, 1973), xi.

¹¹⁶ Struever, 69.

from exploitative Earth corporations and governments. In the run up to outright revolution, Frank Chalmers, the arch-pragmatist and practitioner of Realpolitik among the First Hundred, tries to talk many of the Martians down from violent rebellion by criticizing their use of the American Revolution as a metaphor for the present conflict. Against Chalmers' protestations of the absurdity of declaring oneself a hostile combatant from within a fragile domed settlement reliant on delicate life support system for breathable air: "I'm sure there was many a good Tory neighbor arguing the same case in the colonies... Actually the analogy is in many ways a good one. We're going to see our Washingtons and Jeffersons and Paines, I guarantee you."¹¹⁷ After an exchange about the degree of similarity between Martian mining lasers and muskets, Chalmers becomes exasperated with the would-be Martian Minute Men's insensibility to planetary difference and utters the aphoristic line: "historical analogy is the last refuge of those who can't grasp the current situation."¹¹⁸ Chalmers mobilizes an implicit planetary topics to point to flaws in the rebels' reasoning: in the rush to embrace and systematize the *topos* "distance from the central authority" and its apparent similarities to the American Revolution, they have neglected the perhaps more pressing *topoi* of "atmospheric content" and "atmospheric pressure."

The open-endedness of the traditional topics noted by Struever is evidenced in the planetary topics by its close relationship with the state of planetary science and the technological ability to explore other planets. Prior to the twentieth century, little was known about Mars or any of the other planets, so they were little more than blank screens for the projection of human fantasies. After Percival Lowell's "discovery" of Martian "canals" at the turn of the century, the Red Planet began to be rightly figured as an arid world, albeit for inaccurate reasons. With the early Soviet

¹¹⁷ Robinson, *Red Mars*, 465.

¹¹⁸ *Ibid.*

probes and the NASA Mariner and Viking programs the available information about Mars (and comparative planetology generally) vastly increased the length and specificity of the list of planetary topics, leading to significant changes to speculative representations of Mars: it could no longer credibly be imagined as an abode for a declining civilization of little green canal builders, for instance. Even Robinson's Mars Trilogy itself, state-of-the-art speculation about Mars in the 1990s, has been antiquated in certain narrow respects by new revelations about the planet's magnetosphere and regolith content. While minds may differ on the aesthetic merits of the old Mars versus new Mars there can be no doubt that credible speculation about the planet is now more tightly tied to a more expansive planetary topics, which flexibly accommodate the changing state of planetary science.¹¹⁹

Similarly to Struever, Leff posits the topics as being oriented against theory, arguing that the goal of topical inquiry "is not mechanistic application of the theoretical apparatus to particular cases, but the cultivation of an ability to encounter cases as circumstances demand."¹²⁰ But importantly, the emphasis on circumstances need not result in a recourse to the kind of "radical contextualism at the expense of any governing formal relation" for which theorists like Christian Lundberg have faulted American communication studies.¹²¹ Rather, Leff argues that the use of the topics and even their application to produce the more derided commonplaces has an important heuristic function. In rhetorical exercises stressing the application of topics and commonplaces, "the 'product' created through the exercise offers a sort of a priori analogy for other productive

¹¹⁹ Kim Stanley Robinson, "Earth first, then Mars: An Interview with Kim Stanley Robinson," interview by Dave Haeselin, *Public Books*, last modified April 25, 2019, <https://www.publicbooks.org/earth-first-then-mars-an-interview-with-kim-stanley-robinson-reprint/>. George R.R. Martin has opined that old Mars as a blank screen for human fantasies, unencumbered by scientific observations and planetary realities was "more interesting" than the new topical Mars. Naturally Robinson disagrees.

¹²⁰ Leff, "Up from Theory," 208.

¹²¹ Christian Lundberg, *Lacan in Public: Psychoanalysis and the Science of Rhetoric* (Tuscaloosa: University of Alabama Press, 2012), 22.

acts.”¹²² Thus while Leff himself explicitly counterposes the topical tradition to theory, his work also suggests that radical contextualism is also opposed by the topical tradition. Through the experience of the act of production and committing that process to heuristic memory, there arises an ability to transcend both the rote application of theory and a merely causal radical contextualism.

This avoidance of radical contextualism is also important for the speculation enabled by the planetary topics. In the prologue to *The Human Condition*, Arendt cautions against imagining human life beyond the Earth in claiming that “the Earth is the very quintessence of the human condition.”¹²³ However this conservative injunction to hold the background physical and biological processes of Earth constant while studying or speculating about human culture seems increasingly unsupportable in an era marked by anthropogenic climate change. The “new man” exchanging the free gift of the natural *bios* for one of his own making which Arendt declined to study is upon us, whether we like it or not.¹²⁴ The act of speculating about how human life might adapt on alien planets like Mars sharpens the ability for creating heuristics for reacting to planetary scale changes on Earth as well. In this way the planetary topics are not unlike Rockström’s planetary boundaries, a checklist for maintaining a “safe operating space for humanity” in respect to a list of planetary systems: climate change, biodiversity loss, nitrogen cycle, phosphorus, ocean acidification, land use, freshwater, ozone depletion, atmospheric aerosols, and chemical pollution.¹²⁵ However unlike the boundaries, the planetary topics are not merely a conservationist warning beacon, cautioning us that the warranty is void if the seal is broken. They also ask us to

¹²² Leff, “Commonplaces and Argumentation in Cicero and Quintilian,” 449.

¹²³ Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1998), 2.

¹²⁴ *Ibid.*, 2-3.

¹²⁵ Johan Rockström et al, “A safe operating space for humanity,” *Nature* 461 (2009): 472-475

imagine what might happen to human adaptation if such boundaries are transgressed, or even if they were very different or non-existent on other worlds.

But such questions are only as productive as the particular speculative performances that address them. David Marshall emphasizes the focus on application and production, arguing that the classical topics were “as sharp in use as they were vapid in appearance.”¹²⁶ Indeed, this is what makes the topics difficult to teach to undergraduate students in any meaningful way in a rhetoric class, as “the more and the less” and “similarity and difference” do not initially appear as impressive intellectual resources on a PowerPoint when you stack them up against Derridean binaries, Lacan’s Borromean knot, the four master tropes, or Burke’s pentad. As Marshall shows, however, the art of the topics is in the application of the topics, in honing the ability to discern more nuanced and refined variations on a topic. Though he does not indict theory as explicitly as Struever or Leff, it is one potential other of topical thinking here as well. Interestingly, another is criticism, or at least a particular formulation thereof. Marshall’s criticism aims at distinguishing and descrying rather than unmasking and demystifying.¹²⁷

Marshall has also shown how the topical tradition informs a theory of the faculty of judgment as establishing open-ended Arendtian “spaces of appearance” rather than as a proclamation of final value. According to this reading of Arendt’s lecture notes and other early texts, we should understand the faculty of “critical” judgment through the etymology of the Greek verb *krinein*, which “is a simultaneously synthetic and analytic process of isolating the particular qualities of a phenomenon and drawing those qualities into relationships with other similar

¹²⁶ Marshall, “Warburgian Maxims for Visual Rhetoric,” 364.

¹²⁷ Ibid, 376.

appearances.”¹²⁸ In this reading, judgment becomes a productive, rather than a merely critical process, in which the discernment and naming of a new particularity acts as an anchoring *topos* that subsequently accretes additional observations and judgments. Such a theory of judgment is particularly relevant to the planetary topics, as the features of planets become exactly such spaces of appearance for newly imagined forms of human life and community. Consider again how, for instance, planetary gravity works as such a topical anchor, collecting a full range of speculations about how human life might appear in worlds of varying gravities.

Reading *krinein* as topical judgment, in which an object’s particularity—it’s simultaneous belonging and not belonging within a series—in contrast to the more systematic, one-to-one comparison of analogy, may offer a key to a productive new reading of Robinson’s extended theoretical engagement with the affordances and pitfalls metaphor and analogy as encountered via the persistent problem of thinking Mars in terms of Earth. Throughout the Trilogy, several of the novels’ point of view characters struggle with the limitations imposed by analogical or metaphorical thinking while at the same time recognizing the difficulty in extricating themselves from it. Working to construct the First Hundred’s initial settlement of Underhill, the engineer Nadia Cherneshevsky initially compares operating excavating machinery in the frozen Martian regolith to her experiences in Siberia; while this analogy allows her to gain some initial purchase on the situation she eventually rejects it as misleading, as she is tempted to relax her perception of the novelty of Mars and fall back into old habits. As previously discussed in this chapter, the original mission leader turned Martian diplomat Frank Chalmers struggles against the tendency to view present political situations in terms of potentially misleading historical analogies. Yet despite

¹²⁸ David L. Marshal, “The Origin and Character of Hannah Arendt’s Theory of Judgment,” *Political Theory* 38 no. 3, (2010): 373.

these observations of the perils of metaphorical thinking, they are all initially unable to offer a compelling remedy. John Boone, the charismatic unofficial Martian cultural leader and Chalmers chief rival, attempts to evade the particulars of thinking in terms of synthesis with an appeal to an (uncommunicated) affect of how new utopian institutions will feel: “When they’ve never existed it’s hard to talk about them, hard to imagine them, because we don’t have the images... But I think I can tell you what it will *feel* like.”¹²⁹ Idealizing the structure of feeling from the early days of Underhill when there were only 101 people on Mars, Boone asks later arrivals to trust in his experiential account of that era, despite the total lack of articulation of how that experience might translate to a larger, planetwide society. His attempts to create and unify a new Martian culture through his personal empathy and charisma alone is ultimately unsuccessful, and contributes to his eventual assassination.

Ultimately it is the character Sax Russell, the novels’ quintessential dispassionate scientist, whose theoretical struggles with and against metaphor are the most prolonged and developed, and who over the course of the novels, ultimately derives a method of observation that provides a compelling instantiation of the simultaneously synthetic and analytic judgment offered by the etymology of *krinein*. In *Red Mars* (the only book that does not feature a chapter from Sax’s point of view) he is mentioned primarily as an object of gentle mockery by the other members of the First Hundred: almost a parody of the archetype of the scientist, tirelessly objective and without apparent political commitments of any kind. By all appearances he is the model compliant and dispassionate scientist that the others only pretend to be: it is revealed that all of them except Sax gave false, calculated answers to the battery of tests candidates faced in order to fake an acceptable

¹²⁹ Robinson, *Red Mars*, 349.

political and psychological profile so as to be chosen for the Mars mission.¹³⁰ Nevertheless, Sax does have philosophical commitments that become significant. When asked if he has a religion or faith, he responds that his only religion is “haecceity,” or a commitment to seeking out the unique particularity or “thisness” in any given object or moment, a concept associated with medieval Scholastic philosophy.¹³¹ This focus on particularity informs his lifelong crusade against metaphor, analogy and any related efforts of understanding a thing in terms of any other thing. He laments that the humanities and the social sciences all “added up to a huge compendium of meaningless analogies, which did not help to explain things, but only distorted perception of them. A kind of continuous conceptual drunkenness... hauling the whole great baggage of the ignorant past along to obscure every encounter with sensory reality.”¹³² Sax is concerned with the way that metaphorical thinking can lead to a perceptive complacency, overly satisfied with the few commonalities shared between two objects in a metaphorical comparison while obscuring the vastly more numerous differences that constitute a thing’s haecceity. Repelled by metaphor, he takes refuge in the promise of precise quantification: “To Sax [the soletta-augmented sun] looked like a G-type star, about one astronomical unit away... as for the talk of rubies or dinosaur’s eyes...”¹³³ Yet his encounters with, in particular, human social reality continue to evade his attempts at exact perception through quantification.

In *Green Mars*, in which, in the aftermath of the failed first revolution Sax becomes a fugitive from the corporate-controlled UNTA along with most of the other members of the First

¹³⁰ Robinson, *Red Mars*, 63. Ironically, it is Sax who ultimately becomes the hero of the Second Martian Revolution and secures the planet’s independence from the same organizations who originally mandated the personality tests to weed out political radicals.

¹³¹ Robinson, *Red Mars*, 289.

¹³² Robinson, *Green Mars*, 185.

¹³³ Ibid, 165.

Hundred, Sax begins to recognize the need for a more precise science of history, while also recognizing why this is impossible.¹³⁴ For a time he embraces his own form of sociobiology, seeking to apply scientific concepts to historical and cultural matters to gain purchase on his situation, proposing such terms as “cultural polyploidy” and “genotypic versus phenotypic” causal explanations for social phenomena, yet he is astute enough to recognize that these too, are mere analogies.¹³⁵ Against these Darwinian evolutionary metaphors, he eventually realizes that “history is Lamarckian,” a unidirectional, non-repeatable experiment involving the interplay of environment and choice. Thus every historical situation itself possesses haecceity, utterly unique and particular, and remains inexplicable by the models of the past.¹³⁶ Though this only deepens Sax’s suspicion of the metaphorical human disciplines, it does not yet enable him to envision a remedy.

Ultimately it is only a traumatic injury forcing Sax to productively retheorize the metaphorical nature of language itself that enables Sax to think the way forward: after he is captured and torturously interrogated by corporate-UNTA representatives, he suffers from Broca’s aphasia brought on by a stroke. As a result things lose their names for him, yet he finds that “without their names they are still things.”¹³⁷ While he is recovering, he must resort to different techniques of memory rather than letting words stand in for and recall things: he uses the old spatial “memory palace method,” stocking the mental image of his old laboratory with things categorized according to “various combinations of conic sections and the six surfaces of revolution symmetrical around an axis, the plane, the sphere, the cylinder, the catenoid, the unduloid, and the

¹³⁴ Ibid, 220.

¹³⁵ Ibid, 185.

¹³⁶ Ibid, 220.

¹³⁷ Ibid, 406.

nodoid; shapes without the names, but the shapes alone were like names. Spatializing language.”¹³⁸

Recovering for a time without the crutch of words, Sax leverages this alternative topics of spatiality to become a more astute observer of haecceity, yet this is of course accompanied by the difficulty or impossibility of communicating these refined observations to others.

By the conclusion of *Blue Mars*, Sax’s quest for haecceity matures into what we should understand as a topical sensibility for observing particularity as evidenced by his obsession with observing the appearance of new colors while discerning the peculiar beauty of the fragile, emerging almost-biomes of a terraformed Mars through the use of his color chart:

The soil berm was dotted by pale green rosettes of tiny grass blades. Longer blades stood in clumps here and there. Most of the taller blades were dead, and light gray. Right next to the pond were patches of dark green succulent leaves, dark red at their edges. Where the green shaded into red was a color he couldn’t name, a dark lustrous brown stuffed somehow with both its constituent colors. He would have to call up a color chart soon, it seemed; lately when looking around outdoors he found that a color chart came in handy about once a minute. Waxy almost-white flowers were tucked under some of these bicolored leaves. Farther on lay some tangles, red-stalked, green-needed, like beached seaweed in miniature. Again that intermixture of red and green, right there in nature staring at him.¹³⁹

Though the mature Sax remains steadfast in his rejection of metaphorical and analogical thinking in pursuit of haecceity, here he evidences a shift from his prior focus on quantification to a topical, aesthetic paradigm. Like the rhetorical topics, a color chart takes the form of a list, but an open ended one that is productive of the discernment of new colors, perhaps one only perceptible in the differing sunlight of an alien planet. As Sax discovers, the advantage of situating one’s observations within a topical list like the color chart is that simultaneously discerning situatedness and non-situatedness within the topical space sharpens the perception of haecceity, without being

¹³⁸ Ibid.

¹³⁹ Robinson, *Blue Mars*, 66.

forced or seduced into analogical reasoning by a two-way metaphor. The red-green formed by the unique interaction the bio-engineered Earth plants and the Martian landscape, and lurking just on the edges of Sax's perception is not "like" any other previously observed color, yet its subtle haecceity would be lost on an observer without the assistance of the color chart.

Interestingly, Jameson also reads this same passage as the key to interpreting the Trilogy, arguing that "the name for this unnamable color is Utopia, which stares insistently back at us from the Mars Trilogy just as it does at Sax."¹⁴⁰ Jameson interprets the succulent leaves' red-green, a blend that is thought to be impossible for the human eye to perceive, as symbolic of the ever-emerging synthesis from the novels' ongoing and seemingly irreconcilable political conflict between Red and Green factions, which in turn is symbolic of historical class struggle more generally. For Jameson the utopian text is "not supposed to produce this synthesis all by itself, or to represent it... It is only supposed to produce the requirement of the synthesis, to open up the space into which it is to be imagined."¹⁴¹ It is in concordance with this theory of the utopian text as a space of appearance in which Jameson reads the various utopian "solutions" posited by the Mars trilogy; that such solutions are multiple, conflicting, and even contradictory enhances rather than detracts from their creation of a utopian space of possibility, engendering an ongoing debate amongst its readers.

However, we should take one more step and unite Jameson's reading of utopia as space of appearance with Marshall's account of the productive judgment of *krinein*, which must go about the two tasks of observing the particular and inserting the particular in a series with equal energy and seriousness. I argue that the observation that the task of the utopian work is to establish a space

¹⁴⁰ Jameson, *Archeologies of the Future*, 409.

¹⁴¹ Ibid, 409-410.

of appearance does not recommend that one should treat the particularities individual “solutions” with less mental investment or argumentative rigor, but rather more. This is why the novels dedicate so much space to such apparent minutiae as, for instance, laborious descriptions of the Martian Constitution’s drafting particular to the local environment, such as the ingenious compromise of using elevation difference to satisfy both sides in the terraforming debate, described in greater detail later in this chapter. Observing and thinking the particular in its haecceity is a necessary component of constituting the series; thus it is not enough to declare that the impossible color is Utopia: rather, the serious effort to identify and name these particularities is the key to honing the faculty of productive judgment that enables such nuanced speculations. In Robinson’s trilogy, the impossible color in fact has a name. Its name is Mars, the particular instantiation of Mars that has been the result of mixing eons of geology and centuries of their labor, or as Sax thinks while observing the extraordinary haecceity of the ongoing synthesis of laborious scientific, political and social struggle: “not nature, not culture, just Mars.”¹⁴² Thus the Trilogy’s effort to ground its speculations in what was at the time state of the art knowledge of Martian planetary features is essential. It enhances not just the plausibility of the effort, but also its communicability, the ability for readers and futures speculators to interject their own speculations into the same space of appearance, producing a topics of planetary speculation. Sax goes on to make a praxis of using his color chart to share his enhanced perceptions with others, collaborating with the mourning Maya Toitovna to make careful observations of the sky and invent and name new Martian colors: “2 October the 11th Orange, Aphelion Purple, Lemon Leaf, Almost Green, Arkady’s Beard...”¹⁴³ Similarly, charting exemplary implementations of the planetary topics, such

¹⁴² Robinson, *Blue Mars*, 679.

¹⁴³ Ibid, 651.

as the various features of Robinson's Mars, is valuable as a heuristic for accreting future judgments so that they can be built upon and shared.

3.4 Planetary Topics in the Mars Trilogy

In this section, I engage in a close reading of the planetary topics as deployed by the Mars Trilogy. Though I treat the Trilogy as something of an exemplary performance of the planetary topics, I also critically note the few places where I find Robinson's account to be underdeveloped. This indicates the potential for the planetary topics as a tool of a productive form of criticism: applications of it can be shown to be more or less rigorous, and more or less imaginative while simultaneously gesturing to gaps or other fruitful avenues for speculation. I note where other notable speculative works also make use of particular planetary topics. After deriving the planetary topics as a tool for speculative radicalism in this chapter, in later chapters I will apply them to other works and genres.

Finally, before introducing the planetary topics themselves, I note that there is even a precedent informed by the rhetorical tradition for a geographical topics intended for honing observations made during planetary exploration, but also giving them a form so that they can be easily shared and built upon to enhance inquiry.¹⁴⁴ In the seventeenth century Robert Boyle, known primarily for his achievements as a chemist, also wrote a handbook intended as a kind of checklist to assist explorers and navigators in inquiry into "the natural history of a country, great or small."¹⁴⁵

¹⁴⁴ I credit Piper Corp for bringing this line of inquiry to my attention.

¹⁴⁵ Robert Boyle, *General heads for the natural history of a country, great or small: drawn out for the use of travellers and navigators*. London, 1692; Ann Arbor: Text Creation Partnership. <https://quod.lib.umich.edu/e/eebo/A28984.0001.001?view=toc>. Interestingly, the character Phyllis Boyle in the Mars

The primary portion of the work is a listing of topical “general heads” for the explorers to group their observations under, such as a destination’s longitude and latitude; air temperature, dryness, moisture and weather; depth and quality of the water; the qualities of the Earth including its hills or valleys, propensity for earthquakes and “Subterraneous Fire”; whether the soil is clay, gravel or sand; the qualities of its human and animal inhabitants; and the type, depth and productivity of mines.¹⁴⁶ Like many of the natural philosophers of the seventeenth century, Boyle was a known practitioner of commonplace bookkeeping, a practice that has been shown to have its roots in the topical tradition via the Latin *loci communes*.¹⁴⁷ Like the rhetorical topics from which they are derived, Boyle’s topics for travel is an open-ended, heuristic guide for the unique circumstances of explorers who “know not before-hand, what things they are to inform themselves of in every Country they come to, or by what Method they may make Enquiries about things to be known there...”¹⁴⁸ As such they are a method for gaining initial purchase on an unknown land. In the following sections, I provide a list of the most significant planetary topics of the Mars Trilogy, and discuss them as potential sites for speculative invention.

The Planetary Topics:

1. Gravity
2. Atmosphere
3. Water
4. Weather and Climate

Trilogy may be intended as an equivocal “tribute” to Robert Boyle. Phyllis, who like Robert stoutly defends the compatibility of science and Christianity, is somewhat ambiguously cast in the role of a villain in the Trilogy, as she sides with the transnational Earth corporations over the rest of her comrades in viewing Mars primarily as a resource for exploitation. However, later Robinson complicates this portrait with a short story intimating that Phyllis’s position and vision for Mars was largely misunderstood by her peers. Phyllis was a part of the first rover expedition to the planet’s north pole, on which her pragmatic focus on necessary resources seems to follow the topics of her namesake.

¹⁴⁶ Ibid, 2-11.

¹⁴⁷ Ann Moss, *Printed Commonplace-Books and the Structuring of Renaissance Thought* (Oxford: Oxford University Press, 1996), 2-22.

¹⁴⁸ Boyle, 2.

5. Insolation and Albedo
6. Celestial & Temporal Cycles
7. Vulcanism & Magnetosphere
8. Regolith
9. Indigenous Life
10. Distance & Scale
11. Geology/Areology

3.4.1 Gravity

The pull of Earth's gravity is so naturalized for the entire non-spacefaring public as to seem an inevitable part of the human condition. But consider that the average gravity on the surface of Mars is .376 g, meaning that a human weighing 100 kg (for instance Paul George, an average-sized NBA wing player) would weigh only about 38 kg on earth (a slightly larger than average Labrador Retriever). Imagine the impact on jumping ability. Sports and other athletic endeavors, in fact, play a large role in Robinson's use of the gravity topic to imagine human life on Mars. In the introduction I discussed how imagining running on Mars serves a locus for inventing all manner of social and cultural practices in the Mars Trilogy.

In fact, it is likely that all of the traditional sports, invented in and balanced for Earth's gravity, would look quite different or even be impossible in other gravity environments. Consider baseball, the quintessentially American game of inches, where the slightest variations in parameters such as the height of the pitching mound have held enormous implications for the style of play and the record books. After 1968's "year of the pitcher," Major League Baseball standardized and lowered the mound a few inches, dramatically increasing offense around the league. Even the relative thinness of the atmosphere at Denver's mile-high Coors Field, is noted across Major League Baseball for tipping the balance in favor of hitters: the ball flies further through the thin air turning some fly ball outs into home runs, and breaking pitches have less

movement due to the lower air pressure. What would baseball look like in other gravities, and would it even be playable?

Baseball does not feature heavily in the Mars Trilogy itself, however Robinson returns to it in the short story “Arthur Sternbach Brings the Curveball to Mars.”¹⁴⁹ Set in the fully-terraformed, post-*Blue Mars* era, it narrates the tale of an American immigrant to Mars teaching the game to eager but unskilled native Martians. Robinson describes a game only barely recognizable as baseball: fields must stretch nearly to the horizon to have a hope of containing fly balls, and extra fielders are required to patrol all of the additional territory. Even with these additions Martian baseball is a high scoring affair: the thin air makes breaking pitches difficult, and home runs are common in the low-gravity environment.

As a topic, gravity provides an occasion for rethinking the types of sport and other human activities that are possible and how they are valued and incorporated into the larger society. In the Trilogy itself, gravity’s effect on athletics is felt most through a general cultural shift away from traditional competitive sports and towards participation in extreme and aesthetic sports: rock climbing, surfing, and the uniquely Martian sport of flying with the aid of an exoskeletal “bird suit.” Performance in all of these sports is influenced and enhanced in various ways by the planet’s lower gravity. In the deeper future presented toward the conclusion of *Blue Mars*, the novels’ Nietzschean *uberfrauline* Zo Boone returns to Mars after a diplomatic visit to Earth (on whose unpleasant gravity she must wear an exosuit) and a settlement on Mercury, yearning for “that perfect middle way, that perfect test of will and flesh: the exquisite gravity of Mars.” Her pastime is flying recreationally with only the aid of a minimalist bird suit, “the best, cleanest use of human

¹⁴⁹ Kim Stanley Robinson, “Arthur Sternbach Brings the Curveball to Mars.” in *The Martians* (New York: Bantam, 1999), 248-260.

time” indicating a symbolic enlightening of culture enabled by a lightening of gravity.¹⁵⁰ Similarly, in one of Robinson’s short stories predating the trilogy, rock climbers from Earth come to the planet as a tourism destination, but choose to stay after experiencing the freedom of movement lower gravity affords.¹⁵¹

The idea that Mars’ lighter gravity could have a liberating effect is simultaneously deployed metaphorically and topically. Discussing the physics and engineering challenges involved in simply getting humans to Mars, Robinson narrates that the most difficult and energy-intensive portion of the journey is achieving escape velocity from Earth. This is metaphorically equated with the attempt to escape from human history: “what kind of Δv would it take to escape history, to escape an inertia that powerful, and carve a new course? The hardest part is leaving Earth behind.”¹⁵² This is a metaphorical comment on the tyranny of determination by the dead hand of human history, but also an observation of the physical reality of the “tyranny of the rocket equation.”¹⁵³ Half or more of the energy required to travel to Mars would be used simply for exiting Earth’s gravity. If Earth were only marginally more massive, even achieving Earth orbit (upon which much of our current navigation, communication and climate-monitoring infrastructure now relies) would have been a significantly more difficult engineering challenge, perhaps prohibitively so. On a world just 50% more massive than Earth, even a flawlessly engineered chemical rocket likely could not escape, perhaps permanently entrapping that planet’s inhabitants.¹⁵⁴ In contrast, on a smaller planet like Mars many of these engineering feats are theoretically much easier. In the

¹⁵⁰ Robinson, *Blue Mars*, 502; 505.

¹⁵¹ Kim Stanley Robinson, “Green Mars” in *The Martians*, (New York: Bantam, 1999) 151-247.

¹⁵² Robinson, *Red Mars*, 50.

¹⁵³ Don Petit, “The Tyranny of the Rocket Equation,” last updated May 1, 2012. https://www.nasa.gov/mission_pages/station/expeditions/expedition30/tyranny.html

¹⁵⁴ Ibid.

Trilogy, the first space elevator is built on Mars to both facilitate resource extraction for shipment to Earth and as a preliminary test case for a similar project on Earth, as its lower gravity greatly eases the strength-to-density requirements for materials needed for such a project. Indeed, today it is speculated that constructing a space elevator on Mars might even be feasible with currently-existing materials, while such a structure on Earth will have to wait for futuristic advances in materials science.

That there is something both seductive and ensnaring about the lesser gravity of Mars is a common topic of the Trilogy. Adjusting to the low gravity causes a loss of bone density, making a return to the full gravity of Earth medically difficult or perhaps deadly (this phenomenon can be observed in the difficulties in reacclimating to Earth's gravity faced by astronauts who have spent significant time on the international space station). In *Green Mars* it becomes part of the political equation: corporations lure mining technicians to Mars with the contractual promise of a few years hazard pay, yet at the end of these terms the majority of workers who have not perfectly followed a rigorous supplement weight-training regimen to remain "Earth-buff" are now stuck there, adding to the permanent labor force.¹⁵⁵ As the Trilogy progresses, not only the culture but even the physiology of native born Martians begins to diverge from Earthbound, "Terran" humans, native grow much taller but thinner, and with lighter bones. "We can never go back" becomes a political slogan in the movement for Martian self-determination and independence from the exploitative policies of the Earth corporations.¹⁵⁶ Similarly, later a portion of the First Hundred, extremely aged, yet living due to the development of life extension treatments, discuss the possibility of returning to Earth. It is decided that this return would likely only be possible with the aid of an

¹⁵⁵ Robinson, *Red Mars*, 424-425.

¹⁵⁶ Robinson, *Green Mars*, 487.

exoskeleton to assist with walking and standing upright in Earth's higher gravity. The psychiatrist Michel Duval notes the irony: humans come to Mars and require the assistance of environment suits to move about on the surface, hundreds of years later they attempt to return to Earth only to require suits there as well.¹⁵⁷ The difference in gravity between the two worlds is used as a topic explaining and shaping the divergence of Martian and Terran cultures.

3.4.2 Atmosphere (Pressure and Composition)

Terraforming Mars is the quintessential Martian planetary topic, the massive, nonlocal “hyperobject” exceeding the frame of any individual in both time and space around which smaller merely human narratives orbit.¹⁵⁸ A major component of any terraforming effort would be to both thicken and alter the content of the planet's atmosphere. The analogies to climate change, or our accidental and haphazard mis-terraforming of the Earth are obvious. While terraforming Mars in the novels encompasses a variety of interrelated procedures and goals (warming the planet, liquid water on the surface, breathable air) thickening the atmosphere is of prime importance. Even a partially terraformed planet, with a thicker, but still unbreathable atmosphere would be far safer for humans, changing microcracks in suits and artificial habitats from instantaneous explosions into slower, manageable leaks. In addition, a thick carbon dioxide-based atmosphere, while toxic to humans, could potentially support domeless agriculture given the right modifications to the Martian regolith. Even among the Trilogy's terraforming proponents, there is a dispute over whether the effort should prioritize thickening the atmosphere as quickly as possible and without

¹⁵⁷ Robinson, *Blue Mars*, 443.

¹⁵⁸ Timothy Morton, *Hyperobjects* (Minneapolis: University of Minnesota Press, 2013).

regard to its composition, or whether a slower approach mimicking the gradual oxygenation of Earth's atmosphere should be taken.

The Trilogy also explores the range of political and cultural implications of living on a planet with an inhospitable atmosphere. Despite the centrality of the terraforming effort to the plot, nearly two-thirds of the Trilogy details life on Mars before a breathable atmosphere is attained and people on Mars can only breathe by means of life support systems. As discussed in the introduction to this chapter, one implication is that the rebellious Martian colonists find themselves quite vulnerable during the hastily conceived First Martian Revolution, as corporate-backed UN forces easily dispatch all of the domed habitats and towns which side with the revolution, by a diversity of measures ranging from simply popping the domes with missile strikes, to hacking life support systems in order to raise oxygen content to cause antipersonnel fires, keeping the bulk of expensive infrastructure intact.¹⁵⁹

However, there are also long-term shifts in how Martian culture adjusts to the no-margin-for-error conditions of living and breathing by the grace of a life support system. After the failure of the first revolution, hidden underground enclaves in the undeveloped southern polar regions of the planet survive by trading with each other using a novel economic model: a gift economy for necessities of life support based on a nitrogen standard, mixed with a money economy on the hydrogen peroxide standard for luxuries.¹⁶⁰ The result is the development of a new quasi-syndicalist political space, informed by the necessities of the atmosphere, with a sphere of solidarity surrounding the needs of life support, but otherwise tolerating a great divergence of political forms among the isolated enclaves. This is a variation on an established SF trope that

¹⁵⁹ Robinson, *Red Mars*, 475-477.

¹⁶⁰ Robinson, *Green Mars*, 42; 294.

suggests that survival conditions on an inhospitable world will tend to produce hardy, libertarian-minded cultures, which Robinson gives a communitarian turn.¹⁶¹

Much like on Earth, long-term management of the atmosphere becomes a rancorous political topic in the Trilogy. After Martian independence is achieved at the conclusion of *Green Mars*, when there is an uneasy political truce between Red and Green, atmospheric thickness becomes a core political dispute. The thickness of the atmosphere is the most reliable indicator of the progress of terraforming—a number the Greens want to push as close to Earth’s average 1 bar as possible, while the Reds would prefer to keep it close to the pre-terraforming figure of only 6 millibars. Ultimately a compromise is reached, made possible by both nuanced politics, and the planet’s extreme topography. Per the Martian constitution, the atmosphere will be kept at a maximum of 350 millibars at 6 km above the datum to be reviewed every 5 M-years.¹⁶² Due to the extreme differences in elevation on Mars, this means that the Greens can achieve a thin but potentially human-breathable atmosphere near the datum, or average elevation, while Reds can experience a (nearly) pristine lack of atmosphere in the highlands. This compromise is a particularly ingenious display of the interconnectedness of the planetary topics, as the unique features of atmosphere and geology conspire to make proposing the creation of such microclimates, and the forms of life they enable plausible.

¹⁶¹ From classic SF, see Robert Heinlein, *The Moon is a Harsh Mistress* (New York: GP Putnam’s Sons, 1966). In non-fiction science advocacy, see Robert Zubrin, *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* (New York: Simon & Schuster, 1996), also the subject of chapter 4 of this dissertation. For another nuanced deployment similar to Robinson’s, see James S.A. Corey, *Leviathan Wakes* (New York: Orbit, 2011), which features asteroid-dwelling “Belters” who simultaneously display libertarian and communitarian traits.

¹⁶² Kim Stanley Robinson, “The Constitution of Mars.” in *The Martians*, (New York: Bantam, 1999) 268.

3.4.3 Water

As a planetary topic shaping the contours of human life on a world, water is among the most fundamental. Humans must consume a considerable amount of water simply to survive, more to engage in agriculture, and more still to approximate the level of comfort to which humans in western societies have become accustomed. Planets and planetary bodies can vary with regard to human use of water in two primary ways: it can be more or less abundant, and more or less accessible. Whether or not it is naturally present in its liquid form is an important subtype of the latter, and is a major reason often cited to justify a proposed shift in the focus of space exploration efforts from Mars to the moons of Jupiter and Saturn like Europa, Titan and Enceladus.

In the Mars Trilogy the First Hundred's increasing water needs drive and shape their initial exploration and expansion of the planet. When they first arrive on the planet at Underhill, air miners sent previously to the landing site with unmanned robotic missions have been slowly building up a water supply by extracting the trace amounts of hydrogen and oxygen present in the Martian atmosphere.¹⁶³ While this supply is sufficient to meet their subsistence-level needs with tight rationing and efficient water recycling, the desire to expand their operations and increase their level of comfort, for instance, by installing an underground pool and bath complex, soon lead them to search for a larger exploitable water source.¹⁶⁴ Several of the colonists thus decide to go on an expedition to the north polar cap, with plans to set up a robotic ice mining operation and to build lay waypoints for robot-operated rovers to deliver ice back to Underhill. The necessity of exploiting the ice of the polar cap in this way leads to a controversy over the purpose of the entire

¹⁶³ Robinson, *Red Mars*, 103.

¹⁶⁴ Robinson, *Red Mars*, 123.

Mars mission. The two lead geologists, Ann Claybourne and Phyllis Boyle, clash over whether the ice cap expedition team should continue north to the pole after successfully setting up the ice mining operation. Viewing scientific research as the ultimate ends of the Mars mission, Ann's position is that while necessary, the ice mining operation risks contaminating future scientific sampling of the pole, so unspoiled samples should be taken immediately. Phyllis views exploitation of the planet's resources as primary, and sees the continuation to the pole as an unnecessary risk and drain upon their time after the ice mining outpost has been established. Thus, the scarcity and distribution of water ice on the planet forces an early clash over the ideology and the purpose of the mission as a whole.

As the Trilogy continues, it explores not only the topic of scarcity of water, but also its surfeit. At the end of *Green Mars*, the Martian resistance is gradually laying the groundwork for a second Martian revolution, with more robust support and more thoroughly planned than the first. Yet when news arrives from Earth that an Antarctic volcano has erupted, causing much of the Ross Ice Shelf to slide into the ocean and contributing to a massive sea level rise, the Martian revolutionaries know this disaster has given them an opportunity to act.¹⁶⁵ After the successful revolution, Nirgal travels to Earth on a mission of interplanetary diplomacy. During his time on the planet he visits the flooded English coast and sails with a group of divers who participate in an underwater salvage economy.¹⁶⁶ The descriptions of diving among the submerged buildings of the English coast foreshadows a similar event on Mars after the terraforming effort achieves the creation of a great Northern Ocean that inundates the centers of Martian culture from previous eras. After the creation of the great Northern Ocean, many people residing in the north begin

¹⁶⁵ Robinson, *Green Mars*, 553.

¹⁶⁶ Robinson, *Blue Mars*, 207.

residing on huge floating “townships” that subsist on fishing and onboard agriculture, radically remaking Martian culture yet again.

3.4.4 Weather and Climate

Robinson makes use of the topics of weather and climate at various points throughout the Trilogy. Shortly after a second wave of colonists have followed the First Hundred to Mars, a massive planet-wide dust storm of the type known to occur on Mars strikes the planet and rages for over a year.¹⁶⁷ This has the effect of impeding travel and forcing the early enclaves toward even greater self-sufficiency and self-governance. Later, in *Blue Mars* the frequency of smaller, localized dust storms also serves to illustrate the fragility of Nirgal’s attempts to become an ecopoet by scratching out an existence for his tiny biome in a harsh environment: after great effort and struggle, his basin is completely buried and wiped out by a dust storm.

As the terraforming effort gradually thickens the atmosphere, the danger posed by high wind speeds becomes more severe. After the failed first Martian Revolution, when corporate control of Mars is at its height, a group of Martian radicals led by Coyote builds an apparatus to strengthen and channel the prevailing katabatic winds descending off of the Great Escarpment into Kasei Valles to cause damage to a corporate detention complex and provide cover for a prison break in an act of “climatage.”¹⁶⁸

¹⁶⁷ Robinson, *Red Mars*, 302.

¹⁶⁸ Robinson, *Green Mars*, 255.

3.4.5 Insolation and Albedo

A number of planetary topics, in addition to the atmosphere, are involved with the production and retention of heat. On Earth, discourse about climate change typically revolves around the composition of the atmosphere, in particular the levels of carbon dioxide and other greenhouse gases which have been increased by human industrial activity. However other important topics are insolation, or the amount of solar energy hitting the planet, and albedo, the portion of that insolation that is reflected back into outer space. Though less common than discourse about the atmosphere and greenhouse gases, climate debates on Earth do occasionally discuss the albedo, particularly the effects of melting polar ice and glaciers. As a result of this melting reflective white snow and ice which is replaced with absorbent darker dirt and rock, thus retaining more heat, amplifying the process of global warming. A range of possible albedo modifications, such as the mass implementation of white roofs, and controversial chemical solar radiation management have been debated as attainable ways to help slow down global warming on Earth, while proposed methods of directly altering insolation, such as a giant planetary “umbrella” or even pulling the Earth’s orbit further out from the sun remain more remote speculative possibilities.¹⁶⁹

In the Mars Trilogy, the goal of pro-terraforming factions is the opposite of what we face on Earth, as they wish to warm up the planet by increasing insolation and lowering the albedo. Insolation is addressed through the creation of the “Soletta” system of massive mirrors in space,

¹⁶⁹ AM Mercer et al, “Public understanding of solar radiation management,” *Environmental Research Letters* 6 no. 4 (2011); John Hickman, “The Political Economy of a Planetary Sunshade” *Astropolitics: The International Journal of Space Politics and Policy* 16 no. 1, (2018): 49-58; Donald Korcnasky et al, “Astronomical engineering: a strategy for modifying planetary orbits,” *Astrophysics and Space Science* 275 no 4 (2009): 349-366.

which focus and redirect solar radiation which would have otherwise narrowly missed the planet onto Mars' surface, vastly increasing the incoming solar radiation from about 45% to 54% of Earth's levels. The albedo is addressed by attempting to encourage algae to grow on and darken the Martian polar caps, though this proves to be only minimally effective. An important application of the topic of insolation to human cultural adaptation again surrounds political aesthetic disputes between Red and Green factions. At the close of the first successful Martian Revolution against Earth's transnational corporations, tensions between Red and Green Martians threaten to destroy the gains brought on by independence, as an increasingly marginalized Red minority considers extremist measures. As something of a peace offering and compromise, lead scientist of the terraforming effort Sax Russell decides to remove the Soletta, thus restoring the appearance of the Martian daylight and shadow to its prior appearance.

3.4.6 Celestial and Temporal Cycles

On Earth, travelling to either the arctic or antarctic circles during that hemisphere's winter is one way to experience a striking reminder of how human habits are contingent upon planetary processes, straining and breaking the presumed periodization of our daily habits of activity and even many of our proverbs (in the face of adversity, it is often repeated that no matter the outcome "the sun will rise again tomorrow," yet this is commonplace does not hold in the arctic winter). This is one of the reasons why Antarctic research stations are used to estimate the potential effects of a manned Mars mission on human psychology. Robinson himself travelled to Antarctica as part of the National Science Foundation Antarctic Artists and Writers Program. On Mars, the variation is more pronounced and planet-wide, and any human habitation there would be faced with solving

the problem of timekeeping on a planet that differs from Earth in its period of rotation, revolution, and orbital eccentricity.

The Martian mean solar day is approximately 39 minutes longer than Earth, thus inhabiting humans would either have to alter the length of fractions of the day (such as hours, minutes, and seconds) by a proportionate amount, or deal with the 39-minute remainder. On Robinson's Mars the First Hundred choose the latter option, using Earth-length hours with a 39-minute "timeslip" occurring just after local Martian midnight, during which all official clocks are blank.¹⁷⁰ This timeless period takes on a unique cultural significance by becoming a sort of witching hour, with a number of the Trilogy's climactic events taking place during it: assassinations, prison breaks, sexual encounters.

The combination of an axial tilt similar to Earth's with a significantly greater orbital eccentricity make Martian seasons and its yearly calendar quite complex. The Martian year is about 669 Martian days long, and at perihelion (when Mars is closest to the sun, receiving approximately 45 percent more sunlight than at aphelion) the planet's southern hemisphere is also experiencing late spring and early summer as a result of axial tilt. In the southern hemisphere, the temperature effects of distance to the sun and axial tilt reinforce each other, while in the north they moderate each other. Thus, the seasonal changes in the south are extreme, while in the north they are moderate in comparison. Adding to this situation and further complicating the matter, planets move more quickly in their orbits the closer they are to the sun. Thus, the northern spring is significantly

¹⁷⁰ Robinson, *Red Mars*, 20. The name "timeslip" is almost certainly a nod to the Philip K. Dick novel *Martian Time-Slip*, although the titular time-slip in Dick's novel is not linked to directly to the planetary topic, but rather to differing perceptions of time linked to mental disorders. Robinson's tribute to Dick (whose novels were the subject of Robinson's own PhD dissertation) can be read as affirming that while Robinson's protagonists are overwhelmingly scientists and typically presented as rational actors, he has also made space for the darker desires and states of mind represented so frequently in Dick's writing.

longer than the northern autumn (and the opposite is true for the south). In the Mars Trilogy these factors have a drastic effect on the social and political landscape. The vast majority of early, Earth-supported settlement and exploration occurs in the more moderate northern hemisphere. This leaves the extreme south open to be secretly inhabited by political malcontents, who create a network of settlements in the south that are underground (literally and figuratively) to avoid both detection by the authorities and the extreme conditions.

Finally, in the Trilogy the cycles of the planets also play a part in the success of the second, successful Martian Revolution. The rebels wait to launch their plan when the Earth and Mars are on different sides of the sun from each other, drastically increasing the transit time between the two and thus hamper the ability of Earth's corporate militaries to respond and reinforce their agents on Mars.

3.4.7 Vulcanism & Magnetosphere

Vulcanism is a planet's degree of volcanic activity, or "subterranean fire" as Boyle had it. In the Mars Trilogy vulcanism is most conspicuous by its relative absence: though Mars is not volcanically dead, its activity is too low to create the strong magnetic dynamo necessary for a magnetosphere as expanded upon below. Furthermore, the relative lack of volcanic and tectonic activity may have assisted in preserving Mars's unique "chaos terrain," regions of steep hills, huge rocks, and mesas distributed across certain regions with no apparent pattern or logic. In the Mars Trilogy, chaos terrain is extremely difficult to map and traverse, and thus provides useful hiding places and smuggling routes for Martian rebels and their allies.

Earth has a strong magnetosphere, generated by the convective motion of magnetically charged liquid iron (the “dynamo”) in the Earth’s core. The magnetosphere shields the Earth from a significant percentage of incoming solar and cosmic radiation, and is often credited as one of the special factors that has allowed life on Earth to flourish. Being a smaller planet, Mars’ level of volcanic activity has decreased faster than Earth, thus it no longer possesses an internal dynamo (if it ever had one), and its magnetosphere is now much weaker than Earth’s. In combination with the thin atmosphere this becomes salient for the speculative human colonist because the planet’s surface is bombarded with a far greater amount of radiation, leading to a far greater risk of cancer and other maladies.

In the Mars Trilogy, the First Hundred initially encounter the magnetosphere through awareness of the danger of increased radiation exposure from spending too much time on the planet’s surface. The First Hundred’s initial settlement, aptly named Underhill, is built largely underground in a series of compromises between Arkady’s political imaginings, the exigencies of radiation protection, and chief engineer Nadia’s estimation of what is possible building in the alien conditions. Eventually a conflict arises between the medical team and the rest of the expedition over how much time is to be spent on the surface, with the medical group advising surface time to be kept to a strict minimum, relying primarily upon remote and robotic operated missions.¹⁷¹ This debate prefigures contemporary nonfictional debates on whether manned missions to Mars are possible or even desirable, or whether science can more safely and just as effectively be carried out by robotic explorers. Yet on Robinson’s Mars, the would-be explorers eventually win out, through perseverance and willingness to risk their own bodies to radiation, and begin manned rover expeditions across the planet’s surface.

¹⁷¹ Robinson, *Red Mars*, 127.

Ultimately in the Trilogy the topic of Mars' lack of a magnetosphere is only solved indirectly through the plot device of the "longevity treatments," a suite of cellular repair and anti-aging treatments which correct the damage done to the human body by radiation in addition to drastically extending the natural human lifespan. The treatments are also a plot device to enable some of Robinson's main characters to live several hundred years so as to witness the progress of the terraforming project. As there is less of a sustained engagement with this topic and it is ultimately solved by a plot device, this might be considered a rare blemish on Robinson's exploration of the planetary topics. Since the publication of the novels, non-fictional terraforming proposals for Mars have included the deployment of an artificial magnetosphere generator housed on man-made satellites.

3.4.8 Regolith

The composition of the planet itself, particularly the surface, is a crucial *topos* for any speculative attempt at inhabiting a planet. As the Trilogy is careful to note, on Mars the majority of the uppermost layer of the planet's surface is composed of what planetary scientists call regolith, or fine fragments of rock that are larger than dust but smaller than rocks or pebbles. Significantly, regolith is not exactly soil, as the term soil presumes the presence of organic matter and the ability to act as a substrate for growing plants. On Earth, what we call soil was created by organic processes over billions of years. On Robinson's Mars, fertile soil must be created by human scientists. This is one of the most technically difficult and labor-intensive steps in the novels' terraforming process.¹⁷²

¹⁷² Robinson, *Blue Mars*, 330.

Blue Mars explores how a prospective human culture might relate to the Martian regolith when Nirgal, after a period of wandering the planet looking for a calling and an escape from his ill-fated attraction to his cousin Jackie, settles on a piece of land as an “ecopoet.” Ecopoetics is the art of encouraging the first plants and a fragile ecosystem to take hold on a local area of the regolith of the newly terraformed planet. It is a solitary lifestyle that requires a heightened sensitivity to all of the variables of the ecopoet’s plot of land: regolith composition, gradient, wind patterns, and microclimate. Despite his best efforts and success at mastering the ecopoet’s craft, a dust storm ultimately buries all of Nirgal’s work, illustrating the fragility of any human-encouraged biosphere on the dusty planet.

Scientific understanding of the composition of the Martian regolith is one area which has changed significantly since Robinson wrote the Mars trilogy. In 1997, one year after the publication of the trilogy-concluding *Blue Mars*, the Mars rover *Sojourner* reported higher than expected levels of perchlorates in the Martian regolith. The levels currently estimated based on data from *Sojourner* and later rovers would be toxic to human beings as well as to most plants. This discovery has led to a significant reassessment of even the very long term potential for terraforming Mars, with Robinson himself noting that the regolith toxicity represents a previously unforeseen and significant obstacle.¹⁷³ Nevertheless, terraforming advocates have begun crafting speculative proposals for dealing with the perchlorate problem ranging from perchlorate-eating bacteria to direct chemical and mechanical removal. Some proposals even attempt to turn the disappointing discovery is, in fact, an opportunity: although toxic, the discovered perchlorate

¹⁷³ Robinson, “Earth first, then Mars: An Interview with Kim Stanley Robinson.”

compounds contain oxygen which could potentially be released into the atmosphere as a side effect of neutralizing the toxic soil.¹⁷⁴

The discovery of the toxicity of the Martian regolith shows how the planetary topics can be compared to the physical planetary probes, landers and rovers sent to Mars and several of the other planets. Our knowledge of the planets is limited by the bundle of instruments the probes can carry there, and our imagination is shaped and constrained by the planetary topics. Often there will be surprises, such as the previously missed perchlorate regolith, and spectacular failures, as with the early landers sent to Venus which melted almost instantaneously. Relying upon one of the classical topics (the possible and the impossible), many ask the question of whether, in light of this discovery, terraforming Mars is possible. Rather than this binary, the planetary topic “regolith” stands open to accrete additional data and observations around it, and stands in dynamic relation to other topics such as “atmosphere.” Even a planet is not ultimately a totality, but merely a fuzzy object, a temporary and pragmatic unity: in the Mars Trilogy, some problems posed by the planetary topics are solved by redirecting volatile-rich asteroids to impact with the planet.

3.4.9 Indigenous Life

Imagining indigenous alien life has always gone hand in hand with planetary speculation. As recently as the early twentieth century, it was widely presumed that the other planets in the solar system hosted abundant ecosystems, or perhaps even sentient civilizations. Martian life specifically has been a key *topos* for speculation, notably after the American amateur astronomer

¹⁷⁴ Alfonso Davila et al, “Perchlorate on Mars: A chemical hazard and a resource for humans,” *International Journal of Astrobiology* 12 no. 4 (2013): 1-5.

Percival Lowell popularized the theory that the appearance of Martian “canals,” likely an optical illusion first observed by the Italian astronomer Giovanni Schiaparelli, might be a sign of an advanced civilization on a dying planet. Contemporaneously with the canal craze, H.G. Wells notably speculated about the possibility of a bellicose Martian race bent on invading and colonizing Earth. Shortly after this, Alexander Bogdanov published his speculative novel about a near-human race of Martians that had progressed further than Earthlings on the path to a utopian communist society. Even today, human exploration of Mars (and expected future missions to the moons of the outer solar system by the Ocean Worlds Exploration Program) are largely built around the search for life or the conditions for life, even if only in bacterial or other microscopic form.

In the Mars Trilogy, indigenous alien life is most notable for its absence, though it nevertheless plays a significant structuring role in the events of the novels. One of the main objections to terraforming or other intensive development of the planet raised by Ann Clayborne and other early Reds is the specter of contaminating the search for indigenous Martian life. Ann argues that the proliferation of humans and their projects across Mars would undoubtedly bring all manner bacteria along, thus making it difficult or impossible to discern whether a specimen found living somewhere on Mars was indigenous or brought by humans from Earth. Of course, it is difficult to conclusively prove an absence, so as the events of the trilogy continue this argument is never so much defeated as it is ignored. Furthermore, and as I will engage with further in chapter four, Ann’s argument in the trilogy reflects those made in real life scientific debates over the desirability over terraforming Mars.

Certainly, the discovery of observable, macroscopic indigenous life on a planet would introduce a host of concerns for both the possibility for human habitation there, many of which

have been explored in some form in SF literature. The possible speculative valences of this topic are too numerous and varied to be discussed at length here.

3.4.10 Distance & Scale

An enduring topic of planetary science fiction is the question of the new outpost's distance from Earth, generally figured as the central authority of politics and culture. It might be speculated that extreme distance from the home planet could have a variety of effects, including exacerbating existing political, cultural or national differences, eliminating them, or most interestingly, creating new ones.

In the Mars Trilogy, to secure selection to join the First Hundred, several scientist protagonists had to first pass a grueling psychological and physical test of their fitness for the mission by simulating Mars in Antarctica.¹⁷⁵ Besides testing their physical and mental resilience under cramped and isolated conditions, they endure various examinations designed to ascertain their political loyalty and probability of respecting a primarily American and Russian led chain of command once they are millions of kilometers from Earth. Yet not even halfway through their voyage, Bogdanov announces his intention to break with the plans and instructions sent from Houston and Baikonur: "I think we should make new plans... We should be making them now. Everything should be redesigned from the beginning, with our own thinking expressed. It should extend everywhere, even to the first shelters we build."¹⁷⁶ This of course touches off a political

¹⁷⁵ Such simulations are performed in various inhospitable environments as first tests of how humans may fare facing the rigors of Mars. It is perhaps notable that Robinson himself spent time in Antarctica as part of the NSF Antarctic Artists and Writers program in 1995, inspiring both portions of the Mars Trilogy and his standalone novel *Antarctica* (1997).

¹⁷⁶ Robinson, *Red Mars*, 59.

fracas among the scientists (many of whom had hoped for an “apolitical” mission), split not only along traditional ideological lines but especially on the question of allegiance to any Earthbound authority. The inevitable question is posed: what can be done to them from millions of kilometers away if they choose to disobey?

Initially the colonists take a pragmatic middle path, giving the appearance of following orders from Earth where necessary, resisting in small ways, such as the design of shelters when possible. Yet it remains both a contentious political issue among the First Hundred, and an important topic of the novels. Many years later, once additional colony ships have arrived and the potential of Mars for both economic as well as scientific use has become apparent, tensions on the question between independence and loyalist factions begin a long slide toward armed conflict with Earth. Advocates of armed rebellion use the topic of distance to make comparisons to the American revolution, as I have discussed in the introduction to this chapter.

The “space as frontier” metaphor is of course one of the most commonly deployed, and commonly critiqued devices in science fiction literature. The “Space Western” is a subgenre of science fiction whose sophistication in application has run the gamut from space cowboys riding robotic horses on the surface of Mars to more subtle appropriation themes and conventions of classic westerns. Yet the basic similarity underwriting all the stereotyping remains: Mars is very far away from Earth, much like, at one time, the American frontier was far from eastern population centers, or the American colonies themselves were from the political centers of Europe. Beyond fiction, the scientist and space advocate Dr. Robert Zubrin, whose work is a major subject of the third chapter of this dissertation, makes heavy use of the frontier metaphor in his argumentation. He argues that humanity (and Americans in particular) need Mars as a new frontier to spur cultural and technological innovation.

The case of distance to the central authority is perhaps an outlier among my list of planetary topics, as it is not only a unique planetary feature along which planets may differ, but rather a complex relationship that emerges between planets, humans, technology, and political will. Though Frank Chalmers' pessimism on the applicability of American Revolution imagery, discussed earlier in this chapter, is initially shown to be prescient and the first Martian Revolution is easily smashed by Earth forces, the question of distance to the central authority does not go away. Many years later, in a very different cultural and geopolitical (or rather, areopolitical) moment, a new wave of revolutionaries address the question of distance again, this time with different results. With a much broader, more widely dispersed, and more thoroughly nativist Martian culture in place, the Free Mars separatists coordinate a joint social and military rebellion timed to begin at the opportune moment when the Earth and Mars are on opposite sides of the sun, delaying and complicating the possible military response.

Such is the difference between treating "distance to the central authority" as a topic, rather than "the frontier" as a metaphor, trope or archetype. Distance from the central authority is one question (among many) announced by the gesture of speculating about life on another planet; it is a question that calls out for a nuanced, speculative answer, rather than a ready-made response that implies its own archetypal content, as in the cruder applications of frontier imagery to space. As a topic, the question remains open to rejoinder and modification. In chapter four of this dissertation, I examine the case of archetypal versus topical invention in relation to the frontier idiom more closely through an examination of the speculative scientific nonfiction of Dr. Robert Zubrin.

3.4.11 Geology/Areology

The Mars Trilogy allocates a considerable amount of text to descriptions of the unique landforms of Mars, to the point that it is advisable to have a pictorial guide to geological terms handy while working through the text. A number of these landforms significantly impact the human practices that thrive on the planet. Many of these are also connected to the planetary topic of gravity, as a major difference between Terran and Martian landforms is that the latter are often exponentially larger due to having less gravity to pull them back down toward the center of mass over the course of millennia. For instance, as also discussed in the atmosphere section, the massive differences in elevation observed on Mars enable the possibility of creative compromises regarding the terraforming effort along elevation lines. Olympus Mons, the largest mountain in the solar system, is so large that even after Mars is fully atmospherically terraformed, its peak remains almost completely above Mars' atmosphere, requiring climbers to essentially wear space suits for the final ascent.¹⁷⁷

In another example, in the Trilogy humans are able to use Martian lava tubes as ready-made underground settlement spaces, as on Mars the tubes and other caves are much larger than their Earthly counterparts. Notably, one such complex of lava tubes is home to one of the main cultural centers of the Martian "underground" after the abortive first revolution, Dorsa Brevia. The city's underground isolation aids its efforts to develop a matriarchal society insulated from the patriarchal heritage of Earth and much of Mars.

An affinity for the unique landforms of Mars informs and shapes the Red political ideology and contributes to the overall Martian culture. Ann, the novels' primary avatar of redness, spends

¹⁷⁷ Robinson, "Green Mars," in *The Martians*, 248-260.

the bulk of her point of view chapters wandering the planet and observing the pingoes, tors, chaos terrain, sinkholes, and hummocks that mark the Martian terrain. She also spends a great deal of time scientifically speculating into what caused the formation of the planet's unique features, such as the Martian dichotomy in prehistorical time. She values each rock and landform both for its intrinsic beauty as well as for its potential contribution for unravelling the many mysteries of the planet's formation. Though she often opposes the terraforming projects of Sax, her love for the particularity of each specimen of rock, landform, and fines influences Sax's own development and capacity to perceive the planet's haecceity. Though she loses the first great debate over terraforming to Sax and his allies, she gets in one final parting shot, accusing him: "you've never even seen Mars."¹⁷⁸ Although the extreme red position is ultimately defeated, this perspective of reverence for and intense scientific interest in the landforms of the new planet is incorporated into the new cultural synthesis. In fact, the *Journal of Archaeological Studies*, noted as both one of the planet's top scientific journals and for its Red politics, is actually given a seat at the planet's constitutional convention.

3.5 Aesthetics: The Sublime Art of the Planetary Topics

As with the classical topics, the significance of the planetary topics is always in the art of their application. It might seem that the planetary topics risks indulging in a deterministic or even mechanical approach, for instance by speculating about single-biome, single-terrain planets that would necessarily produce particular forms of life yet this is not the approach of Robinson in the

¹⁷⁸ Robinson, *Red Mars*, 179.

Mars Trilogy.¹⁷⁹ Rather, the Trilogy avoids the problem of determinism by taking an approach to the planetary topics informed as much by an aesthetic paradigm as a scientific one. In particular, I argue that the art of the planetary topics on display in the Mars trilogy is a particular approach to the aesthetic category of the sublime that foregrounds human freedom.

The attempt to imagine human life on other, radically alien worlds necessarily invokes the sublime: it strains the imagination, and sometimes the prose of the sf writers, to articulate what such a civilization would look like. Though there are many theories of the sublime, they all deal with attempts to push discourse or representation beyond its limits. Following Kant, one of the varieties of sublimity is the mathematical sublime, or something that is simply too large for our sensory faculties to apprehend it, or which we judge as “surpassing any standard of sense.”¹⁸⁰ As I have shown above, the planetary topics of the Mars Trilogy are filled with attempted descriptions of such a sublime: narrating the ascent of a mountain three times the height of Everest, describing how a space elevator reaching out of planetary orbit might be built, the estrangement of approaching the massive Great Escarpment on foot, etc. According to Kant, the feeling of the encounter with the sublime is produced not by the object itself or even our sense of it, but rather by the pleasure/pain produced by the attempt of human reason itself to transcend the limits of our senses.¹⁸¹ Certainly, Robinson’s thick descriptions of Mars often elicit this type of pleasure/pain in the reader. Yet while the Romantic uptake of the Kantian sublime has been criticized for a perhaps masculinist fetishization of the very large, the Trilogy also offers in equal measure sublime descriptions of the very small, marvelling at the hardness of the smallest lichens and mosses in

¹⁷⁹ In contrast, see Isaac Asimov, *Foundation*. (New York: Gnome, 1951), for the city-planet of Trantor that houses an entire galactic bureaucracy; see also the numerous single-biome planets of the *Star Wars* universe.

¹⁸⁰ Immanuel Kant, *Critique of Judgment* trans. Werner Pluhar (New York: Hackett, 1987), 106.

¹⁸¹ Kant, 114-115.

taking root in tiny cracks in the bare rock of a hostile planet or the significance of Mars' ultrafine dust.¹⁸² In the trilogy, facility with navigating the sublimely small stands on equal footing with the hugeness of the Romantic sublime.

The sublime has also been theorized as performing an important political function. According to Nathan Stormer, by defining the expected limits of discourse, and hence subjectivity, discourses of the sublime create and define an Arendtian "space of appearance" in which the subject can be recognized in public.¹⁸³ This is particularly evident in the encounter with the maximal Romantic sublime, paradigmatically alone hiker exploring pristine alpine views, in response to the continued encroachment of technology and the disenchantment of the world. Per Stormer, "we accept certain limits on the self in order to enter into identification with strangers around scenes of supreme idiosyncrasy and epiphany."¹⁸⁴ As Stormer explains, the Romantic-Bourgeoisie subject takes a vacation to the Alps or the Rockies so as to return recharged to the now properly defined space of culture and political action, between the impossibility and ineffability of the natural sublime and the orderly predestination and inevitability of the workplace floor. In this way it makes use of one of the classical *koinoi topoi*, the possible and the impossible. Theorizing this political function, combined with the observation that the Romantic sublime has traditionally defined a space of appearance only for a particular type of subject has prompted others to theorize other sublimes: a feminine sublime, a black sublime, a non-western sublime, etc.

I argue that the sublime art of the planetary topics operates in a way that is similar, but also distinct from the political function highlighted by Stormer. The planetary topics shapes, limits and

¹⁸² Robinson, "Green Mars." in *The Martians*, 227.

¹⁸³ Nathan Stormer, "Addressing the Sublime: Space, Mass Representation, and the Unpresentable," *Critical Studies in Media Communication* 21, no. 3, September (2004): 213.

¹⁸⁴ Stormer, 233.

defines a space of appearance, not for the individual subject, but rather for entire speculative civilizations. In planetary fiction, the utopian space of appearance identified by Jameson is sharpened and given particular form according to the questions raised by the planetary topics. Addressing the planetary topics gives some partial purchase on what a civilization capable of surviving and thriving on another planet might look like. But perhaps somewhat surprisingly, the practice of showing in copious detail how such a sublime project might conceivably be accomplished actually highlights the blindspots and limitations of our current civilization, mode of production, and habits of thinking rather than championing their ultimate victory over nature. Thus it is also rather different than what some authors have called the technological sublime, an awe of and faith in the limitless promise of technology capable of uniting individuals around a civil religion.¹⁸⁵ While there are hypothesized technological leaps that enable the speculations at play in the Mars Trilogy (life extension, advanced materials fusion rockets), the focus is always on the practices that arise from the joint interaction of the human with the planetary that enable these technologies to function: there can be no successful terraforming of the Martian regolith without also imagining the culture that will carry it out, such as Hiroko's areophany and Nirgal's ecopoetics. There can be no sport in Martian gravity without forcing a reexamination of the role of sport, and what kind of beauty it can bring to the interaction of the planet and the human form. There can be no life in a thin atmosphere and fragile or nonexistent biosphere without imagining a new economic relation to those topics, such as Coyote's hybrid nitrogen/peroxide economy.

In the Trilogy bringing human life to Mars is an aesthetic project as much or more so than a mechanical one. As I have shown in discussion of the magnetosphere topic, early debates in the

¹⁸⁵ David Nye, *American Technological Sublime* (Cambridge: MIT Press, 1994). Nye expands upon the concept of the technological sublime first identified by Perry Miller in *The Life of the Mind in America*.

Trilogy indicate that perhaps the most obvious utilitarian response to the challenges posed by the planetary topics would have been for the scientists to live in underground bunkers and explore the planet remotely: this would minimize radiation risk, and also reduce the risk of contaminating the search for Martian bacteria. But this is not enough for the novel's consummate scientist, Sax Russell:

Now that we are here," he went on, "it isn't enough to just hide under ten meters of soil and study the rock. That's science, yes, and needed science too. But science is more than that. Science is part of a larger human enterprise, and that enterprise includes going to the stars, adapting to other planets, adapting them to us. Science is creation... the whole meaning of the universe, its beauty, is contained in the consciousness of intelligent life. We are the consciousness of the universe, and our job is to spread that around, to go look at things, to live everywhere we can.¹⁸⁶

Sax has a clear answer to the question: what is science for? He holds that science is not an ends in itself, but a means by which a part of the universe becomes conscious of itself as aesthetic experience. In fact, in a short story released after the conclusion of the Trilogy, Robinson imagines an alternative timeline in which humans decided to wait to colonize Mars, instead opting to explore the planet by robotic missions, which do eventually find microbial Martian life, thus delaying the prospects for sending humans to Mars even further.¹⁸⁷ While this is arguably the most practical course, what is lost is the chance to imagine how humans might learn to live artistically on another planet, by negotiating artful solutions to the challenges posed by the planetary topics.

The sublime art of the planetary topics culminates in *Blue Mars*' description of the "accelerando," a new cultural and technological golden age of accelerated change and development (although not without its own conflicts and challenges) that emerges with the benefit

¹⁸⁶ Robinson, *Red Mars*, 72.

¹⁸⁷ Kim Stanley Robinson, "Discovering Life" in *The Martians* (New York: Bantam, 1999), 129.

of the lessons learned from settling Mars.¹⁸⁸ Robinson's *accelerando* is a final ode to the planetary topics, as humanity spreads throughout the solar system experimenting with the forms of life that could exist in the relative darkness of the Jovian and Saturnian moons, as well as an entire range of artificial spin gravities on countless asteroids. Even the planet Mercury gets a settlement, made possible only by the fact that the domed city of Terminator moves constantly across the planet's surface, staying constantly within the twilight zone of the planet's terminator to avoid incineration. In perhaps the most overt description of the sublime, access to the planet's surface must be tightly controlled, as many walking outdoors within the terminator fall victim to "solar rapture" and are tempted to walk into the instantly lethal dawn wall.¹⁸⁹ In a similar manner, each of the settlements of the *accelerando* create unique and artistic responses to the sublime challenges of the planetary topics.

3.6 Coda: Scalar Derangement, Realism, and Cthulhu's Cthulhu

I wish to address one of the potential objections to this preference for the planetary topics as deployed in realist speculative fiction and as well as contentions about its grounding in the planetary topics and what it can do for imagination in the anthropocene. Zylinska argues that the type of planetary thinking engaged in by Robinson and which I have adopted as a model for the planetary topics problematically suffers from a "scalar derangement" in its efforts to represent and render entities that exist on an inhuman scale accessible to human representation and action.¹⁹⁰

¹⁸⁸ Robinson, *Blue Mars*, 479-486. Also see Charles Stross, *Accelerando* (New York: Penguin, 2005). Stross appropriates Robinson's concept of the "accelerando" and gives it a dystopian spin.

¹⁸⁹ *Ibid*, 493.

¹⁹⁰ Joanna Zylinska, *Minimal Ethics for the Anthropocene* (Ann Arbor: Open Humanities Press, 2014), 27.

The argument is that efforts similar to the planetary topics are argumentatively convincing but ontologically misleading, in that by aiming for invention around macro-scale, planetary processes they achieve an “apparent grasping of complexity which is nothing more than a form of reductionism.”¹⁹¹ Though Zylinska expressly reacts against recent developments in the humanities such as Object-oriented ontology, she simultaneously positions herself against a style of thinking that could be called topical. She insists that philosophy, and particularly ethics can only occur on a universal scale to avoid the “kind of thinking that would carve out entities such as “the animal”, “the body” and “the gene”, and locations such as “the world”, “Africa” and “the lab”, and then attempt to work out good ways of managing relations between them.”¹⁹² Thus she positions herself against the very concept of discrete place, with its individual *topoi/loci* as a starting point on which the topics are founded. Inspired by Bergson, she wants us to be less convinced by efforts to carve up the “flow of life” into mere “temporary stabilizations.”¹⁹³ Her proposed alternative is a “minimal ethics” based upon a Baradian intra-active metaphysics—though what this looks like as an actual praxis for speaking, writing and arguing is often vague. The injunction of her minimal ethics is to develop an ethical attitude of humility in general and towards the entire universe, rather than attempting to divide it into particular objects or places.

Pilsch imports Zylinska’s critique of scalar derangement into rhetorical studies in order to both critique recent developments in the discipline’s turn to engage with the nonhuman, and to advocate for an alternative rhetorical practice instead invoking the inhuman. He is particularly critical of Bogost’s “carpentry,” or the “making things that explain how things make their world”

¹⁹¹ Ibid.

¹⁹² Ibid, 25.

¹⁹³ Ibid, 38.

as a practice for engaging with nonhuman objects.¹⁹⁴ In addition to Bogost's effort to simulate the processes of nonhuman objects through physical crafting, Pilsch critiques all theorizing which "places the human at the center of nonhuman speculation."¹⁹⁵ This also includes efforts like the various acronymic projects of Bruno Latour that attempt to map nonhuman agency and "render it legible to human audiences."¹⁹⁶ Like Zylinska, Pilsch holds that attempts to represent the nonhuman world are dangerous folly, particular when attempting any kind of mapping or categorizing, such as the topics.

Instead of attempting to represent and map the nonhuman, Pilsch recommends a turn to the inhuman. Unlike representations of the nonhuman, he says, the turn to the inhuman is forthright about humanity's inability to represent it completely.¹⁹⁷ For Pilsch, this inhuman dimension of reality is best represented by Lovecraft's Cthulhu, the octopus-dragon-god-monster capable of inspiring madness in humans unfortunate enough to catch a glimpse of it. Here Pilsch has many fellow travelers: there is currently a veritable Cthulhu industry in philosophy and theory of the Anthropocene.¹⁹⁸ For Pilsch and these other theorists, Cthulhu represents a terrible agency so far above and removed from humanity as to defy comprehension. As Pilsch notes, in Lovecraft's mythos this occurs especially at the level of linguistic representation: the very name Cthulhu is

¹⁹⁴ Ian Bogost, *Alien Phenomenology* (Minneapolis: University of Minnesota Press, 2012), 93.

¹⁹⁵ Andrew Pilsch, "Invoking Darkness: Skotison, Scalar Derangement, and Inhuman Rhetoric," *Philosophy & Rhetoric* 50 no. 3 (2017): 337.

¹⁹⁶ *Ibid.*, 350.

¹⁹⁷ *Ibid.*, 349.

¹⁹⁸ Among influential contemporary theorists, see Timothy Morton, "Zero Landscapes in the Time of Hyperobjects," *Graz Architectural Magazine* 7 (2011): 85; Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016). Moreover, these thinkers piggyback upon a veritable explosion of Cthulhu-mythos materials in recent popular culture, especially board games and video games. A search on the definitive website BoardGameGeek reveals over three long-scrolling pages of results for games with "Cthulhu" in the title. While some theorists might find this as evidence for a subconscious leaning towards inhuman readings of the Anthropocene, I suggest a more prosaic explanation: the remainder of Lovecraft's works went into the public domain in 2008 in the EU (a center of the hobby board gaming industry) per the Berner convention, thus allowing any start-up game company to market a Cthulhu game; the year 2008 coincides closely with the recent explosion of Cthulhu-mania.

meant to evoke a fumbling attempt to render syllables never intended to be uttered by mere human vocal chords.¹⁹⁹ Phenomena like climate change is best represented by Cthulhu, say these theorists: we are only becoming dimly aware that we may have summoned a monster much greater than ourselves, whose ultimate intent we can scarcely fathom. Cthulhu doesn't even grant humanity the respect of intending our demise, we are to Cthulhu as ants or mites are to us, likely to be crushed by the unfathomable entity merely because we are accidentally in its way. Following Lanham, Pilsch classifies the naming and description of horrific entities like Cthulhu as an instance of the trope *skotison*, or intentionally obscure or "darkened" language.²⁰⁰ While Lanham's judgment of the trope is negative, Pilsch argues that it should be rehabilitated as it avoids Zylinska's scalar derangement, and better represents the horror of the inhuman precisely by failing to represent it.

Against these theorists and the obfuscation of *skotison*, I argue that we should not abandon the categorization in the style of the planetary topics, in particular the Cartesian and Heideggarian functions, which I have shown to be interdependent, of describing and naming places. Ironically, it is precisely when confronted by the problem of scale that *skotison* falters. Even if we grant Pilsch and the Cthulhu cultists, for a moment, the point that *skotison* successfully (non)represents something of the nameless horror of climate change (and other like existential threats) at the planetary scale, far beyond the individual human, what happens when we expand the speculative scale further? For instance, how can we conceive of an entity as far beyond the scale and comprehension of Cthulhu, as Cthulhu is to us? *Skotison*, I argue, can tell us little about Cthulhu's Cthulhu—it would simply amount to an endless (and tiresome) repetition of the same obfuscatory

¹⁹⁹ H.P. Lovecraft, *Selected Letters: 1934–1937*, Ed. Donald Wandrei and August Derleth. (Sauk City: Arkham House, 1976) 10-11, quoted in Pilsch, 347.

²⁰⁰ Richard Lanham, *A Handlist of Rhetorical Terms* 2nd ed. (Berkeley: University of California Press, 2006), 56-57 quoted in Pilsch, 351.

description of Cthulhus all the way up, to the solar-systemic, galactic, and cosmic scales. With the trope of *skotison*, Cthulhu's Cthulhu is reduced, in the human imagination, to merely another Cthulhu.

In contrast, it is the much-derided partial success of topicalized mapping that better renders the inhuman problem of scale to the imagination. An extended example occurs throughout The Expanse novels by James S.A. Corey, where the partial mapping of one Cthulhu-object sets the stage for an appreciation of a far greater scalar leap. The Expanse describes a universe in which humanity circa-2350 CE has long since colonized Mars (now an independent political entity) and begun to place its furthest outposts in the outer planets. The Cold War-esque political equilibrium between Earth and Mars is broken with the discovery of an alien "protomolecule" sent towards Sol in search of organic material billions of years prior, and only by chance intercepted by Saturn's gravitational field. Initially an utter, horrific mystery, it is eventually discovered that the protomolecule hijacks the preexisting processes of organic material and bends it to its own will: ultimately the construction of a warp gateway to an alien intergalactic travel network. Initially it is presumed that the protomolecule is itself an advanced alien intelligence, later it is surmised that it is merely a sophisticated, lifelike technology, designed and used by the aliens as a kind of a transgalactic autonomous vehicle. Instead of merely applying *skotison* to this advanced, intelligence far beyond human scale however, the novels document human attempts to begin (partially) mapping it. One notable example of this fumbling attempt at mapping occurs during the climax of the series debut novel, *Leviathan Wakes*. The last human survivor stranded on a former asteroid-city whose life has been completely overwritten by the protomolecule, the failed detective Miller has an epiphany while noting the *unheimlich* quality of wandering utterly other, alien-

designed corridors that, nevertheless, he can readily navigate because they follow precisely the layout of his former home:

It was funny, he thought, how the ruins of the past shaped everything that came after. Back in the ancient days, when humanity still lived entirely down a well, the paths laid down by Roman legions had become asphalt and later ferroconcrete without ever changing a curve or a turn. On Ceres, Eros, Tycho, the bore of the standard corridor had been determined by mining tools built to accommodate the trucks and lifts of Earth, which in turn had been built to go down tracks wide enough for a mule cart's axle.²⁰¹

Gradually it dawns upon Miller that he has discovered the first common ground between humans and the alien technology: a common theoretical premise of media theory, no less. This epiphany leads him to another, when he realizes that perhaps the protomolecule has built over the consciousness of its human patient zero in similar way. Although turned to alien purposes, Miller could thus begin to “reason” with the protomolecule’s interpretation of its infrastructural underlay, in this case his target missing person and obsession, Julie Mao. Such fumbling, partial mappings of the protomolecule and the far beyond human scale, Cthulhu-scale alien consciousness behind it occur gradually throughout *The Expanse*, granting humanity a toehold of common ground for mapping and interpreting Cthulhu. Due to this mapping, the impact is all the greater when ultimately Cthulhu’s Cthulhu appears: the alien civilization that designed the protomolecule is revealed to be extinct, having left behind its galaxy-spanning warp network for humanity to use and discover. Furthermore, there is evidence that they did not simply die out, rather they seem to have been exterminated by an alien entity as far beyond them as they themselves were beyond humanity. Importantly, appreciation of this scalar phenomenon is only possible after the partial mapping first scalar leap. Without it, we would be stuck within an endless repetition of *skotison*, which ultimately does not provide the appropriate sense of scalar awe, but rather flattens

²⁰¹ James S.A. Corey, *Leviathan Wakes* (New York: Orbit, 2011), 523.

everything in the cosmos to the relatively insignificant scale of that which happens to horrify a particular and relatively insignificant being, the human. This fetishization of uniquely human horror is better deserving of the name scalar derangement.

In the Mars Trilogy, Robinson also imagines a local Martian mythology which performs an unveiling of Cthulhu's Cthulhu similar to Miller's epiphany in the expanse. In the Martian tall tales, Paul Bunyan traveled to Mars long before the First Hundred. However on Mars Bunyan's exploits come to an end, as he meets and challenges Mars' Big Man, a giant who is the same two magnitudes larger than Paul as most Martian landforms reliably are compared to their counterparts on Earth due to the effects of the planetary topic of gravity.²⁰² Paul Bunyan is easily dispatched by Big Man in the duel which also creates the known topography of Mars as collateral damage. This piece of the nascent Martian mythos has not only an awe-inspiring, but also a didactic mapping effect: if we can imagine Paul Bunyan as compared to the ordinary frontiersman, imagine that Big Man is that to Paul Bunyan. This helps us understand the scalar vastness of, say, Olympus Mons relative to Everest without any need to resort to the obfuscation of *skotison*.

In fact, scale itself is something of a meta-*topos* of the planetary topics: experience of planetary variables such as temperature, moisture, atmospheric pressure, and the size of landforms are put in a new frame of reference when comparing Earth to Mars, for instance. In another post-Trilogy short story set in Robinson's Mars, a former "Red" political activist (in favor of leaving Mars un-terraformed) laments the loss of the sublime "heartless immensity" of Mars' terraformed features, which had given way to the smaller-scale beauty, or even cuteness of human-engineered settlements and forests on Mars. Musing upon political and aesthetic difference, and how the sublime red landscape inspired him while it intimidated "Greens" and others, he suddenly

²⁰² Robinson, *Red Mars*, 386.

remembers the true heartless immensity of outer space, which will always remain untamed. The outer-spatial sublime terrifies rather than inspires him, thus helping him empathize with the green aesthetic and political perspective.

The honest attempt at describing and mapping unearthly planetary features, and speculating about human adaptation to them renders scalar difference much more palpably than the obfuscation of *skotison*. This seems to return us once again to twentieth-century aesthetic debates between the kinds of realism advocated for by Lukács and various schools of expressionism and (post)modernisms. Following Lukács I insist that realism's striving to capture the mediation between inner experience and external objective reality is a more nuanced art and is of greater political value than capitulating to either pole.²⁰³ Rather than a simple binary between "how it feels" and "how it is,"²⁰⁴ the problem of representing scalar awe shows how there is in fact a complex mediation between the two. This goal of this mediation is not so much to catalog, but to artistically capture the totality of social relations within a given epoch, and Lukács holds that the interplay of subjective and objective captured by realist narration, including the always shifting possibility of freedom of the narrator, is necessary for this task.

Jameson has also argued for the need for a sort of neo-Lukácsian aesthetics of "cognitive mapping" the totality of social relations under late capitalism. Borrowed from urban studies and design, the theory of cognitive mapping suggests that the perceived inability to imagine a mental map of the totality of one's surroundings tends to increase alienation and anomie and

²⁰³ György Lukács, "Realism in the Balance," trans. Rodney Livingstone, in *Aesthetics and Politics* (New York: Verso, 2007), 40. Lukács defends literary realism against both the pure interiority of expressionism and the pure description of naturalism.

²⁰⁴ Wayne Booth, *A Rhetoric of Irony* (Chicago: University of Chicago Press, 1974), 276. This is Booth's attempt to describe the difference in intention between literary realism and modernism.

simultaneously decreases political agency.²⁰⁵ However rather than physical space, Jameson is concerned with the growing incapacity of mapping the totality of social relations under late capitalism, a condition exacerbated by the conventions popularized by postmodern aesthetics and thought. In postmodern aesthetics, jump cuts, fast edits and fragmentary narratives have assisted in the normalization of this incapacity. Significantly, it is not simply that postmodern aesthetics promotes faulty or inaccurate cognitive maps in the mode of “false consciousness;” rather it discourages even the possibility of cognitive mapping itself as a practice. Jameson calls for a new aesthetic form that encourages cognitive mapping of the social totality, enabling individuals to imagine themselves as subjects located within in a history, in continuity with a past and a possible future. Cognitive mapping is the other side of Suvin’s cognitive estrangement, the reterritorialization of the imagination after the prior deterritorialization.

The planetary topics has the potential to act as a heuristic for prompting the type of cognitive mapping that Jameson has advocated. Indeed, the Mars Trilogy reads as a comprehensive attempt at cognitive mapping, an uptake which is perhaps unsurprising considering that Jameson was Robinson’s original doctoral advisor at UC San Diego. It is true that the extended lives of The Trilogy’s major characters serve as one literary device for the mediation of history, enabling the unified mapping of historical processes across spans of time generally beyond the perceptive range of individuals.²⁰⁶ However, planetary features provide an equally important point of reference point to not only observe, but also shape relative continuity and change throughout the planet’s history. In this way, the planetary topics of Mars provide an anchor for imagining these sweeping

²⁰⁵ Fredric Jameson, “Cognitive Mapping,” in *Marxism and the Interpretation of Culture*, ed. Cary Nelson and Lawrence Grossberg (Urbana: University of Illinois Press, 1988), 347-360.

²⁰⁶ This is a common technique in Robinson’s fiction. See *The Years of Rice and Salt*, an alternative history imagining world history without European influence, for its use of reincarnation of major characters to accomplish historical cognitive mapping.

social changes, and authorize the mapping of how Martian society might plausibly have gotten from here to there. As such, they are one tool for giving form to the utopian impulse, to create the space of appearance in reference to a common feature so that it can be addressed and responded to in detail by others.

I suggest that the planetary topics is a particularly useful heuristic for cognitive mapping because it occupies a unique position between the intransigence of the system and the contingency of the list. As noted by Struever, topical thought holds certain advantages over metaphorical or systemic thought, as the ability to continually add to and revise the list of questions makes the topics more nuanced and nimble in the face of new phenomena as compared to complex, overwrought theoretical systems. Recent trends in philosophy and theory have embraced a version of this critique, and theorizing with lists is now in vogue: Ian Bogost coined the term “Latour Litany” to refer to the lists of seemingly random and unrelated entities that often punctuate the writing of Bruno Latour, Graham Harman, Bogost and other thinkers of the New Material and Object-oriented turns.²⁰⁷

Harman has also adopted the term for these lists as well as the counter-systemic impulse behind their creation, noting that “their primary value is to establish the autonomous force and personality of individual actors, rather than allowing them to be reduced to or swallowed up by some supposedly deeper principle.”²⁰⁸ In the right hands the Latour Litany can be an effective trope for conveying haecceity, as Harman calls our attention to a passage from Gibbon’s *The Decline and Fall of The Roman Empire*: “...the valour of the inhabitants resisted above five

²⁰⁷ Bogost, *Alien Phenomenology*, 94.

²⁰⁸ Graham Harman, “Latour Litanies and Gibbon,” *Object-Oriented Philosophy*, last modified December 5, 2009, <https://doctorzamalek2.wordpress.com/2009/12/15/latour-litanies-and-gibbon/>

months the archers, the elephants, and the military engines of the Great King.”²⁰⁹ Harman is right to note that the poetics of this passage is not only stylistically more vivid and compelling, but also better preserves the ontological haecceity of the component parts than if Gibbon had simply referenced the King’s army, or even merely used a descriptive construction such as “the King’s army, which included archers, elephants, and military engines.” However, Harman is wrong to attribute the poetic effect to metaphor. Its poetic effect is more properly attributed to the trope of zeugma, or “yoking” of disparate entities, which calls attention to their differences, but also their (currently salient) relation to each other. The reader is called to imagine the army components in their individuality, but also to imagine an entire chaotic battle scene with projectiles flying and elephants trumpeting.

This artful, zeugmatic use of the Latour Litany thus enables a measure of cognitive mapping that is spurned by the bad infinity of the random list: consider Bogost’s Latour Litanizer tool that makes use of Wikipedia’s Random Page API to generate a list.²¹⁰ When using the Litanizer, I generated “91st Infantry Division (German Empire), Kris L. Hardin, Bapska, Ex Mach Tina, Jordan Renson, Sandići, Local Gentry.” While the stated purpose is to remind us of humanity’s embeddedness in a larger set of the “rich diversity of things”²¹¹ (which incidentally it often fails to do because Wikipedia is heavily biased towards pages on humans and their immediate creations, as the list I generated demonstrates), it does not prompt us to form a new cognitive map relating the disparate elements, as they are too abstruse and disparate.

²⁰⁹ Edward Gibbon, *The Decline and Fall of the Roman Empire* vol. 2 (London: Fredrick Warne & co., 1913), 699; quoted in Harman, “Latour Litanies and Gibbon”

²¹⁰ Ian Bogost, “Latour Litanizer,” accessed August 2 2019, http://bogost.com/writing/blog/latour_litanizer/

²¹¹ Ibid.

Like Gibbon's passage, the planetary topics occupies a middle ground between list and system that encourages the preservation of haecceity while also enabling cognitive mapping. In the standard use of the classical *topoi*, the orator selects the sharpest and most apropos topic for the occasion and uses it to craft their argument. With the planetary topics, while the orator might begin the process of invention in the same way, eventually they will be called upon to address the interrelation between the various topics, or as Jameson might have it, to map the totality. Put another way, any given utopian social invention must answer the challenges of not just one, but multiple planetary topics. Frank Chalmers's frustration with the would-be revolutionaries was with the myopic attention to only one of the topics, "distance to the central authority." In this way, the Mars Trilogy constantly calls attention to the impossibility of basing a speculative worldview on a single topic: its haecceity and totality can only be appreciated as a summation of the several topics, there is no spiritual shortcut to "grokking" the totality.²¹² The working through of each of the topics in turn, as Suvin would put it, "cognitively," is crucial both for the production of estrangement and for the moment of speculative invention that follows it.

The art of the planetary topics makes possible a particular type of planetary speculation, undergirded by non-static worldbuilding, where the world is not simply a screen for the actions of characters playing out the author or audience's fantasies, but a world that pushes back against them and acts as an agential force unto itself. Yet there is also a dimension of aesthetic freedom, as none of the topics themselves are entirely deterministic, one-to-one causes, but rather enable a discrete range of particular possibilities for human existence. Applications of the planetary topics are also necessarily historical, as the adaptation to planetary conditions is always incomplete and in process. Of course, not every work of SF or even of planetary speculation makes use of the

²¹² Robert Heinlein, *Stranger in a Strange Land*. (New York: GP Putnam's Sons, 1961).

planetary topics to the same degree and with the same nuance as the Mars Trilogy, and perhaps they do not need to, if their purpose is critical or allegorical rather than speculative. However, I think there is a special urgency today to call for more utopian speculation, and as Robinson has observed, there are good reasons that utopias should be planetary in scope: there can be no “pocket utopias.”²¹³ Thus something like the planetary topics, as a checklist of interconnected sites of possibility, is critically important to the utopian imagination.

²¹³ Kim Stanley Robinson, “Episode 87: Kim Stanley Robinson,” *The Imaginaries*. Podcast audio, <https://www.imaginaries.net/episode-archive>

4.0 “A series of interesting decisions”: The Combinatorial Topics of *Civilization*

In the previous chapter, I describe how Robinson’s Mars Trilogy makes thorough use of the planetary topics as a resource for invention. Worldbuilding in the Trilogy is constrained, shaped and ultimately given its unique texture and particularity by the planetary topics. The suggestion that significant invention and novelty can occur from the encounter with the particularity of the local planetary topics is in contrast with prevailing readings of science fictional worlds as screens for representing the inchoate desires and fears of the present.²¹⁴ Instead, the planetary topics of the Trilogy are an “areoformation” of these thematic desires of the Earthly present, fundamentally changed by the encounter with the Martian topography.

In this chapter, I hope to show that the utility of the planetary topics as both an inventional and interpretive heuristic extends beyond the Mars Trilogy itself, and even beyond the genre of SF literature. Turning to *Sid Meier’s Civilization* series of turn-based strategy video games, I discuss both the evolution of the series as a whole and focus on the two most recent major titles in the series, *Civilization: Beyond Earth* and *Civilization VI* (hereinafter I use *Civ* to refer to the series as a whole, *Civ [Roman Numeral]* to refer to particular games).²¹⁵ The *Civ* franchise has been a staple

²¹⁴ Seo-Young Chu, *Do Metaphors Dream of Literal Sleep?* (Cambridge: Harvard University Press, 2010), 2. Though Chu posits her theory of SF as mimesis of reality as an insurrection against the theory of cognitive estrangement, this insurrection is staged against what was only ever a minority position held by Suvin, Jameson and a handful of SF authors. The predominant critical position has always been to read SF as bound in some way to the time and circumstances of its creation. I argue that Chu’s call to treat SF as an attempt to represent what is unrepresentable is to be resisted, as it amounts to a flattening of genre by rendering indistinguishable from other genres such as magical realism or slipstream.

²¹⁵ Sid Meier & MicroProse, *Civilization*. (MicroProse, 1991), 5.25” disk; Brian Reynolds et al & MicroProse, *Civilization II* (MicroProse, 1996), CD ROM; Jeff Briggs et al & Firaxis Games, *Civilization III* (Infogrames, 2001), CD ROM; Soren Johnson et al & Firaxis Games, *Civilization IV* (2K games, 2005), CD ROM; Jon Shafer et al and Firaxis Games, *Civilization V* (2K Games, 2010), digital download; Will Miller et al & Firaxis Games, *Civilization: Beyond Earth* (2K Games, 2014), digital download; Ed Beach et al and Firaxis Games, *Civilization VI* (2K Games, 2016), digital download. .

of PC strategy gaming since 1991's *Sid Meier's Civilization*, and is often credited as a progenitor of the "4X" subgenre of strategy games (eXplore, eXpand, eXploit, and eXterminate). In a typical *Civ* game, the player takes command of a small tribe at the very advent of agriculture and is tasked with shepherding this nascent civilization throughout a simulated history (and often through challenges represented by each aforementioned X), through the space age and into the future. The *Civ* franchise is a significant artifact for examination, as it has consistently led the 4x genre in popularity, acclaim, and in drawing the ire of academic cultural critics.

The pivot from literature to video games is crucial to my overall project. While, following Lukács, as a form the epic novel is uniquely suited to narrate the nuances and historical dynamism of mode(s) of production, as a medium for speculation, it does suffer from certain limitations. First, with only a handful of niche exceptions (LitRPGs, Choose Your Own Adventure Novels, and so forth), novels are linear and non-iterative. After completing the Mars Trilogy, we cannot easily go back and replicate the experience, but this time asking what might have happened had the First Hundred landed in a different region of the planet, for instance. Second, although novels may challenge and engage the reader in many ways, they do not rely upon the reader's own procedural decisions to assist in worldbuilding. As a medium, the video game is well-suited to address both of these weaknesses of the novel form, though it is not without its own drawbacks.

I argue that at its best, *Civ* can function as a heuristic for speculative invention by means of the planetary topics. From a list of coded parameters indexed to represent possible planetary features (sea level, terrain types, continental drift, aridity and wetness, etc.) not only a world, but a procedural world history can be generated in concert by the game and its player. I argue that despite (or perhaps because of) the constraints imposed by the video game medium and the strategy

game genre, *Civ* can function as a training ground for imaginative yet plausible planetary speculation.

To make this case, I must account for a number of critical perspectives taken on the *Civ* series. Perhaps unsurprisingly, *Civilization* has produced its fair share of discontents. I review the major arguments of the game's critics, which I divide into two groups. The first group, whom I call the narratological critics, object primarily to the thematic subject matter of the game, the purported narrative of human civilization. These critics argue that despite attempts to represent nonwestern peoples in the game, the game's forced narrative inevitably reproduces a western, logocentric, capitalist bias or logic. The second group, whom I call the media critics, suggest that the narrative material is largely irrelevant, a mere skin or adornment atop the computational Real of numerical maximization. Yet they too suggest the game, by its very algorithmic processes, also reproduces a western, logocentric, capitalist bias or logic. I consider, occasionally conditionally accept, and more often refute these arguments en route to my own reading of *Civ* as an implementation of the planetary topics.

Describing *Civ* as essentially an implementation of the planetary topics, rather than as a narrative or as a medium lends a certain advantage to my perspective on the series. It calls our attention to actual decisions made by players within the game in either selecting from or navigating topical world parameters: should one play on a Pangea or archipelago map; should one found a city near a mountain range or rainforest? One aspect common to both the narratological and media critics is a sharp but often exclusive focus on all of the elements of the *Civ* experience that is not up to the player, that is baked in, or "on rails" in gaming and programming parlance. This is of course the dominant strategy of critique, and I note where its application to the *Civ* series yields trenchant observations. Yet more often the focus on what is on rails or predetermined by the

game's narrative material or interface misses precisely what draws players to the game itself, which is the experience of constrained, but open-ended freedom in navigating the game rules. *Civ's* design philosophy is often described as offering the player "a series of interesting decisions."²¹⁶ While this is certainly a marketing tagline in addition to a design philosophy, I argue that it also aptly describes what the critics miss or ignore about the game's appeal: the freedom to make decisions that have heuristically estimable but uncertain choices that impact the temporal unfolding of the game world.

In addition to the game's subject matter, I also turn my attention to the game's form. Several features of the game's interface that have been subjected to critique include the signature digital pullback or god's eye view, and interface informatics of a universal data overview. To these interface features I add my own analysis of the ability to easily restart one's game, as well as the series' signature turn-based gameplay. Though I consider the merits of existing critiques of the interface, I subsequently advance my own view that the game's interface stimulates a form of mediated planetary thinking. As I have argued for Robinson's Trilogy, I also suggest that along with the heuristic function of the planetary topics these features of *Civ* enable and encourage a much needed future-oriented, Jamesonian cognitive mapping. *Civ's* long, slow gameplay, future-oriented turn-based system, and mediated-sublime aesthetics offer something of a counterpoint to the atemporal, jump cut aesthetic of neoliberal postmodernity.

Yet the planetary topics can also be used to nuance my initial optimistic judgment of *Civ*, which has added, subtracted, and altered numerous features as the series approaches its third decade. Looking primarily at *Civ's* simulation of Anthropogenic Global Warming (AGW), I observe how fidelity to the planetary aspect of the planetary topics has waxed and waned

²¹⁶ A common aphorism in the gaming and game design worlds generally attributed to *Civ's* creator, Sid Meier.

throughout various iterations of the series. Notably, while 1991's *Civ I* simulated strong and measurable AGW effects long before the topic became a significant concern in broader culture and media, AGW and other climate effects wane and eventually disappear completely from later iterations of the game. I suggest that this trajectory was the result of a cynical, even cowardly attempt to avoid political controversy and backlash from conservative elements of *Civ*'s fanbase, yet can also be judged as a failure to implement the planetary topics. It is only with 2019's *Civ VI: Gathering Storm* expansion that AGW and the planetary topics both return to the series and find their fullest expression.

Continuing in the evaluative mode, I compare the use of the planetary topics for world building in the two most recent iterations of the game series, *Civ VI* (including *Gathering Storm*) and *Civilization: Beyond Earth (BE)*. The latter is a spinoff of the main series set on a future, semi-habitable exoplanet rather than on a permutation of a semi-historical Earth. From the perspective of the planetary topics, I judge *BE* to be an intriguing failure. While it contains some unique ideas and game systems, it ultimately fails to take advantage of the opportunity of the exoplanetary setting to deepen and nuance its implementation of the planetary topics.

To conclude, I also take this as an occasion to compare *Civ VI* and *BE* to Robinson's Trilogy through the lens of the planetary topics. As my reading of *Civ*'s critics makes clear, I accept as trenchant the observation that the same affordances of the game's design and interface that enable an interesting implementation of the planetary topics (digital pullback, universal overview, turn-based temporality) also have the effect of oversimplifying and tokenizing the process of human cultural adaptation to the planetary topics. In this way, the games are very different from Robinson's Trilogy, despite their common usage of the planetary topics as a worldbuilding resource. I make a distinction between Robinson's "synthetic" use of the topics

versus the games “combinatorial” approach. However, I end by suggesting that there is some merit in the combinatorial approach as a supplement to the synthetic, despite the objections of the critics.

4.1 The Planetary Topics of *Civilization*

In *Civ*, engagement with the planetary topics begins before gameplay itself actually starts. Throughout every iteration of the series, before beginning a game the player is asked to choose from a series of options that govern the random generation of the game world. The core options have remained largely unchanged throughout the development of the series: map type, sea level, aridity/wetness, temperature, world age, and world size. All of these options have a direct or near analog from among the list of planetary topics I have assembled in the previous chapter, and the choice made from each category has a significant effect on the parameters that governed the randomized game world. For instance, the “rainfall” game option offers a choice of arid, standard, or wet, utilizing the planetary topic of water availability and dictating the relative abundance of deserts, forests, and rainforests in the game.²¹⁷ “Map type” offers a choice of Pangea, continents, or archipelago. These derivatives of the planetary topic of vulcanism and continental drift determine the basic size and distribution of land masses in the game, dictating the land and sea routes and other opportunities available to the player for exploration and settlement.²¹⁸ Once these

²¹⁷ This example is taken from *Civ VI*. Prior iterations of the game follow the same principle, sometimes with slightly different or differently named terrain types (“jungle” instead of “rainforest” for example).

²¹⁸ In actuality the list of map options is much longer than this, however many of them are either subtypes, e.g. “small continents” is a variation of “continents,” “small islands” is variation of “archipelago,” or pre-generated maps that represent Earth or a given region.

and other game parameters such as difficulty level and game speed are selected, the game randomly generates a world map based on these parameters and the game begins.

After the world is generated and actual play begins, the player's interaction with the simulated planet occurs via *Civ*'s "terrain type" system. While on a natural planet landforms and biomes are endlessly varied and gradually shade into one another, in *Civ*'s simplified simulation terrain types occupy discrete map hex tiles (or square tiles, in earlier editions of the franchise). In *Civ VI* the basic terrain types, plains, grassland, desert, tundra, and snow combine with overlying terrain features such as hills, forest, marsh, floodplains, rivers and oases to create a lengthy, but limited set of possible terrain hexes. These terrain types impact the gameplay in a variety of ways, including affecting the movement of a player's domestic and military units, providing defensive bonuses or penalties if attacked by a hostile unit, and most importantly by providing the potential resource yields that underlie the game's simulated economy. The yields are standardized such that while a grassland hill has slightly different yields than a plains hill, every grassland hill is the same.²¹⁹ This allows players to make decisions with some confidence regarding the present and future output of the terrain around them, although this certainty is always partial: natural disasters, discovery of new strategic resources, and other in game events can change the value of a terrain hex. This space of stable expectations disrupted by estimable uncertainty creates the conditions for strategic play.

I argue that a *Civ* player's interaction with the simulated planet via the terrain type system can also be understood as an art of the planetary topics, though with a different manifestation than in the Mars Trilogy. In the previous chapter I have shown how the planetary topics of Mars

²¹⁹ In *Civ VI*, this may be modified by the presence of sparsely distributed bonus, luxury, or strategic resources, adjacency to a natural wonder, and by terrain improvements constructed by the player.

constrains and gives form to Robinson's effort to imagine a human civilization on Mars which asymptotically approaches Utopia. In a *Civ* game, the player's effort to produce a simulated historical civilization is constrained and given form by the restrictions and affordances of the available terrain and resource combinations. For instance, the relative abundance of grasslands and horses might recommend specializing in food production, pastures, and mounted military units while the presence of iron and hills might recommend optimizing industry, mining, and swordsmen. This may sound simple and straightforward, but the art of the planetary topics in *Civ* involves navigating between competing short, medium, and long-term goals. What is expedient in the short term may not always serve the player's medium and long-term goals, or vice versa. This cultivates a habit of long-term strategic thinking, informed and shaped by the planetary topics, that is difficult to reproduce in any other medium.

The influential role played by terrain and resources leads Ian Bogost, one of the few academic commentators to take a positive view of the series, to argue that *Civ* makes a procedural argument for a materialist interpretation of world history.²²⁰ Per Bogost, *Civ* procedurally argues that the difference between an enduring and a long forgotten civilization is attributable to factors such as the presence or lack of iron or (un)productive terrain rather than metaphysical destiny or the intrinsic qualities of a people, thus representing in procedural form the geohistorical arguments of Jared Diamond's *Guns, Germs and Steel*.²²¹ This is a fair point, but it does not fully account for the mediation accomplished by the game form. In a *Civ* game the pull on the player exercised by

²²⁰ Ian Bogost, *Persuasive Games: Videogames and Procedural Rhetoric*. (Cambridge: MIT, 2007), 125.

²²¹ *Guns, Germs, and Steel: The Fate of Human Societies*. (New York: W.W. Norton and co., 1997), quoted in Bogost, 125. Diamond argues that geographical features such as resource availability and the length and population along an East-West continental axis are primarily responsible for the happenstance that Eurasian societies colonized much of the rest of the world, rather than the other way around.

“horses” or “iron” is not exactly materialist in either the new materialist or the Marxist sense, in that it does not occur beyond or at the edge of individual consciousness due to either direct influence of matter or the accreted influence of human economic habit; rather it is a conscious strategic choice enabled by the discrete, topical list of the terrain types and their functions. In the game, if I am drawn to build my civilization near the iron and away from the ocean, it is a strategic choice to privilege certain short, medium, or long-term goals, as well as local, regional, and planetary goals over others. Thus, to build upon Bogost’s account, it can be said that *Civ*’s gameplay explicates the implicitly materialist argument of the game. To the extent that the game elicits these rules and arguments procedurally, it generates “good” players of the game who in turn experience the game less as a materialist determinism and more as an idealist process of choosing. Materialism and idealism are thus produced as extremes by the game itself. Put another way, while a game of *Civ* might be said to model a materialist conception of history, it does so in a very conscious and deliberate way through the use of discrete terrain types and categories.

The foregrounding of material processes produces an entanglement between different temporal and spatial scales and encourages a particular form of what I call planetary thinking, or an attempt to render processes at the planetary scale intelligible to an audience of individual humans. The search for a “good” form of planetary thinking, one that enables human thought to transcend its limited perspective without oversimplification and reliance on problematic assumptions, has been a preoccupation of theorists of the Anthropocene, with many of these theories attempting to relitigate long-running debates over the role of reason versus the imagination and with most scholars in the humanities campaigning for the primacy of the latter.²²² Unlike these

²²² As noted in the previous chapter, scholars such as Pilsch, Zylinska, Timothy Morton, and Donna Haraway have argued against the use of reason to chart or map superhuman phenomena like climate change, preferring the *skotison* of signifiers such as “Cthulhu” to represent such existential threats. Additionally, Zach Horton specifically criticizes

theorists that find an opposition between the two, in *Civ*'s particular brand of planetary thinking the planetary topics play a mediating role between reason and the imagination. Contrary to what many of *Civ*'s critics suppose, the game cannot be described exclusively as a triumph of computational reason; as I will show, the imagination plays a necessary role both in the type of thinking a successful player must engage in to play the game and in producing the identification with the game's simulated world that makes it fun to play. Yet this work of the imagination is not whimsical or unconnected to the reasoned governed aspects of the game; rather it is enabled and structured by the reasoned inquiry into the game's planetary topics.

4.2 Let's Play: *Civilization* and its Discontents

A commonplace in the gaming industry suggests that "a good game is a series of interesting decisions." The saying is typically attributed to Sid Meier, the progenitor of the *Civ* series and an almost legendary figure in the game design world, whose name remains attached to every new title in the series despite not having worked as lead designer of the games since 1991's *Civ* I. Meier's perspective is compatible with the idea that the game is an implementation of the planetary topics. In this view, the art of the planetary topics lies in the freedom experienced by the player to make decisions; the decisions are interesting because while there are certainly wrong decisions that might quickly cause the player to lose the game, there are multiple possible successful paths

the aesthetics of zoom and the universal overview as creating an error in the understanding of scale. See § 3.3.3 of this dissertation for further discussion.

through the decisions that the game presents. The experience of freedom contained in the moment of the decision is what keeps players playing for “one more turn.”²²³

On the other hand, the *Civ* series has also become successful enough to attract significant attention from academic critics—and according to the dominant modes of ideology critique surrounding the games, there is nothing interesting at all about a *Civ* player’s decisions. The critics are interested in the game as a cultural artifact, to be sure, but they are not particularly interested in any of the decisions actually made by the player. Rather they tend to focus their analyses on what is “on the rails” and not decidable in the game experience. For instance, the critics take no interest in the thinking that goes into a player’s in-game decision to research, say, the “mining” versus “animal husbandry” technologies; rather they seek to expose purportedly underlying ideologies of relentless progress, quantitative informatics and scientism implicit in the game’s structure that requires the player to “research” anything at all. Thus, the critics typically read the games as an unfolding or elaboration of a pre-existing ideology rather than a series of interesting decisions that can be meaningful in their own right. This can be said of the majority of the series’ critics, whether they take a narratological or a media approach, as I will demonstrate in the following sections.

What is at stake in the conflict between my reading of *Civ* as a practice of freedom based on interesting individual decisions and the critics’ reading that the game merely reproduces the dominant ideology? Beyond the judgement rendered about an individual game or even an entire

²²³ The phrase “one more turn syndrome” is used by players to describe the difficulty of stopping a game of *Civ* either temporarily, or at the end of official gameplay. It points to the experience of resolving to stop playing upon the completion of a particular in-game goal or milestone, only to have become fixated upon yet another milestone once the original planned stopping point is reached. It is unknown when the phrase was first used to describe this phenomenon, but it has since become a marketing tagline for the series, an internet meme, and even appears within the game itself to signify the option of continuing to play unscored turns after an official game has been won or lost.

genre, there is a conflict over the style of criticism one should employ in evaluating contemporary media and cultural artifacts. The critics tend to focus on grand narratives in furtherance of their project of critiquing grand narratives; they compare the games directly to ideological positions they find suspect. Ultimately, their implied question seems to be whether anyone should be playing such games at all. In contrast, my approach is more detail oriented. I ask how the interplay of the planetary topics with the game's specific features may encourage or discourage particular habits of mind or thought processes. I compare games to other similar games, focusing on small changes from version to version. Rather than implicitly questioning the entire enterprise itself, I explicitly ask what specific details have been or could be done differently to produce a desired effect. This is one of the goals of what I have called speculative radicalism in a previous chapter, to demand that criticism take up the challenge of speculating about possible alternatives.

To account for and highlight the process of in-game decisions made through the mediation of the planetary topics, I often integrate my analysis of *Civ* and its critics with fragments of a "Let's Play" (LP) of my own interactions with various entries in the series. The LP is a common genre for disseminating interactions with a game that incorporates aspects of both the strategy walkthrough and critical review genres, thus providing a level of detail on in-game decisions that often drops out of academic and critical analysis. I argue that something like an LP comes much closer to being the appropriate "text" of analysis for a video game, than does a narrative gleaned by close reading of a game's thematic material or a media analysis of its interface and algorithms alone. I also provide forum evidence from several of the largest fandom sites dedicated to the *Civ* series including CivFanatics, Apolyton Civilization Site, and the *Civ VI* Steam community forum to show that my own subjective experience detailed in the LP is not idiosyncratic, and more accurately reflects the meaning produced by the interaction of the game with its players. The use

of online fandom forums to assist in triangulating the social meaning of a media text is consistent with Nancy Baym's "community of practice approach," which can broaden the authority for assigning meaning beyond the judgement of a handful of theoretical close readings.²²⁴

Relying on the arguments outlined above, my methodology for describing *Civ* can be summarized as follows: I consider my own subjective experiences (made as transparent as possible for the reader through the LP) and evaluate them against existing critiques of the game. Often, I find these existing critiques to be flawed in some way, and I look to the forums for evidence that other players may have similar experiences to my own. In general, the focus on the LP and the forum evidence shifts the focus from a large scale view of the game as overarching narrative or media device, to a smaller scale focus on the game's particular features, even as compared and contrasted with very similar games in the same genre or series. I argue that this is preferable, as it focuses the analysis at the level where the game's actual users actually spend the majority of their time and mental energy. Furthermore, it encourages us to read the games not merely as epiphenomena of or expressions of an inevitable ideology, but rather as nuanced oratorical productions in their own right that can be shifted, changed, and improved.

²²⁴ Nancy Baym, *Tune in, Log on: Soaps, Fandom, and Online Community* (Thousand Oaks: Sage, 2000), 21-24.



Figure 1: First Turn, *Sid Meier's Civilization VI*

Consider figure 1, above. The year is 4000 BC, and my Inca settlers (below the flag icon) have appeared in a hilltop forest at the foot of a large mountain range on a newly randomized world. They have only limited knowledge of the surrounding area, and one warrior unit (club icon) to protect them. Of course, I am playing *Civ VI* (including the *Rise and Fall* and *Gathering Storm* expansions) and although the game has just started and I have yet to make a single move, I am already wracked with indecision. I need to quickly found my first city in order to begin researching technology and cultural civics.

I am reluctant to found the city on the hilltop forest hex my settler spawned on, as this would clear the forest, thus making it unavailable to be felled in the future for a one-time production boost useful for completing world wonders or other important city improvements. Moving the first settler is always a gambit, however: your civilization will lose valuable turns that could otherwise be spent growing and producing, and with imperfect information about my surroundings (blank map space, and as yet undiscovered strategic resources), I could conceivably

be moving to a worse overall location. I definitely wish to remain on the river for its positive effects on health and population growth, so moving northeast or northwest is out.

The game's own AI suggestion feature wants me to move directly east, so that my city would be on a river and adjacent to the diamonds luxury resource. This is a conventional move, but as the Inca I wish to make good use of their terrace farm terrain improvements, which benefit from being surrounded by mountains. Additionally, moving east is going to put some of my capital city's future outlying tiles on a floodplain—not necessarily bad, but another potential natural disaster to contend with, possibly to be made more severe in the distant future due to disruptions from climate change effects (which made a long-overdue return in *Gathering Storm* for which I paid an additional 39.99 USD). Moving southwest keeps me close to a mountain range, of which the Inca can make good use, but puts me farther from the valuable and useful diamonds resource. In addition, due to the mountains blocking my line of sight, I know even less than usual about what will occupy my future city radius in that direction. I'm going to need a few minutes to think this over, running and rerunning numerous probable and improbable future scenarios in my head and simultaneously evaluating them for both their utility and enjoyment value. Interestingly, although I spend a significant portion of both my time and mental energy pondering such decisions during a *Civ* game, such decision processes are almost entirely absent from the critical analyses of what I call the game's narratological critics.

4.2.1 The Narratological Critics

Among scholarly attempts to reveal the ideology of the *Civ* series, a major approach has been to focus on the cultural narratives deployed by the game, or what game studies scholars now refer to as its narratology. Keeping in mind that the series is a flagship entry in, and often credited

as a progenitor of the “4X” subgenre of strategy games (eXplore, eXpand, eXploit, and eXterminate) the narratological critics believe they have much to work with. To begin with the first X, recall my position at the very start of the game (figure 1). Due to my limited knowledge of the surrounding area denoted by the blank space on the map, I experience a pressure to explore—not only because of some psychological necessity to reveal and chart the blank space, but for pragmatic gameplay reasons as well. Poblocki has problematized the game’s imperative to explore: “In the beginning of the game we can see only our units and a huge black screen - the map is revealed only when we move our unit into the darkness.”²²⁵ For Poblocki, this seemingly innocent first gameplay step already situates us well within a Eurocentric, imperialist narrative in which mapped, “civilized” space is good, and the dangerous “black” unknown must be tamed.²²⁶

Note that one of the implicit assumptions of the narratological approach is that games like the *Civ* series are essentially similar to other narrative genres, and thus techniques of analysis from disciplines that study those genres can be readily ported in, a practice Poblocki engages in explicitly by comparing *Civ* to Defoe’s *Robinson Crusoe*. *Civ*, he claims, is the updated version of this modernist narrative, creating a Eurocentric teleological narrative stretching from exploration to hegemonic domination that places America as the ultimate ends of human development.²²⁷ Thus we see that while Poblocki is concerned with exploration, he only cares *that* I must found a city, not *where* I choose to do so, nor the process of speculative thought that goes into making that choice. As it happens, I finally decide to move southwest, and nestle my capital between the mountains and along the river.

²²⁵ Kacper Poblocki, “Becoming-State. Bio-Cultural Imperialism of Sid Meier’s Civilization,” *European Journal of Anthropology*, no. 39, (2002): 169.

²²⁶ Poblocki refers to the empty “black space” of an older version of the game. Instead of a blank screen *Civ VI* does much of the interpretive work for him by including images of actual map dragons in unexplored regions.

²²⁷ *Ibid*, 175.

In *Civ* exploration often leads gradually but steadily toward the possibility of conflict, and numerous scholars have problematized the game's representation of the "others" who may come into conflict with the player's civilization. Happily, in my game the first others I discover are the friendly city-state of Fez (or perhaps they discovered me, as their warrior unit had clearly ventured a bit further afield than mine when the two met to exchange maps). Peaceful folks content to inhabit and improve their home city, trade and ally with any friendly civilization, city-states are a relatively new development in the series appearing only since 2010's *Civ V*. More typical of the series as a whole is my first encounter to the north with barbarians (red icons), *hostis humanis generi* interlopers who can cause as much trouble for city states and rival civilizations as they can for me. Vrtačič notes the paradoxical situation of the games' representation of barbarians—they spawn in geographical space that is simultaneously signified as empty (not claimed by the borders of an official civilization) but also experienced as full (of barbarians)—recapitulates a western imperialist narrative of expansion into land that is only problematically "empty."²²⁸ Unlike city-states or rivals, in the game there is generally no negotiating with barbarians; they can only be temporarily avoided or killed.²²⁹ Fortunately I am able to team up with forces from another city state, Kabul, to kill these barbarians. At the high difficulty level I am playing on, barbarians are a non-trivial threat and have ended my prior civilizations more than once, so the help is appreciated.

²²⁸ Eva Vrtačič, "The Grand Narratives of Video Games: Sid Meier's Civilization," *Teorija in Praksa*, 51, no. 1, (2014): 98.

²²⁹ Ibid. The hardcoded imperative to exterminate barbarians is perhaps one of the narratological critics' more specific and trenchant claims about the series. However, it is possible to speculate how other methods of representing or dealing with barbarians could be introduced into the game without changing the overall gameplay. A few variations of the theme have already been implemented in versions of the game: I discuss the "aliens" of *BE* in detail later in this section; in addition, barbarians can be "converted" to a civilization under certain circumstances in *Civ V* and *Civ VI*. *Civ III* also temporarily replaces the earliest level of barbarians with wild animals. Ultimately, one can imagine the possibility of combining the function of barbarians with that of city states (camps that start out hostile, but can be diplomatically pacified, or vice versa) thus enabling an array of options for dealing with these others of civilization.



Figure 2: City States and Barbarians

As my capital city's population grows and I begin work on a culture-producing monument, I continue to explore.²³⁰ Eventually I locate the Scottish civilization, led by Robert the Bruce.²³¹ Or again, perhaps he discovers me: at this difficulty level, AI-led civilizations start out with various gameplay bonuses (so that the game's mediocre AI can compete with a skilled human) and an early army that dwarfs my own, so I feel a sense of danger as Robert's algorithmic gaze falls upon my city. Luckily, I remember that Robert's unique leader agenda is that he will not declare war on a neighbor who has not broken a promise to him, so I am momentarily relieved. For Vrtačić, like exploration, relations with other civilizations also play out according to a well-established logocentric narrative, as she argues that the game's focus on progress, whether scientific, cultural,

²³⁰ In *Civ VI*, "culture" is another resource that can be accumulated and produced, primarily by creating city buildings that have no other military, industrial, or scientific value. Culture accumulation helps the borders of your city expand as you gain additional "influence" over the hinterlands. The gameplay related to culture has greatly increased in significance and complexity as the *Civ* series has developed; for instance the original *Civ* and *Civ II* did not include culture mechanics.

²³¹ Recall that we are on a randomized map with its own speculative pattern of continental drift and distribution of cultures, so there is nothing unexpected about Scotland and the Inca finding themselves as neighbors in 4000 BC.

or technological reproduces a binary opposition between more civilized and less civilized when the player's civilization encounters others, which will likely be either more or less advanced on these metrics. And it is true enough here: though I likely won't be able to achieve military or scientific parity for a long time due to the lopsided startup bonuses the AI receives, I don't want to fall too far behind my rivals in military power, even though my aspirations are peaceful. Incidentally, I am now quite happy I chose to keep my city nestled in the mountains where it will be much less approachable by enemy forces.

Back on the home front, I finally produce a builder unit and quickly endeavor to build a terrace farm (bonus food for each adjacent mountain tile), one of the unique features of the Inca civilization, and one that I expect should produce an impressive food yield in the tile to the southeast of my capital. Once built, it ends up producing six food per turn on one tile—quite a nice yield indeed, and one that will support the ability of future workers to engage in other, more specialized pursuits. While this particular implementation of the Inca terrace farm is new for *Civ VI*, specialized attributes, units or buildings for each individual civilization have existed in some form since 2001's *Civ III*. Many of the narratological critics read this assigning of particular traits or attributes as a continuation of narratives of cultural stereotyping, western mania for typologizing and classification, and even scientific racism. Yet here there is some dissent, as Douglas argues that every civilization must receive its own special skills of (relatively) equal power as a method of reproducing a liberal fantasy of the level playing field.²³² Regardless of these readings or perhaps existing alongside them, I suggest a more prosaic explanation—game expansion packs that add additional diverse civilizations (or characters as the case may be) require less input than

²³² Christopher Douglas, "'You Have Unleashed a Horde of Barbarians!' Fighting Indians, Playing Games, Forming Disciplines" *Postmodern Culture* 13, no. 1, (2002), <http://pmc.iath.virginia.edu/issue.902/13.1douglas.html>

designing entirely new game mechanics, but produce additional revenue when sold as expansions or downloadable content. In recent years this has also had the effect of causing developers of AAA game titles to be in a constant state of development “crunch,” exacerbating already grueling working conditions across the industry; yet such concerns generally escape the notice of the narratological critics.

Civ’s “tech tree,” or the series’ mechanism for organizing and gamifying technological progress, has received considerable attention from the narratological critics. In my own game, I open the tech tree to ponder my short and long-term goals. While progressing towards archery would significantly bolster my defenses and help deter invaders, researching writing would allow me to build a specialized campus district. In addition to its bonuses to my science output, in *Civ VI* such a district helps generate “great people points” to recruit great scientists to my civilization, and can potentially aid in diplomacy with other leaders who respect investment in the sciences. Several critics object to the ideology they see as narrativized in this representation of scientific activity as an orderly progression, known and mapped in advance. Even more egregious, they say, is the reduction of scientific progress to quantum units, such that I know in advance exactly how many scientific “beakers” I must accumulate to discover writing. In addition to representing history as a single, inevitable path of progress based on the western enlightenment model, they argue that this mechanic obscures the element of chance and radical openness involved in scientific inquiry. Interestingly, *Civ VI* actually responds to this critique of earlier entries in the series by including “eureka moments,” or conditions that can occur during gameplay that give a sudden boost to scientific research—for instance, founding a city on the coast enables a eureka for the sailing technology, and building a quarry sparks the eureka for masonry. While this likely would not satisfy the series’ stauncher critics, as the eureka moments become another gameplay variable

that can be strategically managed and planned, it does bring nuance to strategic play by making it more dependent upon the affordances of the particular map and geographical situation the player finds themselves in. As I will argue, this makes the game a more thorough implementation of the planetary topics.



Figure 3: Civ VI Tech Tree

Perhaps the most intriguing version of the narratological critique is Vorhees' contention the *Civ* games enable the player to experience themselves as a sovereign agent of pure internality and intentionality which he associates with the Cartesian *cogito*. Vorhees focuses his interpretation on the player's experience of choice rather than issues of representation, reading, for instance, my choice to play as the terrace-farming, mountain-dwelling Inca not as a problematic recapitulation of cultural stereotypes, but rather as a reification of the supremacy of my unconstrained, willful internality: today I will be a peaceful builder, tomorrow a warmonger, and so forth.²³³ Thus the

²³³ Gerald Vorhees, "I Play Therefore I Am: *Sid Meier's Civilization*, Turn-Based Strategy Games and the Cogito," *Games and Culture* 4 no. 3, (2009): 254-275.

choices the game affords in terms of playstyle and a diversity of victory conditions are particularly important for Voorhees. Yet, though he is interested in the bare fact that players make decisions, he nevertheless minimizes the thought that goes into the experience of making any particular decision. His analysis focuses rather on the fact that there are decisions available. What Voorhees' too-hasty "Cartesian" reading misunderstands is that even in the game there is no "pure intentionality," rather there is always an intentionality towards a certain constellation of terrain features.

Aspects of Voorhees' reading are compelling, and gesture towards critiques of choice in control society; however, an overweening fidelity to the narrative paradigm causes him to overstate the case. In an apparent reversal of the promise to deliver a methodologically distinct account of the gameplay experience, his analysis foregrounds a narrative reading of *Civ III*'s opening video cutscene (which I, along with all players I know, will simply click through and skip every play session after the first) as the framing device for the entire experience: "Although it is one of *Civilization III*'s least interactive features, this film sequence most concisely articulates the thematics of the game. The entirety of human history is captured in this one transcendental and wholly computer-mediated act of looking."²³⁴ The remainder of his reading selects elements of gameplay calculated to justify this narrative conclusion, again focusing on the bare existence of gameplay choices encountered by the *cogito* rather than what goes into the experience of making them. This focus on narrative rather than actual, in-game choices causes him to overstate his case: while the gameplay experience could perhaps be accurately described as a manifestation of a willful interiority, it is never fully sovereign or unconstrained, but encounters resistance in the form of the game's rules and manifested on the game's map—the particular features of which are

²³⁴ Ibid, 255.

evidently of no interest to Vorhees. While in my Inca game I desire to become a peaceful, isolationist, monument building civilization, the contours of the terrain and the rivals I encounter throw up roadblocks to this desire, constraining my peaceful development and funneling me towards conflict. Contrary to Vorhees, I argue that the thing that is interesting about the game is thus not the unfolding of a pure and unconstrained interiority, but rather the process of mediating between that interiority and an objective, external game world.

4.2.2 The Media Critics

Attending to the particularities of the computer game as a mediated form, a group of media scholars has complicated the ideological or narratological approach to the *Civilization* series while still hewing closely to the spirit of those prior critiques. Among these scholars, Galloway makes this progression the most explicit, arguing that there are successive “phases” or levels of critique that the scholar of video games must pass through regarding a game artifact.²³⁵ His first, pessimistic phase supposes that games are uninterpretable, or somehow resist critical activity. His second, ideological phase first rehearses many of the narratological critiques glossed above, suggesting that the *Civilization* series and 4x genre it popularized are inherently expansionist, implicitly racist or essentialist, and reductively logocentric. To this trajectory Galloway adds his own close analysis of 2001’s *Civ III*, the first entry in the series to include asymmetric gameplay by giving individual civilizations access to gameplay advantages through units or traits. For instance, the American civilization is “industrious” and “expansionist,” while the Persians are

²³⁵ Alexander Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis: University of Minnesota Press, 2006), 95.

“industrious” and “scientific,” gaining gameplay bonuses in these particular areas. Galloway argues that this is a particularly transparent acceleration of the game industry’s tendency to traffic in reductive stereotypes, “endorsing a logic that prizes the classification of humans into types and the normative labeling of those types.”²³⁶ Interestingly, as the series has progressed through later iterations it has largely abandoned the typological model to which Galloway objects, opting instead to achieve asymmetric gameplay by giving civilizations unique units or abilities: instead of the American civilization belonging to industrious or expansionist categories shared with other civilizations, it instead receives an utterly unique ability (e.g. in the case of *Civ VI*, America has the perhaps apropos ability of replacing its “diplomacy” bonus card slots with more flexible “wild card” policies).

Galloway’s final phase analyzes *Civ III* as an “allegory of informatic control.”²³⁷ Based largely around Deleuze’s analysis of control society, he holds that informatic control is a kind of meta-ideology, accomplishing the paradoxical unification of infinite flexibility and universal subsumption. For flexibility, Galloway points to the system of “sliders” available in the *Civ III* interface for optimally allocating the flow of a given civilization’s production between outputs such as science, income and luxuries. Similarly, although *Civ III* boasted a greater diversity of victory conditions than its predecessors, Galloway argues that the player merely allocates resources to these via control of metaphorical “sliders” as well: “All elements in the game are put in quantitative, dynamic relationships with each other, such that a ‘Cultural Victory’ conclusion of the game is differentiated from a ‘Conquest Victory’ conclusion only through slight differences in the two algorithms for winning.”²³⁸ Per Galloway, the relative equivalence of victory conditions

²³⁶ Ibid, 97.

²³⁷ Ibid, 99.

²³⁸ Ibid, 100.

also gestures toward universal subsumption: the player merely directs the flow of quantified resources optimally, such that winning the peace becomes essentially similar to winning a war, the resources are simply directed into different bins which result in victory when filled.

Interestingly, Galloway admits that reading *Civ* as an allegory of informatic control overwrites and largely nullifies the narratological readings: if the choices between war and peace, expansion and science are merely skins over an identical numbers game, the content found to be objectionable by the narratological critics is irrelevant, while the game's actual ideology is encoded at a deeper level. Thus, ultimately in Galloway's media studies critique of the games, the particular content of the game is not important; rather it is the interface itself that allows for the transparent hypermediation of all of the factors that contain the alleged ideology. In an allegory of informatic control, the allegory collapses on itself, and "the game is not a stand-in for informatics but is informatics."²³⁹ Games like *Civilization* not only model and thus implicitly endorse control society, they directly *are* control society themselves, argues Galloway.

Columbia follows and amplifies Galloway's critique of *Civilization* as informatic control, arguing that the game is but one manifestation of a larger mediated ideology of "computationalism," or the belief that all of reality can be accurately and efficiently modeled and even predicted by computational processes. He argues that games like *Civilization* (which he incorrectly describes as belonging to the RTS, or real time strategy genre; the *Civilization* series is in fact a TBS, or turn-based strategy) are essentially similar to Enterprise resource planning software packages that coordinate and optimize typical business functions such as supply-chain management, which operate by balancing a variety of ever-changing variables to achieve a

²³⁹ Ibid, 104.

“satisfied system.”²⁴⁰ Thus like Galloway, Golumbia sees games like *Civ* as almost entirely reducible to the quantifiable min-maxing tasks it often asks of the player.

Yet Golumbia reveals that he understands little of how games, or computers for that matter, actually work when he claims “because the world-system of an RTS game is fully quantified, succeeding in it is ultimately purely a function of numbers. By setting the difficulty level high enough, one can guarantee that the computer will win: it is simply possible to apply more computing power to a simulation than a human being can possibly muster.”²⁴¹ This is quite simply factually inaccurate in regards to *Civ*: in fact even the best artificial intelligences cannot currently outperform even a moderately skilled human at a fair game of *Civilization*, to the point that even to pose a challenge to skilled players the AI must be given the considerable gameplay advantages I mention above. It is only fairly recently (several years after the publication of Golumbia’s book) that state-of-the-art neural network AIs such as Deepmind’s AlphaStar have been able to reliably beat the best human players in RTS games such as *Starcraft*, and *Civ* is a much more complex game in terms of input variables and contingencies than *Starcraft*.²⁴² Even if maximization of an output variable, rather than enjoyment, were the player’s only goal, *Civ* cannot be “solved” computationally (at least by any existing computer); it can only be played heuristically, or perhaps the rhetorical scholar might suggest, topically. Thus, Golumbia’s mistake is not minor. It clearly misunderstands the very mode of engagement (dwelling in the space of interesting decisions) that

²⁴⁰ David Golumbia, *The Cultural Logic of Computation*. (Cambridge: Harvard University Press, 2009), 135-136

²⁴¹ Ibid, 136.

²⁴² AlphaStar’s ability to beat 99.8% of human players in *Starcraft* has rightly been heralded as an AI breakthrough, with the RTS game serving as a test for AI’s traditional weakness to asymmetric information games. Yet a typical game of *Civ* has significantly more asymmetric information than *StarCraft*, as well as multiple opponents and free-for-all conflict. In addition, much of the AI’s advantage in RTS games like *Starcraft* comes from its ability to simultaneously micromanage multiple individual units in realtime. At present, it is debatable whether this displays an actual strategic or tactical advantage over the human mind, or if instead it merely exploits the shortcomings of human reliance on mouse and keyboard as input devices. In any case, these realtime advantages do not apply to *Civ*, which is a turn-based game.

the game is specifically designed to elicit. It is as if Golumbia himself is the only one who has actually internalized the object of his own critique: becoming a computationalist himself, he presumes that the ontology of the game's code represents without remainder what the far more complex experience of playing a game actually entails.

4.3 Mediated Planetary Thinking

Media critics like Galloway and Golumbia are perhaps right to look beyond *Civ*'s presumptive narrative to the affordances and effects of the game's interface, but their conclusion that it can only result in turning us all into algorithm-maximizing automatons is extremely limited. Looking in greater detail at three of the key affordances of the *Civ* series' interface—pullback, transparent informatics, and an ever-present “restart” button—I argue that these games can inculcate a habit of looking at a macro-scale overview of a simulated planet's history that assists in imagining new possibilities.

Rather than the hard determinism of Galloway and Golumbia, a more nuanced media theory asks what objects, processes and scales particular media tend to make one more or less sensible to. For instance, Benjamin saw the potential for the affordances of developing media such as photography and cinema to aid in the discovery of a new “optical unconscious” through attention to minute detail and small increments of time typically inaccessible to the unaided human eye.²⁴³ In a parallel way, very large processes occurring over long durations, for instance those occurring at planetary or historical scales, require their own media in order to occupy space within

²⁴³ Walter Benjamin, “A short history of photography” trans. Stanley Mitchell, *Screen* 13, no. 1, (1972): 7.

the public unconscious. I posit that *Civ*, and perhaps other planetary 4X strategy games, can potentially make its users more sensible to and cognizant of objects and processes occurring at a planetary scale; I call this *planetary thinking*.

Through iterative simulations of human history at the planetary scale *Civ* games assist in the development of planetary thinking, or a facility and comfortability with processes typically much larger and of longer duration than humans are otherwise accustomed to contemplating. Planetary thinking is a necessary, though not alone sufficient condition for imagining solutions to problems that greatly exceed the individual human in spatio-temporal scale. In the following section, I consider the extent to which *Civ*'s interface and other affordances of the game as a medium may help enable what I have called planetary thinking. I consider my own view of the ability to restart, the digital pullback, and interface informatics alongside critical views of those same features.

4.3.1 Restart

The most significant aspect of the game's interface of planetary thinking has no apparent analog among consumption of cinema or older forms of media, and is evidently unique to digital strategy gaming: the ability and ever-present temptation to restart the game with a new, randomly generated planet. While video, and later DVD and streaming certainly allowed viewers to "restart" the viewing of a film at any time, this is of a different character than restarting a *Civ* game. True, a careful observer may gain additional meaning from repeatedly viewing a film with heightened attention to the camera's "resources for swooping and rising, disrupting and isolating, stretching

or compressing a sequence, enlarging or reducing an object.”²⁴⁴ The viewer may notice some small detail missed on a previous viewing, or the viewer’s own attitude may have changed, thus producing a different effect. But restarting a strategy video game is of an entirely different character. Not only has the viewer’s sensibility changed, but the very artifact under consideration has changed as well. Thus, for the *Civ* player the temptation to restart is inexhaustible, and the combination of randomized initial planetary conditions is always unique. There is always the promise that a new, randomly generated planet will hold a combination of resources, planetary features, and neighbors that is more fortuitous, more challenging, or simply novel. In *Civ VI*, game developers have even accommodated the desire to restart by the inclusion of a menu option to restart on a new randomly generated map with the same settings, all without having to return to the main menu.

In fact, I too have succumbed to the desire to restart in my own Inca game that I began as an LP for this section. Despite my best efforts to found new cities and claim territory, I found myself hemmed in on all sides by an unusual density of cities founded by AI-led civilizations. Their rapid progress and increasingly cool diplomatic attitude toward me has made my hopes for playing out this game as a peaceful builder civilization look rather unlikely. Instead, I decide to restart and play a new game as the Mali, another civilization new with *Gathering Storm* that I have been eager to experiment with. Just as the Inca had bonuses to help them thrive in the mountains, the Mali have a number of bonuses that make them well suited to exploit the desert. One can imagine the narratological critics objecting that this desert affinity stereotypes and fetishizes either the historical Mali Empire or the citizens of the present-day nation of Mali. Regardless of whether

²⁴⁴ Walter Benjamin, “The Work of Art in the Age of its Technological Reproducibility” in *Walter Benjamin: Selected Writings vol. 4*, ed. Howard Eiland and Michael Jennings (Cambridge: Harvard University Press, 2003), 266.

or not this is true, I am more interested in experimenting with a faction that is able to interact with the map in a new way, extracting value from terrain usually ignored by other civs. As indicated by the figure below, I have chosen to settle on desert terrain that would be largely unsuitable to most factions in the game.



Figure 4: Restart in the Desert

With the ease and rapidity of restarting a game that aspires to be taken as historical simulation, human history and its interaction with a planet is experienced by the gaming public as contingent and iterable. There is significant testimonial evidence to suggest that I am not alone in compulsively restarting my *Civ* games. Spending any amount of time on the various internet fora where the series is discussed, such as Apolyton Civilization Site, CivFanatics, the publisher's official 2k Forums, or the Steam community forums quickly reveals that this is a common, if not the default condition. Some even ask for help finding the motivation to stick with a single game all the way through to the end, like Steam Community user ArcticPuffin02: "I really really love the end game, but i can never finish a game, i have 364 hours in game and i have won 4-5 times

tops. Any suggestions?”²⁴⁵ Such evidence of how players actually interact with and experience the game is in sharp contrast to the assumptions proffered by both the narratological and media critics. The mediated iterability of the gaming experiences disrupts the critics’ assumptions of inevitable linearity, casting doubt upon the standard critique of the series as a relentless frog march toward ever greater progress and mastery. Instead we should draw precisely the opposite conclusion: that the *Civ* series encourages a habit of looking that encourages a contingent view of history. While one might intellectually understand historiographic arguments to that effect without the aid of the game media, it is something else to repeatedly restart your own game, looking for just the right conditions needed for your civilization of choice to prosper—the contingency of history thus becomes not just an abstract academic position, but a fully normalized, baseline assumption of the gaming public.

Similarly, critics make much of the formal temporal structure of the game, which seems to incentivize and normalize the drive toward scientific progress and modernization. If this were experienced as unproblematically true, then the late phases of a *Civ* game, when technology is the most advanced, would be experienced as the most intensely rewarding part of the game. Yet this also contrasts with the reported experiences of most players. As Steam Community user Gentoo reports, “I [restart] all the *Civ* games. I actually do this in most games in general, but especially in *Civ* Games. The early game in *Civ* games is always the most enjoyable part.”²⁴⁶ What is it that makes the early phases of the game, when the player’s civilization is comparatively weak and

²⁴⁵ ArticPuffin, “cant stop restarting my game!” Sid Meirer’s *Civilization V*, General Discussion, Steam Community, December 5, 2017.

<https://steamcommunity.com/app/8930/discussions/0/1489992713712509076/>

²⁴⁶ Gentoo, “cant stop restarting my game!” Sid Meirer’s *Civilization V*, General Discussion, Steam Community, December 5, 2017.

<https://steamcommunity.com/app/8930/discussions/0/1489992713712509076/>

limited in its ability to exercise mastery over the planet, the most enjoyable for so many players? I suspect that it is the sense of an expansive possibility space, with its concomitant demands to exercise the faculty for envisioning future possibilities that players find so satisfying. Civfanatics user flytyer adds his assent to a forum discussion that overwhelmingly agrees that the early game is the most enjoyable part of the *Civ* experience: “Agreed...the outcome of the game is largely decided in the early stages. If the ground work is not laid for a solid foundation...your empire will crumble in the future ages.”²⁴⁷ Once a path has been chosen and enacted successfully, and all that remains is to run out the remainder of the simulation progressing until victory (the process the critics tell us *Civ* as a whole uncritically celebrates) the game becomes boring and people restart. It is a common, but mistaken contention made by many of *Civ*’s academic critics that the game problematically reproduces a linear historical imagination. In fact, because a simulation that can be broken off in the middle and restarted, or run again with different parameters or a key altered decision, the game has likely far more to defeat the presumption of a directed, teleological history in the popular imagination than even the most critical academic histories, which despite their critical tone remained fixated on the actual.

4.3.2 Digital Pullback

In cinema a pullback, generally achievable through a zoom out or dolly out, expands the field of vision to more or less rapidly add additional visual context to a scene. As a temporal reversal of an establishing shot, a pullback can either be used to create a sense of sudden loneliness

²⁴⁷ flytyer, “the early game is the most fun,” Civ IV General Discussion, Civilization Fanatics Center, August 29, 2006, <https://forums.civfanatics.com/threads/the-early-game-is-the-most-fun.184156/>

or isolation or to signify the freedom and power of mobility. That both effects can in fact occur simultaneously is made palpable in the (computer generated) pullback shot from the opening scene of Robert Zemeckis' *Contact*, in which the visual pullback from Earth is accompanied by audio of famous radio transmissions from years past, only to slowly dissolve into the silence of space near the edge of our local interstellar cloud.²⁴⁸ This might be considered a variation on the famous *Earthrise* photograph taken by the Apollo 8 mission, often assumed to encourage a heightened sense of interdependence and ecological awareness.²⁴⁹ Such images enthymematically advance a moral claim: "we are all one!" In a critical mood one might even suggest that the *Earthrise* perspective glosses over important political divisions and economic realities, which, while invisible from space, are nonetheless very real. In any case, after the initial shock of seeing seemingly solid Earth rendered small and vulnerable, the impact wears off, as there is no sustained engagement, details, or opportunity for further inquiry.

Unlike the scene from *Contact* or the *Earthrise* photo, *Civ*'s digital pullback is implicated in the development of a skill or technique of ongoing inquiry into and management of the planetary topics, both "natural" and man-made. To successfully play a *Civ* game, the player must develop a facility for scrolling about the visible map, zooming in and out to take into account whatever the salient features and neighboring context of the moment may be.

²⁴⁸ *Contact*, directed by Robert Zemeckis, (1997; USA: Warner Bros, 1997), DVD.

²⁴⁹ William Anders, "Earthrise." Photograph taken aboard Apollo 8, December, 1968.



Figure 5: Full Zoom In



Figure 6: Full Zoom Out

Consider the above two screenshots, taken at different levels of zoom during the same turn of my new Mali game. Each screenshot reveals different goals, contingencies, and entanglements. While I would like to continue, with a laser-like focus, my campaign of beautifying the city of Niani and the surrounding Tenezrouft Basin (note the surrounding World Wonders of Petra, The

Pyramids and the Oracle, in addition to a Holy Site, Suguba, and a particularly culturally productive Theatre Square of which I am very proud), as leader of the Malinese Merchant Republic, I am forced to attend to the encroaching exigencies of the wider world. A volcano has erupted, damaging the Campus district at Jenne, but fortunately sparing the city. To the southeast, unwanted international conflict intrudes into my consciousness. Happily, not only have the invading French forces been beaten back by my defensive troops, but with the help of levied forces from my allied city state Kumasi, I have managed to siege and capture two French cities. Kumasi's intervention was fortunate, as the narrow mountain pass drastically slowed my ability to shuffle my own troops between the two relevant theatres. Though the might of a newly conquered empire is now a temptation, the formerly friendly Pedro II of Brazil may be starting to look askance upon my growing might and conquest in the region, even though won in a war of self-defense. It might better serve my ambitions of becoming a peaceful trading power to return these cities to the French in return for peace (and modest war reparations for their unprovoked aggression, of course). As my population grows, I must also attend to the amenities of each of my cities, zooming back in to check their relative levels of health and luxury to head off problems before they occur.

Zach Horton has criticized the aesthetics of pullback or zoom in various contexts. For Horton, scalar collapse, or “a meeting of disparate scales that erases their difference and imprints the qualities of one onto the other,”²⁵⁰ enables the representation of multiple scales within the same medium, facilitating ease of access and legibility between scales. There is perhaps a contradiction present in Horton's work, as it is sometimes unclear whether the problem with scalar collapse is that it is too effective (at facilitating the management of cities, regions, empires) or rather because

²⁵⁰ Zach Horton, “Composing a Cosmic View: Three Alternatives for Thinking Scale in the Anthropocene” in *Scale in Literature and Culture*, ed. Michael T. Clarke and David Wittenberg (Cham: Springer Nature, 2017), 40.

it is ineffective (ignoring externalities and emergent properties by normalizing everything to the human scale). As a corrective to the error of scalar collapse, Horton proposes forms of writing that call attention to, rather than obscuring the complexities of scalar shifts, such as a book that continually depicts a street, a city, a country, the Earth, etc., at larger and larger scales yet by doing so reduces the prior frame of reference to an unintelligible inkblot.²⁵¹ Yet as I discuss further in section 3.4.4, Horton's proposed solutions go too far in the other direction, as they merely index the fact of a scalar shift, rather than describing anything about its qualitative changes. What is needed is something between the mere indexing and mere mediation of scale, that captures something of the different characters of each. I argue that *Civ's* digital pullback performs such a function. While it mediates scale in order to create the planetary thinking, it also preserves something of the incommensurability that emerges from managing short, medium, and long-term problems simultaneously.

Civ's digital pullback goes beyond the static *Earthrise* by instilling a habit of sustained inquiry into large scale, long term historical and planetary processes. In place of the photo's one-dimensional declaration of Gaia-esque planetary harmony, it poses a series of questions: how can the existence of a civilization on this planet proceed? But also, more specifically, should I found a city on a flood plain? What fuel should power my future factories, and where will they be located? How many of my forests should I chop for production, and how many should I preserve? The details of these ongoing questions and the actual decisions they require is significant, as they are what flip the planetary pullback genre from a stock image of mystified and abstract unity, as in *Earthrise*, to a habit of topicalized inquiry into how the whole fits together.

²⁵¹ Kees Boeke, *Cosmic View: The Universe in 40 Jumps* (New York: John Day Co., 1957), quoted in Horton, "Composing a Cosmic View," 51-53.

In its effects, *Civ*'s pullback is not only spatial but also temporal. For instance, as I am tempted to pursue a path towards rapid industrialization with coal-powered factories to increase my productive capacity, I am also already considering the potential planetary and political consequences of future climate change on the terrain and coastline around my cities. Of course, such a unity of sight and intentionality is a historical anachronism for a civilization barely on the cusp of early mercantilism, yet the capability to imagine this historical continuity is the digital pullback's great contribution. As a rhetorical device, it is the interface equivalent of the "longevity treatments" in Kim Stanley Robinson's *Mars*, which allow unified character personae to view the movement of history from a continuous viewpoint, assembling a coherent narrative. As both Robinson, and his onetime mentor Jameson have argued, the ability to form a workable, even if heuristic and flawed, "cognitive mapping" of continuity not only within but also between human generational lifespans is a necessary precondition for both human freedom and collective action, which is currently under attack by both neoliberal precarity and the postmodern preference for the fragmentation of grand narratives. And, against the claims of the narratological critics, this act of mapping can also be a resource for those who would recover and reconstruct lost or aborted alternative, non-Eurocentric futures. In an Afrofuturist vein, game journalist Mike Sholars writes, "It's transcendent to start a game to the sounds of folk music sung by South African A Capella group Legato and hear those same songs swell into a full orchestral arrangement as I send Zulu astronauts to a newly-discovered exoplanet."²⁵² In *Civ* the potential for the cognitive mapping of

²⁵² Mike Sholars, "The Games That Make Me Feel Free" *Kotaku*, July 15, 2018. <https://kotaku.com/the-games-that-make-me-feel-free-1844392220> Sholars is referencing a feature of the series that I have not discussed: in the more recent iterations of *Civ*, each culture or civilization begins the game with their own distinct musical theme as background music during play. As you progress through the eras, the music changes, taking on additional layers of complexity, but retaining its core cultural motif.

history is both grand in scope (aided by the pullback) and iterable and contingent (aided by the restart).

The pullback has been identified by critics as a common feature of the more expansive “god game” genre (typically thought to subsume 4x strategy as well as other related genres), and associated with fantasies of a godlike omniscient gaze and an accompanying megalomania. Yet if that is the case, it is a curiously limited form of godliness. In a game of *Civ* problems and exigencies continue to announce themselves, always more than there are resources and time to address. The player’s omniscience is limited by how much of the map has been explored, as well as the “fog of war” beyond the sightlines of your cities and units. Thus, it is less the perspective of a god than an immortal but fallible and limited decision-maker, forced to endure the unintended long-term consequences of all of their decisions. In *Civ VI*, at least, more messages and information come in each turn than anyone can (or would want to, at any rate) grant their full attention to.²⁵³ Thus the fantasy of unlimited sight and pure information that so concerns critics is exploded by the economics of attention involved in actually playing the game. While the critics see an uninterrupted narrative of progressive dominance unfolding as the player expands their control over the map, this is not at all the phenomenology of actual gameplay experience.²⁵⁴ Rather, external inconveniences of planetary features begin to intrude upon even the best laid plans of global domination requiring nuanced response and intervention. This is, of course, what keeps the game interesting, as I elaborate upon in section 3.5.

²⁵³ From portions of the map where I have access to an enhanced level of intelligence information because one of my trade routes extends there, I am bombarded with minutiae: “A barbarian pikeman has pillaged a farm near Memphis,” “a flood has destroyed a farm near Issyk, etc.

²⁵⁴ In fact, some players find the expansion of their knowledge of the goings on everywhere on the world map overwhelming rather than empowering. Civfanatics user Artwork complains that on a huge map, the sheer number of notifications received from far corners of the world verges on painful information overload: <https://forums.civfanatics.com/threads/notification-banners-covering-the-screen.602603/>

4.3.3 Interface Informatics

Computer games are often either praised or decried for their “immersive” qualities. Yet what is at stake with computer games is not hyperreal simulacra predicted by postmodern theory, in which the ability to distinguish a gap between simulation and reality disappears. Instead, nearly all video games (and certainly all strategy games) have some form of interface overlay that appears onscreen, disrupting the immediacy of the simulation. A game’s interface acts as a form of hypermediation, in which the seeming immediacy of the simulation is mediated by the ability to click and toggle through menus and tables that provide a refined level of information and control over decisions in the game.²⁵⁵ This is why Galloway and Golumbia view computer games in general and *Civ* in particular as problematic extensions of surveillance and control. In their view, the precise and instantaneous feedback from the interface rewards the player for performing particular tasks of minimization and maximization, which they see as the true content of the game that is merely hidden behind its narratological veneer. For these critics, features like the interface are not a convenient means through which to experience the game; they are the essence of the game itself.

Yet it is these same features that enable *Civ* to act as a training ground for planetary thinking. I have claimed that the affordances of restart and the digital pullback enable planetary history to be experienced as iterable and contingent. But importantly, this is not experienced only in a general way, but through engagement with a series of detailed particulars, or Meier’s interesting decisions. The interface provides the information that enables the decisions to be

²⁵⁵ Jay D. Bolter & Richard Grusin, *Remediation*. (Cambridge: MIT, 1999), 31. Overlaid menus and the “windowed style” are key technologies of hypermediation, and *Civ*’s interface makes extensive use of these to display a copia of relevant data to the player.

experienced as interesting. Recall my difficult decision from my first Inca game: weighing the probable short, medium and long term advantages of one city location versus another, and so on: the thing that made this decision of where to settle so agonizing was the ability to use the game's interface (including the famous "Civilopedia") to see the potentialities of all of the possible terrain options available to me, their possible effects and uses quantified and charted. The fictitious and transparent game world, in which the value of, say, a plains hill with an iron deposit is fully quantified, does not make the decision process any easier. Rather it makes it more difficult, as the possible externalities and opportunity costs of weighing one option over another multiply into incalculability. Nevertheless, it is this foreknowledge that allows the player to interact with the simulated planet in a thoughtful way that goes beyond the exigencies of the moment. An important instance of this, which I detail more fully in a later section, can be seen in the inclusion and later exclusion of global warming and climate effects from *Civ* across various iterations of the series.

In early iterations of the series, global warming was tracked by the relative intensity of a "sun" icon, which responded to levels of pollution created by production or high population. This allowed players to engage with global warming in the very limited way of at least being made aware well in advance when its effects are likely to strike. *Civ* III and IV included global warming effects, but importantly did not have an extensive interface for tracking its progress, a compromise design decision that players experienced as frustrating and merely punitive, thus it produced a clumsy rhetoric of "pollution is bad," but did not facilitate engagement through interesting decisions. As I show in more detail later, the return of a robust climate interface in *Gathering Storm* makes use of quantification and clarity to topicalize climate effects in such a way that players can orient themselves around climate change as an interesting late-game problem.

The *Civ* series' general practice of quantification and clarity is why Galloway and Golumbia object that the game is too reductive to represent history in any truthful or meaningful way. But, as Chapman notes, the reductive "flaws" Galloway sees in *Civ* as a form of history are not unique to video games, but are in fact constitutive of the discipline of history itself.²⁵⁶ Any attempt at historical representation is necessarily a reductive view of a past totality. They differ only in what aspects they choose to foreground and which to minimize or omit. What *Civ* foregrounds is that history is the product of a series of decisions, with an emphasis on the series: though other critical academic histories may attempt to elucidate the contingency of particular moments, they do not create the same sense of continuity and totality. In the game, historical agency is represented not as Galloway and Golumbia's completely flat lack of agency (mere min-maxing of input factors) nor as the narratological critics' total agency (the unstoppable unfolding of the Eurocentric idea, or Vorhees' *cogito*) but as something much more interesting: a willful interiority that encounters the resistance of an objective, codified gameworld. The clarity of the interface enhances this effect: that the result of building a city next to a forest rather than a mountain is known in advance adds to, rather than detracts from the significance of the moment of decision. As Galloway notes, the game includes numerous examples of what "real" history would view as ridiculous ahistoricisms, such as founding a city or building a building with foreknowledge of its possible future outputs. However, I contend that this is not a bug, but a feature: my decision to build or not to build coal power plants, with quantified foreknowledge of its climate effects, makes the game's representation of that historical moment more meaningful, not less. For instance, the decision to build coal power plants, with immediate and detailed

²⁵⁶ Adam Chapman, "Is *Sid Meier's Civilization* History?" *Rethinking History: The Journal of Theory and Practice* 17 no. 3, (2013), 312-332.

knowledge of their future impact on the climate, is a decision containing many more valences than the same historical decision. Rather than either a forced choice made to acquiesce to the prevailing economic logic of the times or as an act of blind faith in the inevitable mastery of humankind over nature, it is instead a calculated risk, a bridging mechanism made until other options become available.²⁵⁷ As I discuss further in the conclusion of this chapter, this contributes to making *Civ*'s decision process a fraught one filled with entanglements and unintended consequences, or what Bruno Latour calls an imbroglio.

In addition to developing the planetary thinking, there is another Benjaminian point to be made about historical simulation games like *Civ*: their iterability evacuates the aura out of history, just as reproducibility evacuates the aura from technological works of art like photography and film.²⁵⁸ Similarly, the repeated simulation of histories in *Civ* has a democratizing or leveling effect. To the player who has simulated (at least the beginnings of) thousands of games on diverse Earthlike planets, the one sacred History of great events and proper names is replaced by innumerable iterable histories.²⁵⁹ To the *Civ* player, the difference between an enduring and a long forgotten civilization is attributable to a presence or lack of iron or (un)productive terrain rather than a supposed metaphysical destiny or the intrinsic qualities of a people. The evacuation of the

²⁵⁷ However, see Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. (New York: Verso, 2016). As Malm argues, mass exploitation of fossil fuels may not have been a necessary consequence of rapid industrialization *per se*, rather they were adopted in order to free capital from the abundant, but fixed locations of water and wind power so that it could more easily pursue the cheapest labor markets. Malm might critique *Civ* for presenting coal as the only option for early industrialization; perhaps we could imagine the game being improved by offering early industrial wind and watermills that were comparably powerful but more location dependent. This type of focused, topical critique of the game is one rarely attempted by academic critics who prefer to problematize the entire framework. However, it also shows the potential for improvements that could arise by embracing a more nuanced, topical style of criticism.

²⁵⁸ Benjamin, "The Work of Art in the Age of its Technological Reproducibility," 254-255.

²⁵⁹ Though there are in fact "Great People" in later versions of the game such as *Civ V* and *Civ VI*, they are essentially interchangeable, and their birth and recruitment to a particular civilization are utterly contingent on the built environment and initial planetary conditions.

aura of history is essential to demystifying it, breaking it down to its component parts so that it might be reimagined as potentially otherwise.

Yet, if we are honest, is it not the evacuation of the aura of history that is precisely what disturbs many of *Civ*'s critics? They are upset by the demystification and gamification of a human history filled with war, inequality and colonialism, which they maintain should be ritually lamented as tragic. This is why Frasca asks if it is barbaric to design video games after Auschwitz.²⁶⁰ Perhaps *Civ* is uniquely responsible here as a game that purports to represent the totality of human history, rather than the fantastical or futuristic settings used in many other 4x games. Certainly, the series has shied away from detailed representations of history's more abhorrent episodes, and might rightly be accused of whitewashing history in some cases. For instance, *Civ* games traditionally include some form of government types which convey different advantages. In *Civ VI*, as in many prior *Civ* games, it is possible to enact a Fascist form of government that grants military bonuses, yet there is no representation of a Holocaust or similar atrocities. Similarly, the history of slavery is typically given short shrift. *Civ IV* had a form of government that represented ancient and classical slavery, yet the ethical consequences of choosing this form of government went largely unexplored. *Civ VI* nearly excises any mention of the transatlantic slave trade, but for one policy card titled "Triangle Trade" that enhances the trade routes of seafaring nations, but provides only a few non-procedural lines of historical context in the "Civilopedia" that do not impact gameplay. All told, there seems to be a concerted effort at avoiding depictions that might cause the kind of controversy or offense that could hurt sales figures.

²⁶⁰ Gonzalo Frasca. "Ephemeral games: Is it barbaric to design videogames after Auschwitz?." *Cybertext yearbook* 2 (2000): 172-180.

Might we imagine a version of *Civ* that explored these uncomfortable subjects in more detail? Perhaps. Though exploration of these more sensitive social and cultural issues has not been one of *Civ*'s traditional strengths, earlier versions of the game, as well as adjacent titles in the genre have experimented with adding additional complexity to such areas. Published in 1999, *Civilization: Call to Power* (CTP) was an ambiguous pseudo-sequel to *Civ II*.²⁶¹ A legal settlement related to ownership of the trademark for the original *Civilization* board game published by Avalon Hill enabled Activision, a rival to Meier's then-company MicroProse with an entirely different development team, to publish one game with the "Civilization" title. *CTP* included a host of game features the main line *Civ* franchise under Meier's direction never embraced, including an explicitly gamified slavery and abolition system. Players could choose to actively acquire slaves from the population of rivals, or to eschew the practice and later build abolitionist units to free the slave-holding civilizations' slaves. Choosing to deal in slaves generally offered a short-term bonus in production from cheap labor, at the cost of later social unrest, and possibly, revolt. Of course, there are a host of critiques that might be made about *CTP*'s implementation of this system: the decision to hold slaves is presented as an economic rather than a moral choice; the restart ability enables the player experiment as a slaveholding civilization while maintaining a distance from any guilt or other negative emotions from that choice; the potential trauma that the descendants of enslaved or oppressed groups might experience playing the simulation, etc. However, if implemented with nuance and sensitivity, as *Gathering Storm* has finally done for AGW, one could imagine developing such a mechanic into a much more robust system for dealing with late game problems tied to the legacy of slavery or other exploitive practices: unrest, civil war, loss of national reputation and claim to a moral high ground, the late game need to combat problematic

²⁶¹ William Westwater & Activision, *Civilization: Call to Power*. (Activision, 1999), CD ROM.

racial supremacy groups, and the like. While one should certainly be clear about where games like *Civ* may have problematic shortcomings, I argue that it is more productive to risk speculation about specific ways such shortcomings might be altered, rather than using them as a reason to dismiss the series or genre entirely.

4.4 “A series of interesting decisions”

As I have shown in section 3.1, *Civ* can be understood as a field of gameplay and imaginative possibilities brought into being by an explicit planetary topics of world parameters and terrain types. This possibility space is encountered through the basic unit of the gameplay decision, of which a *Civ* player makes one or more each turn. From the perspective of strategy game design, it is imperative that these decisions are interesting enough to not only keep the player playing, but also potentially purchasing expansions or downloadable content (DLCs). This is perhaps a missed opportunity for critique of the series, particularly for scholars like Galloway coming from an avowed Marxist perspective.

Yet the aesthetic judgement that a given series of decisions is interesting is itself worthy of attention. As Sianne Ngai has argued, the interesting, along with the cute and the zany, comprise the set of ubiquitous aesthetic judgements key to interpreting late modern, postindustrial life.²⁶² The judgement that something is interesting is particularly interesting, because unlike most other aesthetic judgments, it is typically offered as an open-ended deferral of judgement rather than as a final subjective universal assertion.²⁶³ Interesting is a continually deferred placeholder, suggesting

²⁶² Sianne Ngai, *Our Aesthetic Categories: Zany, Cute, Interesting*. (Cambridge: Harvard University Press, 2012).

²⁶³ *Ibid*, 111.

only that there is enough of interest here to warrant sustained engagement. This makes the interesting an economically important category for strategy video games, an entertainment product that relies heavily upon narrowcasting, or the intense consumption of a relatively niche group of consumers through game expansions and DLCs. While other gaming genres may participate in the aesthetic of the interesting, it is only strategy games like *Civ* that rely on it so heavily for generating engagement and sales.²⁶⁴

Following Meier's famous dictum, *Civ* games are purposefully designed to be interesting, and following the decisions meant to evoke that judgment can tell us more about the game as an aesthetic object than the superficial similarities noted by the narratological and media critics. Interesting strategy game design is most noticeable when it is lacking, as Soren Johnson, who worked on *Civ III* and was the lead designer of *Civ IV*, notes in a critique of the infamous *Civ III* strategy of "lumberjacking."²⁶⁵ Across many titles of the *Civ* franchise, the decision to chop and harvest forests for a one-time production boost is an interesting one, a high-stakes choice made against the specter of losing all environmental, production, and appeal benefits generated by that forest tile for the remainder of the game. Yet in *Civ III* the attempt to include a reforestation action linked to a late-game ecology technology led many players to adopt the dominant strategy of having a worker unit on every eligible tile, replanting and chopping forests, every turn on an endless loop, for a limitless production bonus. Because there is no trade-off in *Civ III*'s

²⁶⁴ Chris Bateman, "A Game Isn't a Series of Interesting Decisions" *Only a Game* (blog), July 2, 2008, https://onlyagame.typepad.com/only_a_game/2008/07/a-game-isnt-a-series-of-interesting-decisions.html Bateman considers the popularity of games such as *Guitar Hero* which not only lack apparent "interesting decisions" but also contain no decisions of any kind, yet are still considered games. Yet Bateman agrees that "interesting decisions" are central to the strategy genre in particular.

²⁶⁵ Soren Johnson, "GD Column 17: Water Finds a Crack," *Designer Notes: Soren Johnson's Game Design Journal* (blog), June 12, 2011, <https://www.designer-notes.com/?p=369>

“lumberjacking” process, the optimal playstyle is easily calculable and gameplay degenerates into complex, yet fundamentally uninteresting micromanagement.

Another infamous example of an uninteresting dominant strategy from the series history, the “infinite city sprawl” (ICS), was first recognized as a problem by players of *Civ II* and has continued to be a persistent bugbear for designers throughout the history of the series. While the previously discussed terrain tiles are the basic unit of resource values created on the simulated planet, the basic unit for extracting and making use of that value is the “city.” Although in *Civ* small population cities extract fewer resources than large cities, in earlier iterations of the game a vast network of small, relatively undeveloped cities yielded greater resource value than a handful of large, carefully tended ones. This is because a number of gameplay bonuses generally occur on a per-city basis, and small cities do not require as much maintenance infrastructure as large cities.²⁶⁶ Thus the dominant strategy became to blanket the map with a thick network of small cities as close together as possible, with little attendance to what buildings should be built in them or the particularities of the nearby terrain, because the returns to sheer quantity of cities overwhelmed all consideration of placement and quality. This also inevitably produced uninteresting gameplay, and eventually led to a host of game design innovations to eliminate the dominance of the ICS strategy.

It might be asked why such gameplay innovations to combat ICS were and are seen by most players as necessary, given that players have always held the option to simply decline to play ICS voluntarily, even if it meant sacrificing optimal play. It should be acknowledged that the drive toward efficiency and optimization (that Galloway and Golumbia see as characterizing the game

²⁶⁶ Various versions of *Civ* have required city improvements like aqueducts, or sewer systems to ensure the health of cities of a certain size, and temples, colosseums, and cathedrals to attend to their happiness.

in toto), is in fact an important part of gameplay that exists in tandem with the drive for interesting experiences. Much of the fun of playing *Civ* lies in choosing a unique strategy, often based off of a reading of the planetary topics supplied by one's map position, and pushing it to its own optimal limit. Similarly to the way Schiller's play drive exists within a space balancing the sense drive and the formal drive, interesting play exists in a precarious balance between the particular and the optimal.²⁶⁷ If the same optimal applies to every particular, the space of interesting play collapses and players feel dominated by the drive to optimization even while they would prefer to resist this drive. Civfanatics user snarzberry acknowledges the temptation towards ICS, and how its mere possibility detracts from the enjoyment of implementing other strategies:

I don't blame players for playing this way, but can you really claim that doing so is rewarding or fun? Your cities should mean something to you, the land that you decide to settle on should get you excited and you should have to make serious decisions about the balance of expansion/economy/military...There should be multiple ways to victory which are equally good, and when one strategy is so obviously the best way to win it takes the fun out of experimenting with the other possibilities, for me at least.²⁶⁸

Additionally, in the particular case of ICS, there is only a vague boundary between when one is engaging in this exploit or not, leading to the situation where a player may have promised himself ahead of time not to abuse the ICS exploit, but is then tempted in the course of the game to squeeze ten cities into a given plot of land where there should be six, or something similar. This makes self-imposed abstention from ICS practically different from other, more clear-cut self-imposed play restrictions such as the popular "one city challenge," in which players try to remain competitive while founding exactly one city.

²⁶⁷ Friedrich Schiller, *Letters Upon the Aesthetic Education of Man*. trans. Keith Tribe. (London: Penguin Classics, 2016).

²⁶⁸ snarzberry, "ICS: Love it or hate it?" Civ V General Discussion, Civilization Fanatics Center, October 31, 2010. <https://forums.civfanatics.com/threads/ics-love-it-or-hate-it.395669/>

Lumberjacking and ICS are notable both as flawed, uninteresting game design, but can also serve as a synecdoche for the hellish, neoliberal bad infinity that Galloway and Golumbia misjudge the series as a whole to be: a drive towards quantity that literally flattens all local terrain difference, blanketing the simulated planet with a sprawl of identical cities and busy lumberjacks. Such strategies amount to the execution of a program requiring some local micromanagement, but no true interesting decisions. Yet this does not characterize the gameplay of *Civ* as a whole; rather it is one potential trap that a strategy game relying upon the employment of reason to address interesting decisions might fall into, but which good game designers try to avoid.

Despite the occasional missteps, the *Civ* series has largely been successful in maintaining interesting play. What are the virtues (and vices) of interest, and what does it mean for criticism of *Civ* as an artifact? A common defense of *Civ* made by its players and fans is that interest in the games stimulate an interest in “real” history. As Civfanatics forum user Grimus narrates:

I must say, after playing this game way back when I started playing the original Civ, it did spark an interest in history and appreciate historical things more... I would always ask myself questions like "why did things turn out the way they did?" and "why are we the way that we are?" and "why do we do the things that we do?"²⁶⁹

However, perhaps more accurately than saying *Civ* stimulates an interest in history is to say that *Civ* makes existing, static history itself into an interesting dynamic procedure. Rather than a series of facts, dates, and theories, in *Civ* history becomes a speculative discipline, a series of planetary parameters that can be combined differently to produce different outcomes.

Making history interesting by encouraging speculation echoes Isabelle Stengers’s calls for interesting science; she observes that speculation “breaks up the closed field in which the interest

²⁶⁹ Grimus, “Civilization and interest in history,” Civ IV General Discussion, Civilization Fanatics Center, July 14, 2007, <https://forums.civfanatics.com/threads/civilization-and-interest-in-history.231042/page-7>

and fate of these speculations is decided.”²⁷⁰ Stengers wishes to challenge the domination of science by a specialized group of experts by making them answerable to what the public finds interesting, with the hopes of increasing both public engagement and expert accountability. History shares with science the same problem of low public engagement, perhaps especially in the United States where the widespread uncritical acceptance of a majoritarian, jingoistic historical narrative is the bugbear of critical historians. Yet the critical historians also fail to be interesting in Stengers’s sense, and are equally happy to use their own preferred historical narrative as a cudgel against political adversaries.²⁷¹ The problem in both cases is that history, whether critical or majoritarian, is treated as a dead letter; there are no interesting choices for the public to make, both because the events have all taken place and the analysis and the work of theorization and interpretation has been monopolized by the experts. In contrast, *Civ*’s speculative history not only “breaks up the closed field” of historical thought but also provides a planetary topics for use in future speculation. However, the historical speculation it authorizes is not fancy-free, as Vorhees seems to have it, but rather it is authorized and underwritten by the constraints and affordances of the planetary topics, as I have outlined previously.

Yet my contention that *Civ* is a more complex, and indeed more interesting, artifact than the critics suppose does not suggest that it should be insulated from all criticism. A fair critique of the game might be that it plucks mainly at the low-hanging fruit of imagining differences in planetary terrain while leaving potentially more nuanced speculation about cultural, intellectual and ethical choices throughout history far less explored. This has allowed the series to skirt many

²⁷⁰ Isabelle Stengers, “Another Look: Relearning to Laugh,” trans. Penelope Deutscher, *Hypatia* 15, no. 4, (2000), 50.

²⁷¹ In Chapter 4, I analyze this problem in detail through the lens of the circular use and critique of the “frontier” allegory for space exploration and colonization. Some critical historians argue or imply that speculating about colonizing other worlds is ethically wrong because of perceived homological similarities to imperial colonialism.

of the thornier issues with simulating human history, at least until AGW re-centered political controversy directly around the planetary topics themselves. In addition, the aesthetic category of the interesting is itself a double-edged sword. As Ngai's analysis points out, the judgment of interesting, with its perpetual deferral and "cool" attitude toward its objects, is linked to the circulation of information under late capitalism.²⁷² This is perhaps particularly problematic for an interesting speculative approach to AGW, when one considers the carbon footprint of the personal computers and server farms underwriting the process. The danger is that the interesting's ability to "mediate between reason and surprise"²⁷³ could result in a kind of intellectualizing self-directed virtue signaling disconnected from public action.

It should be noted that virtually every aspect of the video games industry is unsustainable as it is currently constituted, from the massive consumption of fossil fuel based energy by both server farms and personal computers, to labor practices running the gamut from merely exploitative (for overworked, game development workers located primarily in rich countries) to abhorrent and criminal (for the miners of tantalum and other minerals necessary for modern electronics located primarily in poor countries). In recent years, drives toward unionizing among games workers have gained greater traction than in the past. Shifting the geopolitical impact and carbon footprint of the industry will likely require broader systemic changes ranging beyond the industry itself. With that said, I do argue that games have a role to play in overcoming the skepticism and inertia surrounding climate change policy. As perhaps the signature planetary problem of our times, I now turn to a more detailed investigation of the varying depictions of AGW

²⁷² Ngai, 7

²⁷³ Mikhail Epstein, "The Interesting," trans. Igor Klyukanov, *Qui Parle* 18 (2009): 79, quoted in Ngai, *Our Aesthetic Categories*, 7.

throughout the history of the *Civ* franchise, culminating in *Civ 6*'s *Gathering Storm* expansion, the first *Civ* iteration to explicitly market an AGW representation as a major gameplay feature.

4.5 Anthropogenic Global Warming and the End of *Civilization*

Before plunging into a close reading of *Gathering Storm* and the planetary topics as applied to climate change, some background on the history of the series' implementation of climate effects may be helpful. While climate effects have been present since the first iteration of the series, prior to *Gathering Storm* the focus on climate as a gameplay system had been reduced over time. *Civ I* and *Civ II* contained strong global warming effects based on global pollution levels, and players could gauge the likelihood that these effects would be triggered by charting the relative intensity of a "sun" icon in the interface. Allow enough pollution squares to remain on the map long enough, and a white-hot sun icon warned of impending disaster: large swathes of formerly productive terrain tiles would become unproductive swamp or desert. Meier has indicated taking pride in *Civ I*'s forward-looking inclusion of climate effects back in 1991. Yet, in an apparent attempt to appease gamers across the real world's political spectrum, global warming effects were included but greatly reduced in 2001's *Civ III*, and the tracking sun icon was eliminated. Thus, although climate issues were present there was no way to track their progress and they largely disappeared from the consciousness of players, causing only minor annoyances in the later stages of games.

By the release of *Civ IV* in 2005, climate change had become a much more pressing and controversial political topic. In an apparent effort to continue appeasement of all sides, *Civ IV* increased the severity of global warming effects, but continued the trend of having no interface or system to record and interact with it; thus when the undesired terrain transformations occurred,

they were seemingly random. Many players, like CivFanatics community member Nares perceived that the inclusion and modeling of climate effects by the game was a political position: “Its introduction into the game is a political statement in itself, so it's no surprise to me that any discussion of its effects in-game lead back to the political discussion surrounding it.”²⁷⁴ Yet the discussion on the forums mirrored the discussion in the general public sphere. The only topics of climate change present in public discourse were whether it existed or not, and whether it was caused by humans or not. The compromised nature of the game’s climate effects, harsh but largely unsupported by the informatics of the interface, were incredibly unpopular among players across the political spectrum and contributed to this narrowness of topicality. CivFanatics member attackfighter complains “It's a horrible mechanic and it's only there cause Firaxis is made up of pc hippies.”²⁷⁵ The feature was often read by players as a ham-fisted inclusion, forced into the game to appease the political left.

The poor implementation of climate change in *Civ IV* posed a problem not only for marketing the game across real world political tribes, but also for the traditional core of the series’ gameplay itself. Though I have argued that the narratological critics’ view of the series lacks nuance, in one observation they are correct: the game (like many games) relies upon a desire to envision progress and improve one’s civilization by choosing from an expansive but finite list of options. *Civ IV*’s harsh but unmanageable global warming penalties were often experienced as counter to that core experience, as CivFanatics member covok48 laments:

It absolutely infuriates me that [global warming] is a counter to excessive hammer production. Even though all my cities are healthy and I have built all the necessary buildings to promote health/clean(er) living I still get global

²⁷⁴ Nares, “Global warming: does it matter?” *Civ IV* General Discussion, Civilization Fanatics Center, February 1, 2010, <https://forums.civfanatics.com/threads/global-warming-does-it-matter.352129/>

²⁷⁵ attackfighter, “Global warming: does it matter?” *Civ IV* General Discussion, Civilization Fanatics Center, February 1, 2010, <https://forums.civfanatics.com/threads/global-warming-does-it-matter.352129/>

warming strikes. It has made the industrial park practically unbuildable and acts as a counter reward to all the tile improvements/city building that has taken place the previous several thousand years.²⁷⁶

Civ IV's implementation of global warming was experienced as frustrating because it was a sudden reversal in the desired upward-trending reward curve, but more importantly, there was essentially nothing the player could do about it. Rather than the usual in-game problem that might be avoided or mitigated by exploring strategic decisions it appeared like sudden divine retribution, "a counter reward to all the... building that has taken place the previous several thousand years." Thus, in game and on the forums, as in the public sphere, there were no other topics available other than to curse the opposing political tribe.

Due in part to *Civ IV*'s failure to implement climate in a satisfying way, when *Civ V* was released in 2010 global warming effects were removed entirely. The feature that Meier had taken such pride in including back in 1991 had seemingly been abandoned in favor of an expedient denialism. When *Civ VI* was released in 2016, it offered a host of new gameplay features, but climate effects were not among them. Notably, for the first time the game "unstacked" cities, forcing the player to build various districts sprawling outward on the map from the city center, promising deeper gameplay for players who prefer city planning to warfare, and more detailed interaction with the planetary terrain and environment. For instance, carefully locating a "campus" district adjacent to mountains or rainforests produces additional science benefits. While this design philosophy was seemingly an opportunity for the series to engage more deeply with environmental issues (as the player must pay heightened and sustained attention to the surrounding terrain) climate effects did not return until the 2019 expansion *Gathering Storm*. It is perhaps worth noting

²⁷⁶ covok48, "Global warming; does it matter?" *Civ IV* General Discussion, Civilization Fanatics Center, February 2, 2010, <https://forums.civfanatics.com/threads/global-warming-does-it-matter.352129/>. Note that "hammer production" refers to the icon for a unit industrial production, which in *Civ IV* was a small stylized hammer.

that by releasing the feature as an expansion, developer Firaxis and Publisher 2K Games are participating in an industry wide trend towards ever-more compartmentalized and customized game content, which can be commoditized, from expansions and DLCs to microtransactions. Thus with *Gathering Storm*, those who want climate effects must pay an additional 39.99 USD; those who choose to opt out on political or other grounds may do so. Nevertheless, the expansion itself offers the most robust and detailed climate system yet seen in the *Civ* series. Despite the return after a conspicuous absence, lead designer Ed Beach maintained that the expansion was not intended as a political statement:

We did do our background research on trying to figure out where the global temperature has been over the last 150 years and what types of factors influence it... So we feel like we don't have to make a political statement, but we can take the common wisdom of the vast majority of the science community and embed that in the game and that becomes something really interesting for players to be able to engage with.²⁷⁷

Of course, given the existing public topics of climate change at the release of game (whether it exists or not; whether it is caused by humans or not) this is clearly political, in that it attempts to eliminate the discussion over whether or not climate change exists, and shift the debate to the details over how it is represented or managed. "It's certainly a very topical discussion right now... While we were working on this, Kilauea was erupting in Hawaii, we were having flash flooding on the east coast and Hurricane Florence was hitting. It was certainly something that our team could get engaged with."²⁷⁸ Thus *Gathering Storm* moves from the “political” binary of whether AGW exists or not, to the “topical” list of a multiplicity of effects and possible responses.

²⁷⁷ Chris Bratt, “Civilization 6: Gathering Storm’s climate change not a political statement, Firaxis says.” *Eurogamer*, November 18, 2018. <https://www.eurogamer.net/articles/2018-11-20-civilization-6-gathering-storm-isnt-interested-in-debating-climate-change-says-firaxis>

²⁷⁸ Ibid.

4.5.1 *Gathering Storm* and the Planetary Topics of Climate Change

In *Gathering Storm*, much like in lived history, the data portending AGW appears long before any of its felt effects. In fact, the game begins charting the accumulation of carbon dioxide in the atmosphere as soon as the first unit of coal is burned by a powerplant, or perhaps by an early ironclad warship. Later the discovery of oil will add to the number of resources potentially contributing to AGW. Detailed graphs are available to chart the emissions both by resource type and by civilization. The overall level of deforestation throughout the entire map also adjusts global carbon levels. If carbon levels reach a certain threshold as determined by map size and type, the player will begin to observe the impacts of AGW: the polar ice caps will begin to melt, storms will increase in severity, desertification will begin to take place, and eventually the sea level will rise, potentially inundating the player's territory and cities. In my game as the Mali, these effects have only just begun to make their presence felt on the world map, with the slight melting of icecaps revealing additional shipping lanes being the most evident change. In addition, the graphs reveal I am responsible for the majority of carbon emissions to date (largely because I industrialized first) and that coal is the primary contributor.



Figure 7: Climate Informatic Overview



Figure 8: Carbon by Source

Once climate change has become salient to the player, the game offers a variety of possible options and responses for the player and the rest of the world's civilizations. Costly, large scale attempts at climate mitigation include switching the power source of industrial zone districts to less carbon-intensive fuel sources. Even switching from coal to oil power plants provides a moderate reduction in emissions, while switching to nuclear fission plants powered by uranium cuts emissions altogether. There is a trade-off, however: oil and nuclear plants require more

advanced technology and access to the appropriate, often scarce, resources, which could otherwise be spent fueling powerful modern military units. In addition, there are smaller-scale solutions available. In lieu of the centralized power plant located within the industrial zone district, solar farms and wind farms can be placed outside of cities in the appropriate terrain locations. Of course, there are gameplay trade-offs here as well: tiles used for solar and wind farms cannot be used for mining, farming, or neighborhoods, and the technology to construct them generally will not be discovered until climate change is well underway.

The player's own best efforts at mitigating climate change will not be enough without securing the participation of the rest of the world's civilizations, thus climate diplomacy is an important feature in *Gathering Storm*. Emissions treaties and global competitions to reduce carbon output can be used to attempt to nudge recalcitrant civilizations towards responsible behavior, with diplomatic favor and clout gained from prior play choices playing an important role. Should these more prosaic attempts at mitigation fail, or more typically, prove to be only a partial success, the late modern and future eras have more extreme technological approaches available. Sea walls can be built to prevent coastal cities from being flooded or submerged, seasteads can house displaced population, and eventually the future technology of carbon recapture can be discovered.

The elements of this list of possible responses to the climate problem supply the game's topics of climate change mitigation. Importantly, in a typical game no item on the list alone is a sufficient or satisfactory response; rather each must be used in a piecemeal way that is always partial, opportunistic, incurs costs, and depends upon the affordances and restrictions of the particular map currently in play. In one case wind farms may provide the bulk of the solution, in another case it may be a combination of nuclear plants at home and subtle diplomacy abroad, such that what the thoughtful and successful player may learn from *Gathering Storm* is not that this or

that technological fix is the magic bullet to deal with climate change, but rather the skill of seeing the various mixes of opportunities in a given situation. Thus the implementation of the planetary topics as a list of variables that are generative of possibilities in a combinatorial way, adapted to the particular planetary map at hand, avoids one of the common objections made by critics informed by postmodern or poststructuralist thinking—that a focus on instrumentalist, particular, technical solutions to a given social problem will lead to their fetishization and an ossification of the imagination. In fact, in the game we see the opposite—precisely because the game is a simulation that clearly stipulates the rules and effects of various courses of action, it encourages an openness to experimentation and iteration.

Additionally, the topical nature of the climate system avoids the opposite pitfall, always conspicuously overlooked by the postructural critics—the replacement of a fetishized technical solution with a fetishized political one. Climate change and the other outcomes of “modernity,” the critics tell us, are not merely instrumental technical problems but political ones. True, but the likelihood that further repetition of this harangue will suddenly shift the current political habitus of a substantial fraction of the human race is even lower than the likelihood of beneficial effects from the sudden appearance of a miracle technology. Rather, as the game models, any solution or mitigation of our present predicament will be partial, incremental, flawed, have costs, and be cobbled together from the perception of available opportunities.

Rather than fetishizing singular technical or political solutions, the structure of feeling that *Gathering Storm*’s gameplay encourages in regard to real-world climate change is to feel “slightly less terrible about it.”²⁷⁹ This is because, despite the pervasive and lingering nature of the in-game

²⁷⁹ Luke Plunkett, “*Civilization* has helped me feel slightly less terrible about climate change,” *Kotaku* February 2019. <https://kotaku.com/civilization-has-helped-me-feel-slightly-less-terrible-1832546142>

problem it poses, the player has the option to be “out there *doin’ stuff*” in response.²⁸⁰ In the game, climate change becomes a persistent and multi-faceted problem that the successful player must inhabit and orient themselves around for the long term in an extension of what I have called planetary thinking. Recall how in previous iterations of the game such as *Civ IV*, climate change was experienced as a compromised half-feature, experienced by players as moralizing, self-consciously ideological punishment and ham-fisted critique of previous hours of gameplay spent maximizing production. There, climate change was experienced and interpreted by players as a fairly crude moral allegory that took away from the core gameplay experience. In contrast, *Gathering Storm* attempts to make use of the planetary topics to present climate change as yet another series of interesting decisions consistent with the series’ gameplay. Thus, although it disrupts the narrative of unending and relentless progress seen as the core of the series by the narratological critics, it does so not to moralize or subject us to an overbroad systemic critique, but to make it into a new, interesting topical problem. It cultivates an interest in and faculty for sticking with a game on a gradually damaged and less than ideal planet. This inflection of planetary thinking is the macro-scale, digital pullback level complement of the micro-scale interspecies sympoeisis on a damaged planet not unlike what Haraway calls “staying with the trouble.”²⁸¹ Contrary to the predominant position taken by critics of the *Civ* series, it is precisely the series of individual interesting decisions, made in response to the planetary topics, that do the work of producing the games’ meaning. It doesn’t (just) make an argument about how things are or should be; it provides training in how to search for arguments about how things might be at the planetary level.

²⁸⁰ Ibid.

²⁸¹ Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, 1.

Interesting, by wading back into the controversial climate debate, *Gathering Storm* has incidentally produced the most compelling extant solution to the series' longstanding "endgame problem." Recall that one of the most frequent negative judgments about the game made by players is that while the early game is full of interest and radical possibility, the endgame often lapses into the rote implementation of a managerial program. *Gathering Storm's* climate effects address this problem, giving the player an interesting new challenge to address during the later phases of the game. The climate effects inject a fresh round of contingency back into gameplay that otherwise has often settled into an inevitable outcome. Even in cases where the player may already feel assured of ultimate victory, saving the planet (and their own cities) from as much of the ravages of AGW as possible becomes an interesting challenge unto itself. Thus, the game is a kind of ironic mirror image of our own struggles to come to grips with AGW in the real world. What we in the real-world experience primarily as an undifferentiated formless dread limiting all possible futures (if one escapes outright denial), *Civ* players experience as a fresh source of interest and choice. Even if I cannot save all of my cities and population, I can save some, and in the game that is experienced as both a worthy goal, and an interesting process.

While *Gathering Storm* certainly can't tell us exactly how to approach AGW on Earth, as its various solutions are gamified and given estimated numerical parameters, it can perhaps encourage us to orient ourselves around the particular topics of AGW in a more productive way. The current public debate about AGW ranges from outright denialism or obfuscation on one side, to vague generalizations voicing regret for the 'hubris of humankind' and similar obscurantisms on the other. For an example of the latter, Zylinska's minimal ethics eschews "easy solutionism" in favor of "critical thinking" and "non-instrumental modes of thinking." Her avatar of so-called instrumental solutionism is "filling the kettle only halfway," a synecdoche for other consumer-

oriented micropolitics.²⁸² Of course, Zylinska's critique is both straw man and red herring, as it precisely the fruits of instrumental thinking that allows us to reliably calculate that a global movement for half-filled kettles would hardly make a dent in climate change in the first place. Transversely of Zylinska, but with the same misguided critique of instrumentalism, Horton positions himself against interventions that are not very small, but rather very large. He criticizes Paul Crutzen and others who have called for massive international efforts to map the planetary ecosystem including the effects of human activity, with an eye towards technoscientific management of that ecosystem, claiming that such projects, and the drive of "western culture" to produce a universal overview continue the "arrogance" and "overreach" that was "constitutive of the problems of the Anthropocene."²⁸³ He objects to Crutzen's efforts to figure the Anthropocene as essentially a mega-scale engineering problem.²⁸⁴ Horton's argument suffers from the same defect as Zylinska's: without the instrumentalism of the universal overview, it would be impossible to perceive that any "problems of the Anthropocene" have yet to begin, much less attribute causality to them.²⁸⁵

Instead of a moralizing harangue against instrumentalism, *Gathering Storm* gives the player a toolbox full of instruments to experiment with, for better or worse. These instruments are an accessible topics which can be used to gain a "wrestling hold" on the slippery hyperobject of

²⁸² Zylinska, *Minimal Ethics for the Anthropocene*, 20.

²⁸³ Ibid.

²⁸⁴ Horton, 37.

²⁸⁵ Paul Edwards, *A Vast Machine* (Cambridge: MIT Press, 2011). Horton's principle argument is that our existing metaphors, worldview, and technoscientific apparatus are ill-equipped to model inhuman scales, such as the planetary. Here his critique comes uncomfortably close to the refrain of the AGW skeptic or conspiracy theorist, who supposes that the occurrence of snow and cold weather at the local scale disprove theories of the global climate simulations. As Edwards points out, without simulated climate models (a species of "universal overview" that Horton positions himself against) there is no data. Edwards text also traces the development of the vast, distributed technoscientific infrastructure which has enabled modern climate science, essentially a massive upscaling of meteorology and climatology. In the passage to which Horton objects, Paul Crutzen is proposing a similar upscaling of technoscience for the purposes of modeling and managing intervention into the climate and other systems.

climate change: windmills, hydroelectric dams, nuclear, geothermal, sea walls, carbon recapture, etc. Let the playing public understand the choices and possibilities given by the simulation, and then give them the opportunity to simulate, discuss, and decide for themselves. As critics, we can and should debate the balance, transparency and tendency of the tools given by the game (e.g. perhaps carbon capture is portrayed as too readily available or too effective, perhaps geothermal too uncommon, etc.), and ensure that they are depicted only as a synecdoche for the vastly more complex models of real climate science, but we should not object to the basic gesture of making the instruments, or the topics, of the debate as readily and widely available as possible. The specter of Benjamin appears again, this time arguing that the intellectual must transform themselves into an “engineer who sees his task in adapting [the production] apparatus to the ends of the proletarian revolution.”²⁸⁶ The intellectual should not seek to stand above and apart from his proletarian comrades, but to intervene into the process of the production of knowledge, to make it as accessible as possible. Contrary to the line pursued by Zylinska and Horton, there is no original sin in our deep cultural past clouding our thinking and requiring the services of an exorcist or mystic, rather there is merely a lack of widespread access to good (and, just as important, interesting) information sources for public education, understanding and debate. Or per Benjamin, “revolutionary struggle is not fought between capitalism and mind. It is fought between capitalism and the proletariat.”²⁸⁷ Any democratization of access to and interest in the topics of climate change is an affirmative step in this direction.

Until recently, mainstream AGW activism has avoided specific topics, lest it be criticized from the right as too expensive, or from the left as too technocratic, utopian, or with Zylinska and

²⁸⁶ Walter Benjamin, “The Author as Producer” in *Understanding Brecht*, trans. Anna Bostock. (New York: Verso, 1998), 102.

²⁸⁷ *Ibid*, 103.

Horton, too “instrumental.” This affective constellation leads to what Levi Bryant calls “revolutionary quietism,” or the rejection of every potential solution because each is in itself insufficient or produces potentially undesirable side effects.²⁸⁸ The recent enthusiasm over the proposed Green New Deal is a welcome move towards introducing more topics of climate change into the public debate (although even that is shorter on public-facing specifics than it might be). Even better was one candidate’s decision to name one specific topic: the thorium-salt reactor.²⁸⁹ While politically risky, as staking specific claims can open one up for later criticism, such naming of specific topics is a boon for public understanding and literacy on these topics. Similarly, *Gathering Storm* has been one avenue for popularizing a speculative topics of fighting climate change, modeling what it looks like to be “out there doin’ stuff.”

4.6 Civilization: *Beyond Earth* and the Mars Trilogy

In this section I engage in a comparative evaluation of how two different iterations of the *Civ* series approach the planetary topics. As one of these iterations attempts to port the series’ signature gameplay to another planet, I also compare this attempt at applying a planetary topics “beyond Earth” to Robinson’s similar effort in the Mars Trilogy.

²⁸⁸ Levi Bryant, *Onto-Cartography*, 258.

²⁸⁹ “It’s Worse Than You Think—Lower Emissions, Higher Ground” *Yang2020* (blog), August 28, 2019, <https://www.yang2020.com/blog/climate-change/>

4.6.1 *Gathering Storm* and the Planetary Topics of Climate Change



Figure 9: *Civilization: Beyond Earth* Art Style

Sid Meier's Civilization: Beyond Earth (BE) is a spinoff title in the *Civ* series, released in the interval between *Civ V* and *Civ VI*. Though in many respects BE resembles *Civ V* both cosmetically and mechanically (both games are built upon the same LORE graphics engine), it diverges thematically from the main series in that its setting is not historical, but futuristic—the game simulates the colonization of a somewhat Earthlike exoplanet. The scene change provides an opportunity to analyze how the planetary topics and speculative radicalism might appear in video game form when decoupled from some of the assumptions and constraints implicit in a historical setting. Evaluated in these terms, *BE* is an intriguing partial failure. On one hand, it fails to make use of the planetary topics of similarity and difference to a meaningful extent, especially considering that the scene change to a different planet is ostensibly the animating novum of the game. On the other hand, the attempt to imagine future human adaptation spurs several partially successful gameplay innovations that partially respond to some of the ideological critics' more trenchant objections. First, *Civ's* relentless hostile barbarian Others are replaced by alien life

forms, which the player has a greater diversity of options for interacting with. Second, the much-criticized linear tech tree of the *Civ* series is replaced with a spiraling, open ended “tech web” with multiple paths of progress. Finally, BE uses an “affinity” system to topicalize some of the imagined strategies for human cultural adaptation to planetary difference by offering a heuristic for imagining possible adaptation strategies.

In many ways, *BE* is at best a mediocre implementation of the planetary topics. When the game begins the player is able to choose certain aspects of the planet on which they will play, much like other games in the *Civ* series. Yet despite the alien setting, all of the options are remarkably Earthlike. You can choose to play on a “Protean,” “Terran,” and “Atlantean” planet, yet these choices merely correspond to the amount and distribution of continents and ocean in a direct mirroring of the *Civ* series’ classic “Pangea,” “Continents,” and “Archipelago” map types. A minor innovation is that the continent style can be combined with an alien biome choice such as “Lush,” “Fungal” or “Frigid.” This choice impacts the distribution and relative abundance of particular terrain tiles as well as the type and number of alien life forms. Set combinations of these two variables modeled on known, real-world exoplanets are also available. Once gameplay begins the player’s task is to explore and settle the alien world’s terrain, yet these terrain types and their in-game effects are all quite familiar to the veteran *Civ* player: grasslands provide good food yield, forests can be felled for a production bonus, hills provide production, and mountains obstruct movement. Much like other *Civ* games there are also special resources scattered about the map, some familiar (titanium, geothermal) and some fantastical (Firaxite, Floatstone, Xenomass). The planets also feature unique terrain “marvels,” often graphically impressive but essentially similar to the natural wonders present in *Civ V* and *Civ VI*. In fact, after making planetfall, the only immediate reminders that the player is supposedly colonizing an alien world are the (admittedly

striking) art style and the presence of “miasma.” Miasma is terrain overlay feature that appears clustered intermittently around the map, and is meant to represent atmospheric or environmental conditions hazardous to humans. In addition to an apparent lack of realism (why is every alien planet’s atmosphere only mildly hostile to humans over less than half of its surface area?), miasma initially only minimally affects gameplay as a minor hazard and inconvenience to trade and expansion. While the activity of successfully navigating these variable planetary features participates in the same cultivation of a planetary thinking I have previously identified, the ostensibly alien setting offers little meaningful difference to this process from other games in the series.

As an implementation of the planetary topics, *BE* initially compares poorly to Robinson’s novels as a work of invention for thoroughly imagining life on a more hostile planet. A number of key planetary topics used to great effect in the Mars Trilogy are wholly absent from *BE*: gravity effects, atmospheric pressure, day/night cycle, and the relative scale of landforms play no role whatsoever in the game. The difficulties of adjusting to a different atmospheric composition are given only cursory treatment through the miasma mechanic. Perhaps most notably, *BE* also follows its parent game *Civ V* by having no game mechanic for global climate effects, which Robinson’s novels foreground as the central topic of politics and culture while colonizing an alien planet. This is a significant limitation for the game, both in terms of its contribution to the development of planetary thinking sensitive to difference, and even its entertainment value: the change of setting to an alien world should have been an occasion to think more deeply about the exploration element of the game, but all our explorers find are the same old terrains rendered in alien purples and blues.

The faculty of speculative radicalism I have described in chapter one of this dissertation involves not only the deployment of the planetary topics to pose questions about human life under

different planetary conditions, but also the ability to speculate generatively about ingenious human cultural developments in response to these questions. In other words, the Mars Trilogy is a model speculative achievement not only because Robinson rigorously addresses all or nearly all of the questions posed by the planetary topics, but that he answers them in a way that is imaginative, plausible, and suggestive. Though I have shown that the *Civ* series of computer games develops planetary thinking through a facility with the planetary topics, it is a plausible rejoinder that the games nevertheless do little to advance the cause of speculative radicalism. This is a version of the criticism levied by many of the games academic critics when they critique the game for editing the adaptability of human culture or reducing it to quantitative values that are simply accumulated, without presenting any occasion for critical evaluation or creative reimagining. Are video games capable of responding to this argument, and encouraging a faculty of adaptation to differing planetary topics, or is this level of cultural nuance peculiar to narrative forms like the novel? Despite its often un inventive use of the planetary topics, BE does offer some noteworthy gameplay innovations to the genre that are provocative for imagining human adaptation to changing planetary conditions.

4.6.2 From Barbarians to Aliens

One of the primary innovations marketed for BE is its novel gameplay mechanic to alter the role of barbarians as the ever-present Other of the game's civilizations. Since BE is set in the future on an exoplanet, the indigenous entities that spawn in the dark areas of the map are not meant, within the fiction of the game, to represent human barbarians, but rather nonhuman aliens (note that "aliens" may not be the optimal term for a native species on their own planet, but this is what the game calls them). Yet one could easily imagine an extension of the existing narratological

critiques of the *Civ* series suggesting that despite the cosmetic shift, the aliens still stand in for a racialized, non-western others, following a long tradition of science fiction criticism that reads aliens in this way. However, unlike the merely cosmetically reskinned terrain types, the shift from barbarian to alien was accompanied by a significant shift in procedural gameplay mechanics: rather than inherently hostile savages that attack the players on sight like the barbarians, the aliens begin the game as a neutral presence, hostile if attacked or occasionally if approached, but not inherently aggressive. In fact, one of the most widely marketed features of the game is the ability of the player factions to choose, by a complex course of actions, quests and choices, whether their civilization would interact with the aliens hostilely or peacefully.

It is certainly suggestive to note that for the first five iterations of the series over the course of almost two decades, evidently no one seriously thought to add the procedural option to deal peacefully with human indigenous nomads (barbarians)—but aliens on an exoplanet? Suddenly, these are indigenous folks worth modeling peace with. Certainly, one might make a sharp critique of western imperialist assumptions here, and the inability to see any other role for indigenous human nomads, while alien species are laden with possibility. Yet this can also be read more generatively, as an occasion in which the topics of planetary difference prompt a loosening of habits and generic conventions, leading to a new gameplay innovation, which can in turn produce in the player a new kind of habitus for engaging with the algorithmically represented Other. In BE, players can attempt to ignore or isolate themselves from aliens, actively hunt them for profit and research, or pursue ways of living with them in a more peaceful symbiosis. These choices lead the player's civilization down differing paths with attendant options for units, buildings, "civic virtues," and world wonders that are the beginnings of imagining different ways that human culture might develop in response to the planetary topic of indigenous alien life.

4.6.3 From Tree to Web

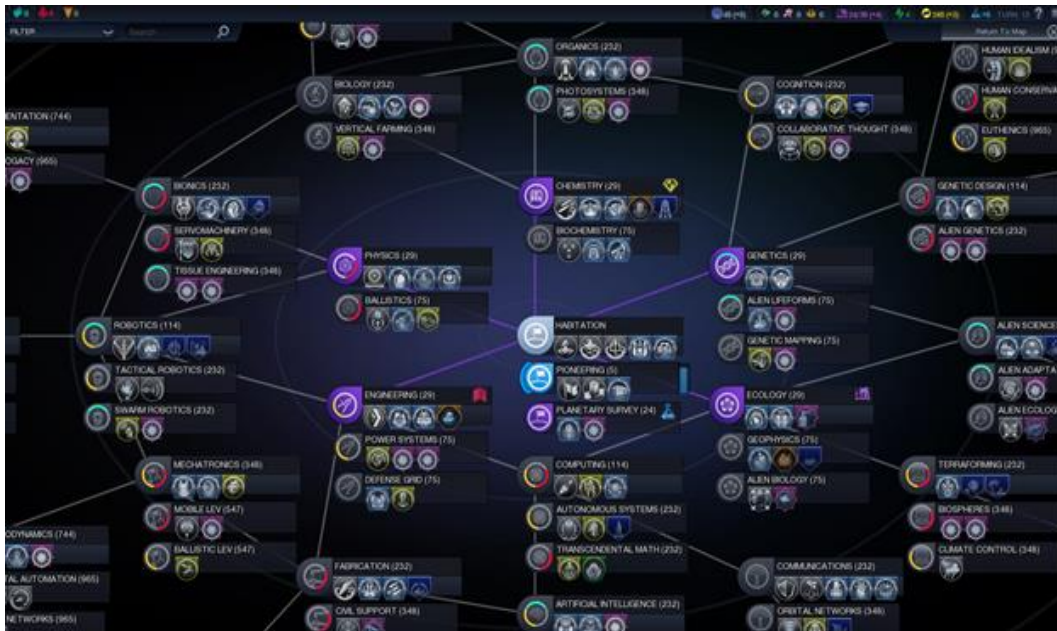


Figure 10: Tech Web, *Civilization: Beyond Earth*

As the graphic reveals, BE also breaks with the *Civ* convention of the linear tech tree for representing scientific progress, one of the game's most commonly critiqued features. Recall that according to the narratological critics, the linearity of the technology tree enforces assumptions that human cultures can only follow a single path of progress based on a western, Eurocentric model. In BE the linear tech tree is replaced with a complex, branching, rhizomatic tech web. The player's civilization begins the game in the center of the web with the only "habitation" technology, or what is required to found the single starting settlement on an alien planet. To progress scientifically, the player can choose from a variety of options progressing outward from the center, often with multiple possible pathways for progressing to a particular technology. Rather than using linear space to represent technological advancement, in which more powerful technologies occur farther to the right on the tree, the tech web uses radial space, with the most futuristic technologies occupying the outer fringes of the web. While there are often multiple

pathways available to a particular technology, these possibilities are not infinite. While it takes some time and multiple decisions to, for practical purposes, foreclose particular potential pathways, eventually this will happen as a civilization's technological frontier progresses further from the center.

Much like the shift from kill-on-sight barbarians to enigmatic aliens, the shift from tree to web is prompted by the thematic shift from Earthlike historical simulation to the speculative process of colonizing an exoplanet. While once the same expansive, rhizomatic possibility space may have existed for human technological progress on Earth, in retrospect the basic contours of the topics of human history are often presumed known in advance: agriculture, urbanizations, colonization, modernization, etc. In contrast, deriving, naming and gamifying particular future technologies forces a more expansive use of the planetary topics: what challenges might future planetary settlers face from their environment, and what desires will motivate their research? This resultant web structure creates a very different rhetoric of technological progress than that mobilized by the linear tree. Where the tree enforces something of an inevitable scientific frogmarch through history, the web depicts a complex network of contingent relations. Where previous games in the series, when read narratively, reproduce a rhetoric of inevitability that technological progress must have certainly followed a particular form, the attempts to imagine the uncertainty of future technological progress, particularly on an unknown planet can lead to a loosening of these assumptions.

In practice this leads to a rather different gameplay experience when it comes to the player's decisions of which technologies to research. In BE players might choose to radiate outwards towards spaceflight and orbital technology, and thus ignore genetic modification. Or they might pursue advanced robotics, forcing them to ignore terraforming. The number of possible

pathways to a particular goal is quite expansive, making the effort to visualize the optimal path in advance with certainty nearly impossible.²⁹⁰ Additionally, in most *Civ* games the player will eventually research all (or nearly all) technologies on the tree, restricting the scope of strategic decision making to the order in which the technologies should be researched. On BE's web, it is nearly impossible and actually undesirable to research all of the technologies in a single playthrough, thus making a completionist strategy unviable. Thus, in BE the development of what I have called the planetary thinking is extended in a greater degree to the tech web, as players must explore and engage with the layout of the planet map before even determining which technologies will be beneficial to research.

4.6.4 Topicalized Affinities

BE's "affinity" system is perhaps the game's most developed attempt to topicalize and create a game mechanic out of the possible responses of human cultural adaptation to a new planetary environment. The game features three possible affinities in which a civilization can accumulate points, representing three possible philosophies or orientations to adapting to life on a different planet: Purity, Harmony, and Supremacy. In the fiction of the game, the Purity affinity is oriented towards technologies and decisions that prioritize maintaining human physiology and culture as close to its natural Earthbound state as possible. In contrast, Harmony suggests that human society and even the human body should adapt to live in symbiosis with the new planet as much or more so than the planet and its fauna should be forced to adapt to the human. Supremacy seeks to

²⁹⁰ Of course, the game designers have created and roughly balanced the web in advance. However, because the optimal path through the web will depend upon the resources and other affordances of the individual map, it is much more difficult to determine an optimal strategy in advance than with a linear tree.

seamlessly integrate the human with cybernetics, artificial intelligence and other technologies such that the human consciousness is capable of surviving in any physical environment. Thus, affinities can be thought of as topical groupings of possible answers to the problems posed by the planetary topics.

In the game, score in the affinities is accumulated in a variety of ways, including researching particular technologies, solutions chosen to problems posed by in-game quests, and expeditions performed while exploring the map. As the score increases, various bonuses, special buildings and units are unlocked. Because this happens gradually as a result of decisions made while interacting with the planetary map and the tech web, they are not so much chosen as they are developed, as consequences of both chance and choice. This system partially responds to one of the major critiques of the *Civ* series: that the role of human culture in the games is either wholly inflexible and determined in advance, as in the case of the special bonuses granted to particular civilizations, or that it is merely an abstract, numerical and undifferentiated quantity that bears little relationship to real world cultural change. If the affinities in *BE* are construed as cultural adaptation to different planetary conditions, they are an attempt to represent cultural development as a game system in a somewhat more sophisticated way, as a collaboration between humans and the planetary environment. Also, because they accrete gradually over the course of multiple decisions interacting with the map, the presence of affinities further complicates the reading of the game and its interface as either an allegory of control society or as a pure representation of the *cogito*. Like many decisions in *Civ*, the player may be nudged in a certain direction by the affordances of a particular map.

The affinity system can even be understood as an attempt to topicalize the possible responses to the process of adaptation to planetary difference. The affinities are a list of imagined

possibilities for solving the problem of a new planetary environment: change the environment to suit the human, change the human to suit the environment, or work towards a cybernetic consciousness transcending both human and environment. In speculative fiction and speculative thought, these roughly correspond to the prevalent themes of terraforming, pantropy, and transhumanism respectively.²⁹¹ Interestingly, the game also supports unique content and gameplay bonuses for hybridized affinities, such as Harmony-Purity, Purity-Supremacy and Supremacy-Harmony which, in the fiction of the game, allow the combination of two of these topics into a new blended type. This is an intriguing attempt by the game to map and topicalize the space for imagining possible adaptations to new planetary conditions. It is an attempt to provide a topical structure to the inevitable follow-up to the questions raised by the planetary topics, namely: where do the imaginative answers come from, and what form do they take?

In some ways this attempt to map the possibility space for speculative radicalism even addresses a weakness in Robinson's Mars Trilogy. One potential criticism of the Trilogy is of its heavy reliance on a very particular version of human interaction with the planetary environment. Nearly every character in the Mars Trilogy, regardless of their position taken in the novel's political struggles, spends a great deal of time outdoors; appreciating, contemplating, and interacting with the Martian landscape in some way. While the Reds wish to keep Mars in its current state, the Green's aeroformation imagines a new hybridization of Earth life and Martian terrain. A rare exception is the psychologist Michel Duval, who only reluctantly adapts to life on

²⁹¹ For a discussion on terraforming, see the previous chapter of this dissertation. Transhumanism is the belief that the next phase of human evolution involves fusion with machines; especially the digitizing or uploading of consciousness. Pantropy is the altering of the human form, generally via biological processes like genetics, to make it more suitable for life in a particular alien environment. Terraforming transforms the natural environment to suit the human; pantropy changes the human to suit the natural environment; transhumanism is indifferent to the constraints of the natural environment.

Mars while pining for the lush green fields of his native France—though note that even he remains enamored with and attuned to the details of planetary landscapes; he simply does not prefer the Martian version.²⁹² Thus the politics of the novels play out almost entirely within a narrow region that, in the topical matrix provided by *BE*, exists wholly within the Harmony-Purity axis. As discussed in the previous chapter, the novel's ultimate Harmonal-Purist is Zo Boone, the genetic and ideological great-granddaughter of Hiroko's areoformation and John Boone's piecemeal borrowings from past human cultures. Robinson often presents Zo as a kind of culmination of the utopian project to build a new Martian human, a Nietzschean *übermensch* whose name recalls Zarathustra. Thus, Robinson's new Martian humans are Harmony-Purity hybrids, taking inspiration from both the rich traditions of Earth and alien landscape of Mars to produce a utopian freedom represented by the free play of purely aesthetic flight in the low Martian gravity.

Though Zo's Harmony-Purity fusion is clearly represented as a desirable goal, the meta-utopia of Robinson's Mars does make room for other forms of life, or at least other positions on the Purity-Harmony axis. However, the novels give almost no consideration at all to the Supremacy axis, which is to say there is little consideration of transhumanism as a topic. While the development of advanced future technologies are discussed in some detail, these are always technologies for shaping and manipulating the external environment, never for fusing with the human form itself—on Robinson's Mars only Martian rocks, soil, and bacteria are appropriate candidates for hybridization with humans.²⁹³ While the Martian colonists and their offspring make use of AI and advanced planet-spanning communication networks, these remain fully external to

²⁹² Robinson, *Red Mars*, 207.

²⁹³ *Blue Mars* does briefly discuss genetic treatments that allow humans to function at lower oxygen and higher carbon dioxide levels. However, in the Mars trilogy such efforts effect only minor changes and are always mentioned in the context of meeting the terraforming effort halfway. Thus, they are a nod towards pantropy/harmony rather than transhumanism/supremacy.

the human body and have little influence on the characters or the plot. It is notable that in a work that pays such careful attention to the details of how the physical planetary environment can influence the physical, cultural and political being of humans over centuries, that there is less description of adaptation to, for instance, wireless communication technology, than we have already experienced in lived reality since the novels' publication in the mid-1990s. Though Robinson's Martians eventually have access to a planet-wide communication network, it is predominantly used as a pragmatic aid for exploring the planet rather than for pure electronic entertainment. One might easily imagine that the Michel Duvals of the red planet, unable to walk freely on a green planet, would retreat into a virtually simulated "Second Earth," but there is no hint of this in the Mars Trilogy.

Thus reading the Mars Trilogy and *BE* against each other reveals certain strengths and weaknesses of each. The Trilogy is perhaps the most thorough and detailed application of the planetary topics, putting the attempt to imagine human life on Mars through an entire series of rigorous planetary questions often glossed over or ignored by *BE*. Yet it achieves this level of detail by a narrowness of focus, zooming in exclusively on a particular range of possible responses within what *BE* calls the Harmony-Purity axis. In contrast, *BE* offers a broader range of imagined speculative radical adaptations, while unfortunately making only a mediocre use of the planetary topics. This yields a mixed review: in *BE* there is a compelling organization of the topical space of cultural invention, but the mediocre implementation of the planetary topics means that there is nothing much of interest to adapt to. In this vein, one might also raise the question of how integral the affinity system is to the experience of playing the game: do the results of developing a given affinity amount to merely a choice between differently colored representational fluff material, or is there a significant and provocative difference in the style of engagement with the game's

fictional planet? Results here are also somewhat mixed. A Harmony playstyle encourages the player to remain friendly with and make mutually beneficial use of the alien lifeforms, as well as to tolerate and eventually thrive in the formerly dangerous miasma, while Supremacy encourages use of space-based orbital units to achieve mobility across the entire surface of the planet. While these general strategic advantages differ from each other in ways that seem to bear some connection to the general ideology which they purport to represent, too often the individual buildings and bonuses available to each affinity seem arbitrary and do not do enough to encourage unique ways of interacting with the game map.

4.7 Synthetic and Combinatorial Speculative Radicalisms, or Reason and the Imagination for the “Good Anthropocene”

For many theorists of the Anthropocene, the dominant problem of our times is how to productively cognize problems at a scale far beyond ordinary human sensory experience. Public skepticism of AGW has been aided by the impossibility of detecting the phenomenon without a global network of instruments and statistical techniques, as one relying on sensory inputs alone can always claim that the evidence of a single cold day disproves evidence of a warming planet. Yet opinions differ on what sort of “good” planetary thinking should be encouraged as an antidote to our current predicament. In many ways, these recent arguments recapitulate older debates over the roles taken by reason and the imagination in human cognition.

A series of thinkers has challenged the primacy of reason in theorizing a solution to the problems of the Anthropocene, effectively reversing the binary and suggesting that imagination should be given preferred status. Zach Horton argues that enlightenment representational

technologies such as zoom aesthetics and the universal overview, must be excised from efforts to think solutions to AGW because such technologies played a role in creating the conditions of the Anthropocene to begin with.²⁹⁴ Horton's solution is to eschew attempts to mediate for the human phenomena at inhuman scales, instead championing writing techniques that call attention to their very incommensurability. Timothy Morton makes a similar argument, but locates our original sin much farther back in time, indicting not enlightenment representational technologies but rather Mesopotamian "agrilogistic" farming practices.²⁹⁵ Morton's various proposed alternative paradigms also minimize the role of reason and elevate the imagination and the mystical, including calls to envision ourselves as part of an undifferentiated "mesh" including all living and non-living things.²⁹⁶ Finally, as described in the previous chapter, Zylinska and Pilsch eschew reason's attempts to map and comprehend objections at the edges of human cognition and perception, opting instead for a gnostic obscurantism.

Yet when the time comes to articulate solutions that recommend actual practices, these critiques of reason come up short. In the cases where actual solutions are proposed, they sound surprisingly similar to the previously maligned work of scientific reason. As Timothy Morton notes, agroecological farming practices that incorporate local biodiversity into the workings of farms can avoid a portion of the metabolic rift produced by the type of chemical-intensive, monoculture he rightly decries.²⁹⁷ However, in order to prove this claim, Morton must make reference to the same scientific rationalism he purports to challenge, citing a number of agroecological studies. There is no reason to conclude, as Morton does, that silvopasture or other

²⁹⁴ Zach Horton, "Composing a Cosmic View, 37.

²⁹⁵ Timothy Morton, *Dark Ecology* (New York: Columbia University Press, 2016), 6.

²⁹⁶ Timothy Morton, *The Ecological Thought* (Cambridge: Harvard University Press, 2010), 29

²⁹⁷ Timothy Morton, *Dark Ecology*, 114.

means of blurring the line between farm and wilderness represent the overturning of the efficiency-maximizing agrilogistic mindset; on the contrary such “sustainable” practices merely aim to achieve such efficiencies on a longer timescale and by embracing a greater number of variables.

Horton’s solution calls for writing practices that index only the fact that a scalar shift has taken place, while refusing to represent any of the qualities or entailments of such a shift. His discussion of Boeke’s *Cosmic View* is illustrative here. When flipping the page of the book from the scale of an individual girl to the scale of The Netherlands, the book’s assertion that the girl remains “in the picture” serves only to make the point of the complete incommensurability of accurately representing detail at different scales. As Horton describes:

Here, Boeke is asserting that the girl is in the picture even though we can’t see her. This is a radical claim, of which we can only make sense in relation to the dynamics of resolution and the scalar relationship between two surfaces. The ink droplets on this page cannot resolve the girl because the amount of detail that they can register in a given area of paper is less than that required to code any recognizable detail of the girl into the fibers of the paper, given this field of view or medial scalar ratio, nonetheless, the girl continues to exist on the surface described by the book. She is in the picture by dint of the retentive capacity of the reader’s mind.²⁹⁸

Horton is suggesting that the girl can only remain “in the picture” by the work of the imagination. Yet on closer examination, what *Cosmic View* actually achieves is instead a rediscovery of the supremacy of reason as theorized by the Kantian quantitative sublime. What fails in a massive scalar shift is not reason but the imagination; while it is impossible to simultaneously hold an image of the girl and The Netherlands (or the cosmos) in our minds, reason has no trouble calculating and quantifying the precise difference of scale numerically. Surprisingly, in this instance *Cosmic View* turns out to be not an implicit critique of reason consistent with Horton’s

²⁹⁸ Zach Horton, “Composing a Cosmic View,” 53.

anti-enlightenment views, but rather of mediated attempts to simplify scale for the imagination. Yet in other cases, Horton seems to endorse practices associated with the work of the imagination such as medieval alchemy and romantic poetry.

Bruno Latour provides a more nuanced critique of the aesthetics of zoom; similarly his “compositionist” codicil to modernism is to be preferred to the antagonistic anti-modernism of Morton and Horton.²⁹⁹ The most significant fact obscured by the continuity of the zoom effect is not an all-encompassing mystic ontological “mesh,” but rather the immense amount of human and nonhuman labor that is required to mediate zoom. As Latour observes, the continuous zoom effect observable by zooming in and out while perusing amalgamated representations such as Google Earth is in fact not a continuum but a montage, produced by accessing different data sets produced by different instruments and different fields of expertise.³⁰⁰ Problems arise because there are always more possible connections between different fields than any single montage or data projection can illustrate.³⁰¹ This recommends not a retreat from reason and the visualization of data, but an intensification of it, a continuous search for ever greater knowledge of connectivity that is consistent with Latour’s compositionist orientation. There should not be fewer maps, representations, and overviews drawn but more, in order to illustrate the multitude of different ways that phenomena are connected.

Unlike Morton and Horton who oppose modernism with an imagined pre-modern harmony, Latour suggests that there is no such harmony to be found. His compositionist manifesto aims not to retreat from modernism’s attempt to subject all of nature to description by reason, but

²⁹⁹ Latour would be the first to acknowledge that “modernity” is a fraught and ill defined concept. By “modernism” Latour means the belief in the project of emancipation from and mastery over nature.

³⁰⁰ Bruno Latour, “Anti-Zoom,” in *Scale in Literature and Culture, Geocriticism and Spatial Literary Studies*, ed. Michael Clarke and David Wittenberg (Palgrave-Macmillan, 2017), 94.

³⁰¹ Ibid, 99.

to “modernize modernism” by recognizing that this task will only *increase* the scale of human entanglement with the natural world.³⁰² When faced with the externalities and unintended consequences of the Anthropocene, the modernist responds initially with denial, as unintended consequences contradict the narrative of emancipation from nature. The anti-modernists react with barely-concealed *schadenfreude* to discover that the hated modernists will finally receive their comeuppance, but offer no solutions outside of an impoverished mysticism. Only Latour’s compositionist reacts confidently, understanding that “unintended consequences are quite normal—indeed, the most expected things on Earth.”³⁰³ This requires embracing what Robinson and others have called “the good Anthropocene,” in which the power of human technology is directed toward good stewardship of Earth’s biosphere.³⁰⁴ There is no immutable, simplistic principle upon which one can rely, rather every choice requires context and compromise.³⁰⁵ As Morton and Horton seem to forget, the “Anthropocene” is not in itself a dystopia from which we must seek to escape, it is merely names a period of unprecedented human leverage over the reproduction of the conditions of our existence, for good or ill.

But what does it mean to be a compositionist outside of Latour’s manifesto or Robinson’s novels, and what kind of habits and practices encourage the compositionist outlook? I argue that at its best, the *Civ* series encourages a compositionist view. The negative critical judgment that the

³⁰² Bruno Latour, “Love your monsters: Why we must care for our technologies as we do for our children,” *Breakthrough Journal* no. 2, (2014). <https://www.nextnature.net/2014/09/love-your-monsters/>

³⁰³ Ibid.

³⁰⁴ Kim Stanley Robinson, “There is no Planet B,” *Sierra*, January/February 2019, <https://www.sierraclub.org/sierra/2019-1-january-february/feature/there-no-planet-b-kim-stanley-robinson>

³⁰⁵ Adam Rogers and Kim Stanley Robinson, “The Climate-Obsessed Sci-Fi Genius of Kim Stanley Robinson,” *Wired*, 2010, <https://www.wired.com/story/kim-stanley-robinson-red-moon/> This interview narrates Robinson’s efforts to eradicate Purple Nutsedge from his plot within his ecologically-minded intentional community. Despite the standing policy of organic-only farming, Robinson advocates that an exception be made against the Nutsedge, whose resurgence is itself an unintended consequence of the commune’s eco-friendly policies. While application of the harsher chemicals will have ecological impacts, it may be preferable to being overrun by the intractable weed. Readers of Robinson’s Mars fiction will note a striking similarity to his short story, “Enough is as Good as a Feast.” in *The Martians*. (New York: Bantam, 1999), 343-351.

series recapitulates a narrative of increasing mastery over nature, or what Latour pejoratively calls modernism, is in fact most evident in the series' noted design failures such as lumberjacking and ICS; transcendent formulae that emancipate the player from the ongoing process of context-laden decision. If the critics were correct, the discovery of such successful meta-strategies would represent the apogee of the game's design, or the transcendence of human reason over all local context; in fact, such strategies are viewed negatively by players as cheap exploits or design flaws in need of correction. Instead, when *Civ* is at its best, the player's macro-scale grand strategy must continually be reevaluated in light of changing local contexts as represented by planetary terrain types. Thus, *Civ* is not a game that thrives upon unquestioned supremacy of reason; rather it is a game in which reason and the imagination must coexist together.

Navigating the planetary topics in *Civ* differs from Robinson's Mars Trilogy, and is primarily an example of what can be called the combinatorial art of the planetary topics. Any given randomized planet map will produce a unique combination of local and global terrain types and layouts for the player to navigate, yet the individual terrain tiles and their potential outputs remain the same from game to game. From the perspective of the player, the art of gameplay lies in skillfully making a series of choices that will both succeed in the game, and satisfy the player's interest. This process necessarily involves both constraints and freedom, as there is no opportunity to invent a wholly terrain improvement or method of exploiting a particular terrain, but there is near infinite variable in the number of combinations to choose from.

If *Civ* evidences a combinatorial planetary topics, the art of the topics in Robinson's Mars Trilogy should be understood as synthetic, as it imagines the ongoing synthesis of the political, cultural, and planetary into a coherent totality only imaginable in the narrative form. Robinson's neologism for this process is areoformation, in which humans change the surface and terrain of

Mars, but Mars also imposes changes on human culture. The previous chapter offers numerous examples of this synthetic art of the planetary topics, but the political compromise between Red and Green factions over atmospheric pressure, mediated by Mars's elevation change stands out as an apt synecdoche: a political struggle imaginable only as emerging as a consequence of lives lived on an alien planet, tenuously solved by an artful management of the affordances of that same planet. Such a use of the synthetic planetary topics addresses itself the type of critique levied by Heidegger at Lenin's mathematical or additive "plus" in theorizing that Communism equals Soviet power *plus* the electrification of Russia, suggesting that they have merely jammed two elements together, and have not thought through the consequences of a proper synthesis of humans and technology into a lifeworld.³⁰⁶ Robinson's areoformation with the planetary topics makes the additive "plus" into a synthetic "and." If the critical responses to the Mars Trilogy and *Civ* are any guide, then the bulk of critical opinion seems to follow the Heideggarian view by looking favorably upon the synthetic, but unfavorably upon the combinatorial uses of the planetary topics. This is because while the synthetic is rightly seen as inventive and generative, perhaps taking us somewhere new, the combinatorial is thought to be the mere repetition of a quantitative exercise that always ends up at roughly the same place again. However, as I hope I have shown, this simple binary is to be resisted, and the combinatorial approach of games like *Civ* may have more to offer than the critics suppose.

There are virtues to be gained from practicing the combinatorial art of the planetary topics, especially in concert with and in preparation for the synthetic. First, the combinatorial encourages tinkering and amateur experimentation; aided by the restart ability it is possible to experiment with

³⁰⁶ Martin Heidegger, *Parmenides*. trans Andre Schuwer And Richard Rojcewicz (Bloomington: Indiana University Press, 1992), 86.

extreme, suboptimal, or unusual strategies just to see what kind of civilization they will produce. As Jameson has argued regarding SF and utopian literature, the amateur spirit often pejoratively associated with those traditions is actually a great strength and source of potential invention.³⁰⁷ The literariness and virtuosity of Robinson's Mars Trilogy is itself scaffolded by a thousand dilettantish, experimental terraforming stories by various lesser-known authors.³⁰⁸ So it is with *Civ*: it is not that playing the game itself might spontaneously produce a brilliant solution to AGW or a revolutionary understanding of history, but rather that experimenting, tinkering and often using the game's topics founds an interesting (in Stengers's sense) public conversation on these subjects.

Second, the art of the combinatorial planetary topics is uniquely suited to address the pervasive dearth of representations of upscaling of social and political practices. By upscaling, I mean the mass replication of a locally successful practice and its implementation at ever larger scales. Plausible presentations of upscaling are scarce in both narrative media, which tends to fetishize singular solutions that conclude the linear narrative, and in the practice of critique itself, which, when it deigns to offer any solutions at all, tends to gravitate towards exemplars with a sample size of one. After the identification of the one good artifact surviving amidst a sea of problematic practices ideologies, rarely is there a moment dedicated to speculation of how such an artifact could be reproduced or upscaled. Even Robinson's Trilogy, which I have praised for its copiousness and sense of the massive scale of the terraforming effort, does not always convey the sense of upscaling such an effort would entail. Though we are treated to detailed descriptions of a massive engineering effort such as the "moholes," or the careful care of the land inherent in

³⁰⁷ Jameson, *Archeologies of the Future* 270, 308.

³⁰⁸ Robinson does work to pay tribute where possible: the various cities and other locations he names on Mars are named after preceding authors.

Nirgal's ecopoetics, such descriptions occupy a chapter of the novels each; there is no repetition to convey the sense of repeating the process over, and over, and over again. In a game of *Civ VI*, it is not enough that a player hoping to switch their civilization to renewable energy sources researches the appropriate technology and builds a windmill; rather they must commit to blanketing the terrain with scores of them. Of course, even this level of repetition merely synecdochizes what such a real-life effort would entail, but the game represents a continued entanglement in an ongoing multi-generational project in a way other media fail to capture.

There is also a particular value in reading the synthetic and combinatorial approaches to the planetary topics alongside each other. In chapter one, I have glossed Lukács's argument that narration is politically superior to description as it is capable of rendering the dynamism of a mode of production as it grinds down human beings into its own image—human beings that then go on to shape the evolution of the mode of production. When the planetary is also added to this process, the result, in the hands of a talented author, is the synthetic art of the planetary topics as displayed in Robinson's trilogy. Per Lukács, the political virtue of narration over flat description is that it foregrounds conflict, and renders a synthetic lifeworld as something that is always a going concern or a work in progress. The Mars Trilogy is exemplary here, as the reader is treated to a detailed account of how ways of life and political factions rise, come into conflict, and recede in concert with the changing face of the planet. From the point of view of characters such as Sax Russell, we observe how individual human beings both constitute and are constituted by the larger struggle with and against both opposing political forces and planetary nature.

If synthetic narration foregrounds conflict, combinatorial simulation foregrounds imbroglia, in the Latourian sense of an ongoing entanglement between multiple seemingly

unrelated phenomena typically studied by disparate disciplines.³⁰⁹ The effort to deploy windmills in *Civ* is likely to become entangled in a complex network of seemingly unrelated problems: natural disasters that put a premium on land use for food, inadequate revenue or production, the citizens' demands for amenities, or even military conflict. The particular combination of features involved is unpredictable and will always be unique to a particular play-through of the game, making imbroglio something that is difficult or impossible for conventional narrative to represent, because in a conventional narrative, even random or chance events are read as pregnant with symbolic or didactic meaning. When Nirgal's careful and loving ecopoetics of the land is buried by a dust storm, this cannot help but be read not merely as an occurrence of a chance weather event, but also a call for the character to end his self-imposed isolation and engage in political life once again. In contrast, an instance of failure or setback in the course of approaching a particular imbroglio in a *Civ* game is not read as an indictment of that strategy; it is merely one data point among many. The experience of playing a simulation, or remaining within an imbroglio, avoids the temptation to settle for either end of the tired Promethean/Icarian binary that purports to offer easy moral answers for humans' interactions with the natural world.

What I have called speculative radicalism, then, requires both a synthetic and combinatorial dimension. The combinatorial is a necessary supplement to imagine the synthetic, if one is to imagine the potential infinity of entanglements involved in implementing and upscaling any particular course of action. However, the synthetic is a necessary supplement to the combinatorial, as it puts some narrative flesh on the infrastructural bones that the combinatorial speculation has generated. In the non-fictional Anthropocene, humans will have to address planetary imbroglios

³⁰⁹ Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1993), 2.

with both combinatorial and synthetic thought; or with both reason and the imagination. Thus, it is useful to consider how various media, from terraforming novels to games, can encourage different forms of planetary thinking.

5.0 “You’ve Never Even Seen Mars”: The Planetary Topics against Archetypal Criticism

In the previous two chapters I have made the case that the nuanced application of the planetary topics is a tool of invention that can contribute to the goal of speculative radicalism. In this chapter I ask, what is the other of the planetary topics, and what are the stakes of adopting one method of invention and criticism versus another? I argue that, if the planetary topics has an “other” or opposite, something that it stands clearly against, that other is invention and criticism by archetype. With reference to the work of Robert Zubrin, I show that the other of the planetary topics is archetype-driven invention and criticism. The repetition of archetypes, such as Zubrin’s favorite, the (American) frontier, has been shown by many critics to reinscribe problematic assumptions and ideologies from the past. While I generally concur with this analysis, I also argue here that archetypal criticism is similarly problematic, in that it perpetuates Left melancholia and contributes to a dampening of invention.

Zubrin’s work participates in a genre of speculative science, or ostensibly non-fictional works promoting or imagining a techno-scientific endeavor that is as yet only imaginary (in this case, the inhabitation and terraforming of Mars). Zubrin is a credentialled scientist, and the works that I examine merge science and speculation under the ethos of scientific rigor. While the works of Zubrin and other speculative scientists contain equations and invoke both scientific law and fact, this argumentation alone cannot fully justify or realize their visions. Something else is required to make such seemingly far off possibilities seem both desirable and accessible to audiences, to fill in the gaps in imagination such that it seems that fully realized, flesh-and-blood humans rather than scientific automatons will be motivated to carry out these projects. Orators like Zubrin can fill in these gaps in either of two ways: through reliance on archetypal repetition, or

through the planetary topics. Although Zubrin capably uses the planetary topics when addressing purely technical problems, he often leaves them aside when imagining the psychology and culture of his would-be Martian pioneers in favor of his adherence to an American frontier archetype. This limits the efficacy of Zubrin's rhetoric, and ultimately leaves his Mars advocacy trapped in and endless cycle of relitigating old ideological disputes against its critics rather than exploring the new.

My decision to term Zubrin's frontier-infused invention as archetypal is perhaps somewhat idiosyncratic and deserving of justification. The term "archetype" conjures the specters of Carl Jung and Joseph Campbell along with the idea that the archetypes themselves are universal across human experience, even if expressed differently across various localities. I want to make clear that by calling Zubrin's method archetypal, I am not endorsing this theory, but rather suggesting that it approximates Zubrin's belief. The term archetype most closely captures the pattern of his frontier argumentation for three important reasons: first, the analogical comparison is always presumed total rather than partial, second, deep familiarity and attachment to the source material is relied upon, and third, repetition is expected. Moreover, as I hope to show, many of Zubrin's critics implicitly give themselves over to an archetypal view, content to endlessly problematize the eternal recurrence of the archetype rather than contesting its plausibility by introducing alternatives.

5.1 A Close Reading of Robert Zubrin's *A Case for Mars*

“The planet Mars is where the action will be in the next century.”³¹⁰ So writes Arthur C. Clarke in the foreword to Robert Zubrin's 1996 manifesto, *The Case for Mars: The Plan to Settle the Red Planet and Why We Must*. So hopes Dr. Zubrin, who holds MS degrees in nuclear engineering and aerospace engineering, and a doctorate in nuclear engineering, and has become one of the foremost advocates arguing for the commencement of immediate efforts toward the exploration, colonization, and terraforming of the planet Mars. During his career as a public Mars advocate, Zubrin co-authored a plan (“Mars Direct”) which revolutionized the paradigm for the human exploration of Mars, appeared before a United States Senate subcommittee to advocate Mars exploration, has written several books and countless articles, and founded the Mars Society, of which he has served as the unelected president since its founding in 1998. He also holds several US patents and wrote a five-act play about Benedict Arnold. His relentless enthusiasm for Mars exploration combined with an impressive energy for publishing both academic and popular works have cemented his place as a central figure of Mars-related speculative scientific discourses.

A close reading of *The Case for Mars* is an ideal case study for observing the confrontation between the planetary topics and its other. As I will show, in the more scientifically rigorous portion of the book, Zubrin addresses the planetary topics point by point in an effort to prove that human habitation on Mars is possible and desirable. Zubrin uses the planetary topics to craft detailed arguments and proposals which not only argue that human habitation, transit and communication on Mars are possible, but also begins to shape expectations of what these activities might look like. However, in the text's more expansive and philosophical moments, Zubrin shifts

³¹⁰ Arthur C. Clarke, foreword for Robert Zubrin, *The Case for Mars* (New York: Simon and Schuster, 2012), ix

away from speculation based in the planetary topics, instead adopting the American or western frontier as a master trope. Ultimately, Zubrin's use of frontier imagery comes to predominate his entire speculative account, and is used to justify a host of assumptions about human habitation on Mars that are not otherwise rigorously argued for. I call this rhetorical strategy archetypal invention, and counterpose it to invention using the planetary topics.

Both patterns of invention, the topical and the archetypal, are strategies of rhetorical invention that simultaneously shape a particular vision for human habitation on Mars and also attempt to persuade various interlocutors (fellow scientists, government officials, the public) to accept that vision. While the romance and nostalgia of the frontier archetype, and archetypal invention more broadly, may have its rhetorical uses, I argue that it also has serious shortcomings which should be closely examined. Often invention by archetype is both too narrow and too broad, simultaneously smuggling in unwarranted assumptions and attitudes while also failing to sufficiently tailor itself to specific local conditions. In contrast, invention using the planetary topics gives rise to a specific range of possibilities: expansive beyond the influence archetypes and stock images from human history, but also tightly constrained by the contours of the local environment.

Of course, Zubrin's heavy reliance on the frontier archetype has already been subjected to critique for selectively romanticizing the experience of the historical American frontier, ignoring its violence (particularly toward indigenous peoples), and for threatening to export such colonial and imperialist ideologies to outer space.³¹¹ Though Zubrin's use of the frontier archetype is perhaps uniquely brazen, similar critiques have targeted the entire genre of speculation about

³¹¹ Catherine Gouge. "The Great storefront of American nationalism: Narratives of Mars and the outerspatial frontier." *Americana: The Journal of American Popular Culture (1900-present)* 1, no. 2 (2002); James S.J. Schwartz, "Myth-free space advocacy Part II: the myth of the space frontier." *Astropolitics* 15, no. 2 (2017): 167-184; Oliver Morton, *Mapping Mars: Science, imagination, and the birth of a world*. (New York: Picador, 2002), 269-270.

human habitation in space for reproducing a frontier ideology. However, as I will argue, critique that is primarily directed against an archetype or master metaphor, as is the case with ideological critique of the frontier archetype, often suffers from the same unjustified assumptions and lack of nuance committed by the act of archetypal invention in the first place. Whether by importing their own unannounced counter-metaphors, or allowing a romanticized ethos of critique itself stand as a kind of negative archetypal space, such critiques neither correct nor contribute to speculative thought, but merely reproduce the critic's own imported ideological framework. Instead, I propose a school of criticism that evaluates how thoroughly and creatively a speculative work makes use of the planetary topics.

5.1.1 Zubrin's Topical Invention

Throughout his Mars advocacy in general, and *The Case for Mars* in particular, Zubrin's overarching goal to convince various audiences to press forward with initiatives to explore, live on, and ultimately terraform Mars. His task is clearly and self-consciously rhetorical in nature, as it is not enough for him to prove the bare scientific possibility of human life on Mars (although this is of course a major component), he must also make it appear somehow interesting and desirable to various audiences. One of the techniques Zubrin uses to make the case for Mars is a point-by-point accounting of how he proposes that early astronauts and colonists might overcome the various problems posed by the Martian environment. Though Zubrin approaches them as problems to be solved, this approach is essentially identical to the use of the planetary topics for invention charted in chapter two of this dissertation. The planetary topics are Zubrin's planetary problems, but viewed instead as opportunities for rhetorical invention. In the remainder of this

section, I give an overview of Zubrin's use of the planetary topics in *The Case for Mars* and compare and contrast it with Robinson's use of the topics in the Mars Trilogy.

It is perhaps unsurprising that, as in Robinson's Mars Trilogy, one of the first planetary topics Zubrin addresses is water, and in particular its extreme scarcity on Mars. He approvingly quotes astronomer Percival Lowell (the erroneous discoverer of Martian "canals"), agreeing that, for the Martian mind, "how to procure water enough to support life would be the greatest communal problem of the day."³¹² Zubrin observes that while early exploratory missions could bring their own water, or at least the light hydrogen component to combine with oxygen taken from Mars's abundant carbon dioxide, the need to locate or produce indigenous water would soon become the prime requirement determining the potential locations of settlements. Human settlement would likely begin in the northern hemisphere, where liquid water is thought to be more easily found and accessed. Zubrin goes on to suggest additional methods of obtaining water that do not require the good fortune of finding it in liquid, subsurface form.

Zubrin also addresses the planetary topic of the magnetosphere, specifically the problems and opportunities presented by Mars's lack of this protective, magnetic barrier to solar and cosmic radiation. In combination with the planetary topic of regolith, he proposes that the first Martian settlers would create settlements in underground Roman-style vaults constructed of readily available locally-sourced Martian brick. He calculates that a 2.5 meter layer of regolith on top of the vaults would be enough to reduce radiation in the base to familiar terrestrial levels.³¹³ Interestingly, these Roman style "barrel vaults" are the same solution used by Kim Stanley Robinson's fictional first hundred colonists for the initial settlement of Underhill. Zubrin goes on

³¹² Percival Lowell, *Mars*. (Boston: Houghton, Mifflin & co., 1895), 129, quoted in Zubrin, 124.

³¹³ Zubrin, 118.

to use the magnetosphere topos to ask how the initial navigation and exploration of the planet might be possible without the use of a compass, a peculiarly Terran instrument which of course requires a strong and reliable magnetosphere. GPS-style satellites would of course do the trick, but before a network of these is available, Zubrin proposes celestial navigation with the aid of a sextant. In fact, he notes that celestial navigation will be far more useful and reliable on Mars than it ever was on Earth due to the far greater percentage of nights of clear visibility on the dry planet. As a bonus, Mars has two fast-moving, near-orbit natural satellites (its moons Phobos and Deimos) that can be used as regular longitude beacons, making Mars ideally suited to accurate celestial navigation by sight.

Engaging with the planetary topic of atmosphere assists Zubrin with what has become his signature policy proposal, the Mars Direct plan for the exploration of the red planet. As I will elaborate upon in the following section, Zubrin conceived of Mars Direct as a counter to NASA's never-implemented 1989 Space Exploration Initiative, which proposed to explore Mars with the help of a single, massive spacecraft built in low Earth orbit with a similarly massive pricetag. After the plan failed due to high cost and lack of political will, Zubrin, then an engineer at Martin Marietta (now Lockheed Martin) proposed a low cost option for exploring Mars based on smaller spacecraft and requiring in-situ resource utilization for the return trip for considerable savings in the amount of mass that would need to be transported by rocket. Zubrin relies upon atmospheric pressure measurements from the Viking missions to offer a series of chemical reactions by which carbon dioxide to fuel this reaction can be "acquired 'free as air' anywhere on the planet."³¹⁴ As the viability of the entire plan hinges upon the use of the Sabatier reaction to produce methane and oxygen from imported hydrogen and carbon dioxide found in the Martian environment, it is not a

³¹⁴ Ibid, 102.

stretch to say that Zubrin's use of the topic of atmosphere is central to shaping his entire argument for how Mars is to be explored.

Reading Zubrin's use of the planetary topics alongside Robinson's reveals both core similarities but also important differences. While both uses serve to shape and constrain the argument or vision of human habitation on Mars, Zubrin's speculation using the topics generally does not extend beyond the immediate resolution of technical or scientific problems. For instance, he is content to argue that human life is biomedically possible inside the underground brick vaults, without speculating at all as to the potential psychological and cultural changes such conditions might create. Robinson, in contrast, uses close engagement with the topics as a springboard to speculate about how human cultural innovations will also have to evolve into a new Martian variant, and the details of these adaptations become the raw material for the worldbuilding achieved in the novels.

In an exception which tends to prove the rule, Zubrin does launch into more extensive speculation over the potential response to the planetary topic of celestial cycles and its impact on timekeeping. Instead of Robinson's solution of the Martian "timeslip" which accounts for the difference in the length of a solar day on each planet, Zubrin proposes that Martian hours, minutes, and seconds would all simply be slightly longer than their Terran counterparts. Although, he concedes, "it is unfortunate that such a clock annoys physicists who regard the terrestrial second as the sacrosanct unit of physical time," he nevertheless boldly proclaims that "the terrestrial second is no more useful a unit of timekeeping than the terrestrial day, and must yield to its Martian counterpart."³¹⁵ One wonders if Zubrin, in fact, takes some pleasure at the notion of annoying terrestrial physicists. Continuing in this vein, he proposes that not only Mars, but Earth as well,

³¹⁵ Ibid, 111.

should dispense with traditional calendric systems such as the Julian/Gregorian calendar and instead adopt a common, systemwide heliocentric zodiac calendar.

Other than the odd compulsion to provoke Earth's physicists and timekeepers, all of Zubrin's topical invention is conducted with a rhetorical eye to making the exploration and settlement of Mars appear desirable and easily within the grasp of the contemporary public's imagination. In service of his goal, his rhetorical strategy is to stop the course of topical speculation after he has solved or addressed the most obvious and immediate problems it presents. Rather than take the next step of extrapolation outward from the topics, or speculating upon the possible human cultural impacts of life on such a world, Zubrin instead makes a rapid transition to the next topic's technical problems. However, this does not mean that Zubrin's Mars is lacking in the imaginary content supplied by an overarching cultural narrative. Rather than being created from the bottom up by topical invention, Zubrin's narrative comes from the top down in the form of the cultural archetype of the frontier.

5.1.2 Zubrin's Frontier Archetype

Although Zubrin is an engineer by trade, he is also a savvy enough writer and orator to recognize that offering solutions to technical problems alone will not suffice to motivate either the public or their political leaders to undertake the risks or the expense necessary to explore Mars. He understands that he must appeal to the imagination of his audience, asking them to fill in the gaps of his otherwise predominantly technical account so that they might envision a lifeworld on Mars that is both coherent and compelling, and achieves this by relying heavily upon the archetype of the American frontier as a ready stockpile of imagery from which his audiences are asked to draw.

One of the recurring motifs of Zubrin's frontier-infused rhetoric is the assumption that space exploration is inherently bold, audacious, and dangerous, and its public persona should seek to amplify, rather than mitigate those associations. This is a familiar strategy in American space advocacy, and is perhaps an echo of John F. Kennedy's famed oratorical antithesis: "we choose to go to the moon and do the other things, not because they are easy, but because they are hard." As a foil for this daring position, Zubrin blames overengineering and excessive caution for the failure of the ill-fated NASA plan for Mars exploration formulated as a part of George H.W. Bush's 1989 Space Exploration Initiative. At an estimated cost of \$450 billion, this plan called for a massive spaceship to be constructed in low-Earth orbit.³¹⁶ Despite the expense, the future Mars mission would have astronauts on the ground for only a matter of hours, amounting to what Zubrin saw as little more than a "flag and footprints operation."³¹⁷ Labelled a "Battlestar Galactica" by its detractors (after the massive science fictional starship which becomes a complete, relatively comfortable second home for its civilian population) the plan was never implemented, due to its massive pricetag and extreme complexity. The result was an abandonment of NASA manned space exploration missions for the foreseeable future in favor of cheaper robotic missions.

It was against the backdrop of the failure of the SEI that Zubrin formulated the Mars Direct plan along with fellow engineer David Baker. In interviews, Zubrin relates a personal narrative of himself as a young boy fascinated by the success of the American space program:

I grew up during the 60s, when it was Mercury, it was Gemini, it was Apollo. Every month NASA was doing something more impressive than in the month before. We were gonna be on the moon by 1970, Mars by 1980, Saturn by 1990, Alpha Centauri by the year 2000. We were moving out, and I wanted to be part of that. And so I got myself a scientific education. But then, in the early 70's, this all collapsed.³¹⁸

³¹⁶ Robert Markley, *Dying Planet: Mars in Science and the Imagination* (Durham: Duke University Press, 2005), 353.

³¹⁷ Zubrin, quoted in Scott Gil, *The Mars Underground*. (Documentary, Orange Dot Entertainment, 2007).

³¹⁸ Ibid.

Zubrin goes on to tell a story of NASA's loss of vision: bureaucratization, complacency, lack of a "destination," taken over by a play-it-safe attitude and pork-barrel politics—in short, the diseases of civilization, antithetical to Zubrin's conception of the frontier spirit. For Zubrin, the SEI plan was an exemplar of all of these problems, as he claimed that it was made deliberately overcomplicated as a political move to ensure that everyone's research was incorporated and made mission critical. According to Zubrin, this was "the exact opposite of the correct way to do engineering."³¹⁹

In contrast to the expensive and redundant SEI mega-engineering Mars Direct would "use local resources, travel light, and live off the land."³²⁰ The critical element of invention performed by Zubrin lies in the suggestion that a manned Mars mission need not carry everything it needs for long-term survival or a complete round-trip journey. The plan occurs in two launch phases, both direct from Earth. The first launch would transport an unmanned Earth Return Vehicle carrying a supply of hydrogen to Mars, which would be combined robotically with the Martian atmosphere's native carbon dioxide to produce the necessary fuel for a return trip *in situ*. Water and breathable air could also be pre-manufactured from elements in the Martian atmosphere. The second launch would carry the astronauts, who would find their return fuel waiting for them on the surface. The return trip would also require much less fuel overall because the astronauts would also remain on Mars for close to 500 days while waiting for the return of the optimal launch window, when Earth's orbit catches up to Mars putting the planets in closer proximity. This would have the added advantage of allowing the crew time to attempt to live on the surface of Mars for an extended period of time while exploring and performing experiments. Subsequent launches would send

³¹⁹ Ibid.

³²⁰ Ibid.

additional Earth return vehicles and additional explorers, perhaps ultimately leading to the creation of a permanent habitat being built on the planet's surface.

The plan to manufacture fuel on the surface of Mars and to wait over 500 days for the optimal launch window for the return trip leads to both a massive reduction in the cost and complexity of the mission and is suggestive of the archetype of the American frontier in its injunction to “live off the land.” When one examines this plan in light of the frontier theme which runs ubiquitously through Zubrin's work, it seems plausible that the readiness-to-hand of the frontier idiom was at least partially responsible for Zubrin's bout of invention. With its low-cost, relatively decentralized approach to Mars exploration and use of technological capacity already mastered by the 1990s, Mars Direct functioned as both an implicit and explicit critique of the SEI's centralized mega-engineering. Here, the archetype of the frontier functions as a powerful rhetorical supplement to Zubrin's use of the planetary topics as described in the previous section. Frustrated by the costly and bureaucratic nature of the SEI, Zubrin turned to the frontier analogy as a productive inventional resource—just as pioneers once looked to live off the land of the American frontier as a means of escaping the encroachment of a suffocating bureaucratic civilization, so too could contemporary astronauts do so to escape NASA's growing ineptitude. In addition, the mythological dimensions of the frontier have been an important rhetorical component in popularizing Mars Direct as a low-cost alternative—Zubrin touts the capacity of astronauts to “live off the land” in his political advocacy for his plan. This rhetorical strategy has had some measure of success—though the mission plan has not been officially adopted, as an imagined paradigm for Mars Exploration, Mars Direct has almost completely replaced the vision of the SEI in both NASA planning and science fiction—for instance, the mission structure for the Mars landing depicted in

the novel and film *The Martian* is based on Mars Semi-Direct, a slightly modified mission structure derived from the Zubrin plan.

Though the Mars Direct plan has been influential, various elements within NASA have resisted it for various reasons. Zubrin attributes it to bureaucratic inertia, pork-barrel politics, and a risk-averse complacency. Opponents of the plan cited safety concerns, such as the attendant risks of spaceflight being multiplied the astronauts would be away from Earth for so much longer under Mars Direct. With the exception of the Apollo astronauts, no human has been outside of Earth's magnetosphere, and they were not outside of it for anything approaching the timeline called for by Mars Direct. Radiation from solar flares and cosmic radiation are thus two major concerns for the health and safety of any astronauts on any extended Mars mission, the risk of long-term zero or low g and the possibility of back contamination of Earth by Martian microbes are the other.

Zubrin sets up his refutation of the hazards of Mars exploration with his characteristic analogy of fifteenth-century exploration—just as ancient mapmakers warned would-be explorers away from the blank regions of unexplored maps with dragons, so too have naysayers populated space with the “dragons” of solar flares, cosmic rays, zero g, and back contamination.³²¹ He makes the calculations and estimates the total radiation dose Mars Direct astronauts would receive from solar and cosmic sources at around 50 rem. This is a high dose by Earth standards, but not prohibitive. He offers another analogical comparison—high-altitude airline pilots would receive more than half of that dose in rem over a twenty-five year career than the 50 rem a Mars Direct astronaut would absorb in two years. Though not enough of a dose to cause radiation sickness in the short term, it would represent a non-trivial, but not extreme increase in the risk of cancer within

³²¹ Zubrin, *The Case for Mars* 113.

a 30 year period, which he judges to be acceptable.³²² The “dragon” of back contamination, the risk of which he judges to be preposterous, is also refuted analogically: “I have never once heard of a person getting Dutch Elm disease, and trees don’t get colds.”³²³ He elaborates that the idea of a Martian pathogen infecting Earth life is preposterous, as even if microbes do exist there, Mars has no megaf flora and megafauna which would have coevolved as hosts. Thus, according to Zubrin’s analogy, we can be sure we have nothing to fear from any hypothetical Martian pathogens.

In *The Case for Mars* the frontier archetype is consciously invoked throughout. In addition to making the case for the hard science and the technical feasibility of Mars Direct, Zubrin invokes the necessity of a frontier as justification for beginning the colonization of Mars immediately. While Zubrin’s Mars Direct plan as outlined in *The Case for Mars* has revolutionized the state of technical and scientific planning for Mars exploration, the entire text, and especially the epilogue—“The Significance of the Martian Frontier”—is also a rhetorical and ideological gem.

Zubrin has faith in the human capacity for technological innovation—but only up to a point and only under certain conditions. While he believes that advanced space propulsion technologies such as nuclear-electric ion drives and magnetic sails are technically feasible,³²⁴ he nevertheless steadfastly advocates that we must travel to and colonize Mars *now*, with existing rocket technology:

...just as Columbus would not have traveled very far if he had held his expedition on the dock until an iron steamship or Boeing 747 was available for trans-Atlantic transport, so the first generation of Mars explorers will have to settle their hopes upon a more primitive set of technologies... Columbus crossed the Atlantic with vessels designed for Mediterranean and Atlantic coastal travel. It was only after European outposts were created in the

³²² Ibid, 120.

³²³ Zubrin, quoted in *The Mars Underground*.

³²⁴ Zubrin, *The Case for Mars*, 101.

Americas that the technology came into being to propel naval architecture from Columbus's primitive craft to three-masted caravels, to clipper ships, to ocean liners, and to airliners.³²⁵

This is typical of the “just as” analogical structure Zubrin asks his audience to accept—just as in the Earthly frontiers of the past exploration with limited technology happens first, which *then* spurs the demand for technical progress. Without the vision or daring to strike out in the present with uncertain hardware, the stimulus to innovation disappears.

Though he may have convinced many of the scientists and engineers of the feasibility of his plan through the use of the planetary topics, Zubrin realizes that politicians are his true audience. He adapts the Columbus analogy accordingly for their benefit, highlighting not the explorer but his political patrons: “People everywhere today remember the names of Ferdinand and Isabella only because they are associated with the voyage of Christopher Columbus.”³²⁶ As Zubrin crafts the rhetorical analogy, Ferdinand and Isabella are to Columbus as you, Senator, could be to the first explorers of Mars. He goes on to assert that in 500 years’ time, no one will remember any of the political topics of the day: contemporary wars and political scandals will be forgotten, and no one will care whether a President bestowed universal health care or balanced the budget. “But they will remember who first got to and settled Mars, and the nation that made it possible.”³²⁷

In Zubrin’s epilogue to *The Case for Mars*, the rigorous calculations and the diagrams making use of the planetary topics disappear, but appeals to the frontier idiom remain. He appeals directly to the famous “frontier thesis” of Frederick Jackson Turner. In an 1893 presentation to the American Historical Society, Turner presented his thesis as “The Significance of the Frontier in

³²⁵ Ibid, 101-102.

³²⁶ Ibid, 294.

³²⁷ Ibid.

American History.”³²⁸ The essence of Turner’s thesis is that it was the experience of the frontier, rather than some preexisting ideology or any other factor, that created the American national character. Crucially for Turner, the American “wilderness” frontier was essentially different in character from the “European frontier” of an advancing boundary line running through “dense populations.”³²⁹ The distance from an established social order led to the creation of a new, specifically American national character:

That coarseness and strength combined with acuteness and inquisitiveness, that practical, inventive turn of mind, quick to find expedients, that masterful grasp of material things, lacking in the artistic but powerful to effect great ends, that restless, nervous energy, that dominant individualism, working for good and for evil.³³⁰

Of course, like any good historian, Turner announced his thesis only at the end of the period it purported to describe, and the coincidence of the closing of the frontier with Turner’s paper produced an anxiety over the future of the American “national character,” still evidently felt by Zubrin over a century later.

Zubrin wholeheartedly endorses Turner’s Frontier Thesis and amplifies it, claiming that not only America, but all of “progressive humanist civilization” owes its existence to the frontier as an open space for innovation. He then asks us to follow the extension of his usual analogy—in the current era of globalized communication, transportation, and culture no place on Earth can serve the function of Turner’s frontier. Even the settlement of Antarctica or the ocean floor, while

³²⁸ Frederick Jackson Turner, “The Significance of the Frontier in American History” (1893), <https://www.learner.org/workshops/primarysources/corporations/docs/turner.html>

³²⁹ Here it becomes clear that Turner actually shows a great deal more nuance than Zubrin by at least gesturing toward the specific conditions of the American frontier. Zubrin then takes Turner’s work, erroneously supposes that the American frontier stands as a serviceable example of all frontiers, and extends it both back and forward in time simultaneously. Of course, this is atrocious historiography, and misses what should be a great opportunity for a speculative space advocate: to sift through a variety of “frontier” experiences from numerous cultures, and speculatively test them all against the planetary topics of Mars for inspiration.

³³⁰ Ibid.

perhaps “pioneering” in the requisite technical challenges do not fit the bill, being in too easy of a reach of developed cultural and administrative norms—“the cops are too close.”³³¹ Only Mars “has what it takes” in terms of physical and communicative distance to allow the free space for cultural innovation described by Turner. And unlike Earth’s moon, Zubrin claims that Mars has the natural resources required to support a nascent and largely self-sufficient technological civilization, probably hosting a diverse collection of heavy metals and certainly deuterium, which Zubrin argues would supply a nascent fission and, eventually, fusion energy economy.³³²

Strikingly, for Zubrin we must get to Mars now, before our capacity of innovation born of the last physical frontier dies. He compares the pace of technological change from 1906 to 1936, 1936 to 1966, and finally 1966 to 1996, and finds the latter period wanting. If the previous pace of technological change had been maintained, we would have “solar powered cars, maglev trains, and fusion reactors” by now.³³³ This perceived stagnation combined with what he sees as a global homogenization of culture, a stultifying bureaucratic regulatory environment, and a populace which is increasingly hostile to science leads him to conclude that the writing is on the wall: Earth civilization is going down, and only Mars can save us. And only if we can make it there in time. “Mars will not allow itself to be settled by a static society—those people won’t have what it takes... Mars today waits for the children of the old frontier. But Mars will not wait forever.”³³⁴ It is apparent that for Zubrin, the frontier relation, or distance from the central authority, is the planetary topic that supersedes all others.

³³¹ Zubrin, *The Case for Mars*, 297.

³³² *Ibid*, 224.

³³³ *Ibid*, 301.

³³⁴ *Ibid*, 306.

Zubrin's rhetoric and argumentation takes an unexpected turn in the epilogue, as he opposes Malthusianism, the doctrine that resources are limited and thus progress and growth must inevitably bump up against upper limits, calling it "scientifically bankrupt." Nevertheless, he claims that without the physical frontier we are duped and spooked by the apparition of Malthus: "in a closed society Malthusianism has the appearance of self-evident truth, and herein lies the danger."³³⁵ Zubrin's argument proceeds thusly: resources are not fixed, rather they can be created and renewed by human ingenuity. However, without a frontier of self-evident resources in front of us, they *appear* to be fixed and limited, and thus appearance becomes as good as truth. We therefore need the experience of the physical frontier, says Zubrin, as much for the psychological stimulus and the inducement to creativity that it provides as for the physical resources obtainable there.

5.1.3 Topics versus Archetypes and the "Just as" Structure

It is instructive to compare the instances in which Zubrin's rhetorical invention primarily relies upon the planetary topics to those where it openly embraces the frontier archetype. In most cases, in the sections I have identified as linked primarily to the planetary topics, Zubrin's speculative explorer is constructed to read as psychologically and ideologically neutral as possible. Here, Zubrin's speculations endeavor only to prove that it is possible for the biological human organization to procure the resources to survive on Mars, based on all the available data.³³⁶ In most

³³⁵ Ibid 303

³³⁶ Of course, the first edition of *The Case for Mars* was written based upon data available in 1996. One major change since then has been the discovery of how pervasive perchlorates are in Martian soil. Zubrin has since signed on with the plan that the perchlorate problem can not only be solved, but that this can be an additional source of manufactured breathable oxygen.

cases he is not particularly interested in imputing psychological states or cultural practices to his explorers. Indeed, we should be critical of Zubrin on this point; as the lack of speculation about how Martian residents might deal with strictures such as living predominantly underground seems to be a significant oversight if the goal is to imagine a fully realized lifeworld on Mars. Then there is the unusual example of celestial cycles and timekeeping, where he goes to great lengths to avoid reliance on cultural conventions imported from Earth. Thus when his invention remains based primarily in the planetary topics, Zubrin remains either as ideologically neutral as possible or even deliberately iconoclastic toward traditional forms.

The result is quite different when the primary source of Zubrin's invention shifts to the frontier archetype. Here, we see all manner of assumptions made about the psychology and motivations of would-be colonists; furthermore, these assumptions are most often ported in directly from the American frontier with little speculative modification to the local terrain of Mars itself. Zubrin presumes, without rigorous evidence, that the explorers of Mars will be motivated by values of rugged individualism and a desire to escape from bureaucracy and economic stagnation, as he supposes the pioneers of the last frontier to have been. Zubrin's primary rhetorical tool used in this endeavor is the invocation of the frontier as an archetype using an explicit or implicit "just as" structure. Examples imputing identical psychological states or motivations, as well as other one-to-one similarities between the American and Martian frontiers abound from Zubrin's text: "just as the New World entranced and enticed mariners here on Earth, so can Mars entice a new generation of voyagers, a generation ready to fashion the ships and sails proper for heavenly air."³³⁷ In all, the phrase "just as" explicitly appears at least seventeen times in *The Case for Mars*, and the direct comparison is implied in many more cases.

³³⁷ Ibid, 38.

When Zubrin invokes the frontier comparison, every analogy is presumed total (hence the “just as” formulation); there is never an invitation to explore difference as well as similarity. In every way that Zubrin’s analogy embraces, the Martian frontier will behave precisely the same function as the American, without remainder. Unlike a didactic analogy which asks to view one thing in terms of another, very distant thing, Zubrin is already comparing similar things: two physical spaces fit for habitable expansion by so-called “progressive humanist civilization.” Familiar didactic analogies, such as those used conventionally by science teachers (the mitochondria is like the powerhouse of the cell, the nucleus is the command center, etc.) give us purchase on a topic precisely by comparing two entities very distant from each other such as a microscopic cell structure and a subdivision of a human organization. In the distant analogy, what is interesting is the unexpected similarities; however, in Zubrin’s relatively near analogy, the similarities are readily apparent. In the near analogy, pointing out the similarities serves little didactic or cognitive function, instead it merely reinforces established assumptions and patterns of thought and encourages us to gloss over the many differences by first hooking us with a familiar narrative. Comparing the physical Earthly frontiers and the Martian frontier might be a legitimate and productive comparison, but as a near analogy it would only be so if explored primarily for its differences rather than its similarities, which Zubrin declines to do.

Second, Zubrin’s rhetoric should be considered archetypal because it trades in a frontier mythology appealing to a deep familiarity and identification in its target audience, and while this undoubtedly accounts for some of its success, it also presents problems. Whether or not Turner’s frontier thesis actually explains the origin of some American national character, it is difficult to argue against the claim that the mythology frontier thesis itself has had a significant impact on the American imagination. The 1893 reception of Turner’s thesis itself confirms a widespread anxiety

about the loss of the frontier as a constitutive myth of Americanness; an anxiety confirmed by Vannevar Bush's attempts to fill the void with his metaphorical "endless frontier" of science in 1945.³³⁸ In Freudian psychoanalytic terms, the western frontier becomes the lost object of the American consciousness evidenced by the melancholic incorporation of the frontier into American identity as constituted by Western film, and subsequently Western themes into science fiction and even speculative space science. Yet instead of following the psychoanalytic course of disincorporating the frontier object from the ego to recognize it as truly lost, Zubrin instead opts to tell a Jungian or Campbellian story: what we actually need is a refreshing of the familiar archetype of the Explorer and its associated affect of freedom.

Finally, Zubrin's rhetoric is archetypal because it relies upon the assumption that the same characters and patterns repeat themselves endlessly throughout history. He again approvingly quotes Turner: "What the Mediterranean Sea was to the Greeks, breaking the bonds of custom, offering new experiences, calling out new institutions and activities, that and more the ever retreating frontier has been to the United States."³³⁹ His enthymeme goes on to imply that not only will Mars be the next repetition of this classic archetype, but also that it too will stagnate, and will need its own future band of heroic Explorer archetypes to make the jump to the outer solar system and then the stars.³⁴⁰ One gets the sense that for Zubrin, the real case for Mars is simply that it is ideally located so as to be the next step in the eternal recurrence of the frontier image, rather than for any of its intrinsic qualities or resources. The frontier is his true love, and Mars is simply an excuse for posing as an archetypal explorer.

³³⁸ Vannevar Bush, *Science, the Endless Frontier: A Report to the President on a Program for Postwar Scientific Research*. (Office of Scientific Research and Development: Washington, DC: 1945).

³³⁹ Turner, *The Frontier in American History*, quoted in Zubrin, 193.

³⁴⁰ Zubrin, 198.

The result of Zubrin's archetypal rhetoric, reinforced through the "just as" structure, is to authorize the importation of a host of imaginary content surrounding the project to settle Mars that is not rigorously argued for or supported by inference from the planetary topics. On top of this, because Zubrin's use of the planetary topics is so sparing in regards to impacts on psychology and culture, it is all the easier for the audience to fill in the gaps with material taken from the last, American frontier. Such importation is all the easier because Zubrin is not alone in his reliance on western and frontier imagery to rhetorically sell outer space and Martian exploration, as he joins popular SF creators from Edgar Rice Burroughs to George Lucas to Joss Whedon in the continued repetition of frontier archetypes.

5.2 Critiques of Zubrin and his Frontier

As one might suspect, numerous critiques have been levied against both the usage of the frontier myth in general, and Zubrin's rhetoric in particular. Some critics argue that the frontier idiom is inherently masculinist and individualist, predisposing us to celebrate only "heroic loner" types while obscuring the discoveries and contributions made by collectives and their infrastructural support networks, even when the frontier is applied metaphorically to refer to the cutting edge of science or other fields.³⁴¹ Others have argued that the frontier archetype contains a nationalist or militarist tendency, noting that frontier imagery has frequently been mobilized to justify military adventures abroad.³⁴² Finally, it has been argued that the frontier archetype is

³⁴¹ Leah Ceccerelli, *On the frontier of science: An American rhetoric of exploration and exploitation*. (MSU Press, 2013), 4.

³⁴² Mark West and Chris Carey, "(Re)Enacting Frontier Justice: The Bush Administration's Tactical Narration of the Old West Fantasy after September 11," *Quarterly Journal of Speech* 92 no 4, (2006) pp 379-412; Ronald H. Carpenter,

colonialist and Eurocentric, and that rhetoric like Zubrin's risks exporting these ideologies to outer space as well.³⁴³

Though such critiques may correctly identify some of the defects in Zubrin's own rhetoric, I take a different approach than these critics. Rather than critique the allegedly problematic content of the frontier idiom, I suggest instead that the "just as" structure and the archetypal method of invention itself (and of criticism) is where the problem lies. There is nothing wrong with raising the initial analogy that human culture on Mars, or in space more generally, may be in some ways like the frontier as an initial means to gain purchase upon an unfamiliar situation. Rather, problems begin to arise when one assumes that Mars will be "just as" the frontier without remainder. It should be the task of the speculative scientist to rigorously test such initial hypotheses by running them through the planetary topics for revision or rejection, and it should be the task of the critic to point out where this task has been neglected. Instead, however, often the critics move too quickly to highlight the allegedly problematic content of an idiom and thereby leave the applicability of the underlying archetype, such as the frontier, unquestioned.

It is often as if the critics are too eager to become archetypalists themselves, accepting the relevance of improbable archetypes so that they have the opportunity to voice an objection to its problematic entailments. As Gouge writes of Zubrin's rhetoric,

For the same reason that one might expect a certain promise from Mars as a frontier, one might expect to find certain familiar roles and/or replicate certain familiar dynamics on this "new" frontier. If Mars is like the "Wild West," who will provide the cheap, exploited labor to make resource extraction possible (as the Chinese did in the building of the transcontinental railroad) and who will profit from the venture?³⁴⁴

"America's tragic metaphor: Our twentieth-century combatants as frontiersmen," *Quarterly Journal of Speech* 17 no. 1 (1990), pp 1-22.

³⁴³ Gouge, "The Great Storefront of American Nationalism"

³⁴⁴ Gouge, "The Great Storefront of American Nationalism"

This passage seemingly not only accepts, but also continues and amplifies Zubrin's "just as" structure: surely, if Mars is a frontier as Zubrin claims, then all of the negative baggage of the frontier must repeat itself there, even in a one-to-one correspondence. Gouge goes on to criticize the imperialist and capitalist entailments of Zubrin's rhetoric, but only after first assenting to the broader strokes of his vision for Mars. Some critics take this assent to the frontier archetype to its logical conclusion, and suggest that we should not speculate about life on other planets at all, because the project of space exploration inherently repeats the frontier archetype along with all of its associated evils.

Whether they are conscious of it or not, archetypal orators and critics are both participating in what has been called the fantasy theme model of rhetorical practice and criticism. Fantasy theme analysis is meant to explain rhetorical discourses that profit off of perceived convergences of worldviews among social groups. As Sonja Foss explains, fantasy theme orators need only state the general storyline of a given fantasy theme and then rely on the audience to fill in the doxastically expected details. The critic's task is then to identify the fantasy theme in play and analyze the effects of enthymematically supplied content.³⁴⁵ As I have shown, Zubrin and his critics both play these roles to the hilt: Zubrin invokes the frontier to do his inventional work for him, his target audience supplies the inferences about human life and culture and Mars, and Zubrin's critics analyze the imaginary entailments of the frontier theme without pausing to question its plausibility or applicability to the situation at hand. Of course, the weakness of fantasy theme criticism is that the analysis has a tendency to remain stuck on the archetypal terrain chosen by the initial orator, in this case, the frontier. Even when an alternative archetype is posed, or critics ask how might we be "anti-frontier" in an approach to space exploration, the inventional space

³⁴⁵ Sonja K. Foss, *Rhetorical Criticism: Exploration and Practice* (Long Grove: Waveland, 2004), 97.

remains determined by and bears the trace of the original archetype. What is lost is the encounter with the local terrain, and its constraints and possibilities as rhetorically understood through the planetary topics.

The overinvestment in archetypal politics by both orators and critics can lead to strange and amusing turns of argumentation, as in the public debate over the ethics of terraforming Mars. Zubrin and NASA planetary scientist Chris McKay have engaged in a series of debates on the issue, later collected into a joint publication.³⁴⁶ These debates primarily address a particular speculative scenario in which Mars is found to harbor sparse or dormant microbial life which is either genetically or biochemically distinct from Earth life, indicating a second genesis rather than an interplanetary cross-fertilization by impact ejecta traveling between worlds. In this scenario, McKay argues that this situation would present humans with three choices: first, Mars and its struggling subsurface life could be left alone. Second, humans could alter the temperature and atmosphere of Mars with a view toward recreating that planet's "warm wet period" (when such life likely would have first emerged) to facilitate the spread of the indigenous biota, but would take care not to introduce potentially invasive Earth life including humans themselves. Third, samples would be taken of the alien life for laboratory analysis, but anthropocentric terraforming would proceed unabated possibly harming or wiping out the indigenous life forms.

Of these possibilities, McKay argues forcefully for option two—he claims that both ethical and scientific principles dictate that Martian biota representing an entire alternative system must be aided by human planetary engineering efforts and allowed to flourish on Mars, but that humans must not introduce any Earth life or attempt to inhabit Mars themselves. He reasons that wiping

³⁴⁶ Chris McKay and Robert Zubrin, "Do Indigenous Martian Bacteria have Precedence over Human Exploration?" in *On to Mars*, ed. Robert Zubrin and Frank Cross (Burlington: Apogee, 2002).

out not only another species, but potentially an entirely biochemically or genetically distinct system of life would amount to an ethical crime; but also that failing to act to engineer Mars to enable the thriving of such organisms would also amount to a crime of omission. In addition, there would be long-term scientific benefits to observing the development of this alternative system of life on Mars.³⁴⁷

While McKay pens his arguments in the level-headed style of a scientific report, Zubrin has something else in mind. He responds by calling McKay's position "immoral and insane," though he qualifies this by saying that he does not believe McKay himself to be immoral and insane, rather that he finds his opponent to be a "moral, upright and intelligent person who is defending a bizarre position that has become fashionable in rarefied circles, without having adequately applied his formidable intellect to understanding its vicious anti-human implications."³⁴⁸ Zubrin goes on to claim that neither McKay nor anyone else advocating a non-anthropocentric view on terraforming really "give a hoot about bacteria," and that all of the talk about concern for indigenous microbes is in reality a "smoke screen."³⁴⁹ He claims that "in reality, what is being expressed is distaste for past actions on Earth in which one group of people invaded or took control of the land of another, i.e. imperialism."³⁵⁰ Ironically, Zubrin's claim here is that the negative experiences of the last frontier are being improperly applied to the next one via a crude "just as" structure—"we feel bad about imperialism, so we must save the Martian bacteria to prove we have learned our lesson." Zubrin argues that this is a bad analogy and that it is clouding the judgment of otherwise clear-eyed scientists on the question of what to do about terraforming

³⁴⁷ Ibid, 179.

³⁴⁸ Ibid.

³⁴⁹ Ibid.

³⁵⁰ Ibid, 180.

Mars. He concedes that imperialism “was and is evil,” but only because as practiced on Earth it harms people, and bacteria are not people. While it is certainly tempting to laugh at Zubrin’s sudden change of heart regarding the overbroad use of the frontier archetype in planetary speculation, Zubrin is actually correct here: the anti-frontier critics have internalized the entailments of the archetype just as much as its proponents.

5.3 Archetypes and Left Melancholia

In his rejoinder to McKay, Zubrin, perhaps unwittingly but nevertheless accurately, diagnoses a species of “Left melancholia” as first deployed by Benjamin and developed further by Jodi Dean.³⁵¹ As Dean explains, “A wide spectrum of the contemporary Left has either accommodated itself, in one way or another, to an inevitable capitalism,” and that “melancholic fantasies” now shield the Left from the guilt of having abandoned its central struggle by sublimating that guilt into diversionary activities that nonetheless manage to “feel productive, important, radical.”³⁵² In the specific case at hand, the Left has entirely ceded its desire to imagine a good version of the spacefaring future, contenting itself instead to frown disapprovingly at the frontier-infused futures imagined by Zubrin and the techno-libertarians of Silicon Valley. Guilt for the loss of both the past (a failure to defeat or overcome imperialism) and the imagined future is

³⁵¹ The term is first deployed by Walter Benjamin in his critique of the poetry of Erich Kästner. Wendy Brown picks up the term as an indictment of the remnants of the “old left” for clinging to a lost object of dialectical materialism as a shield against new developments in postmodern theory. However, Dean in turn critiques Brown’s reading of Benjamin and argues that left melancholia more accurately describes a left that has fully accommodated itself to the inevitability of capitalism. Though the use of the term is debated, I opt for and endorse Dean’s reading.

³⁵² Jodi Dean, *The Communist Horizon*. (New York: Verso, 2012), 176.

sublimated into seemingly radical, but ultimately hollow pronouncement that “we must save the Martian bacteria” because we could save neither the victims of imperialism, nor our future selves.

Dean associates this Left melancholy with the repetition compulsion of the Freudian-Lacanian theory of drive. She explains:

As Lacan makes clear, what is crucial in the Freudian account of the drives is the way drive provides the subject with another way to enjoy. Unable to satisfy or maintain desire, the subject enjoys in another way, the way of the drive. Additionally, in contrast with desire, drive isn't a quest for a fantastic lost object; it's the force loss exerts on the field of desire.³⁵³

Unable to satisfy or even articulate a desire, the Left melancholic pursues enjoyment through the repetition of drive. I argue that the ideal vehicle for this repetition has been archetypal or fantasy theme criticism, as the repetitive nature of the archetype provides occasion for the critic to enjoy the pleasure/pain of rehashing the same critiques again and again. The Left melancholic does not bother to engage with the planetary topics (or the details of any other concrete situation) because their enjoyment derives from proclaiming that the whole enterprise merely repeats this or that archetype or theme, in this case the frontier. Zubrin, then, is the Left melancholic's ideal orator, because his desire to eternally repeat the frontier archetype exactly mirrors their desire to eternally critique it.

As an alternative to the endlessly dueling archetypes at play in archetypal or fantasy-theme oratory and criticism, as evidenced through Zubrin-McKay debate, consider how the same material is addressed via a speculative engagement with the planetary topics in the Mars Trilogy. The Trilogy's version of the Zubrin-McKay debate is the conflict between Red and Green political factions, illustrated by Sax Russell and Ann Claybourne in the early years when only the First Hundred (and one) live on the planet. Like McKay, Ann initially argues that the planet should not

³⁵³ Ibid, 173.

be terraformed, and the human footprint otherwise kept to a minimum to avoid contamination as long as the scientific search for indigenous life continues. Her position becomes more radical than McKay's, as even after continued exploration yields no sign of indigenous Martian life, she argues that even the nonliving features of the planet, such as rocks and geological formations, should be preserved from human interference. Her views go on to inspire future generations of Reds that in turn develop their own subfactions, advanced political and aesthetic theories, and ultimately reach an uneasy compromise with the Greens. Sax, in contrast, becomes an early advocate for the terraforming project, arguing that "it isn't enough to just hide under ten meters of soil and study the rock," as humans can and should spread across the planet, adapting the planet to humanity while also adapting to it.³⁵⁴ For Sax, allowing the beauty of Mars to go unseen and unappreciated by consciousness because humans remained stuck underground hiding from radiation would be the greater ethical crime.

Significantly, as the political struggle plays out over the centuries, not only magnetosphere and regolith, but a host of planetary topics make their presence felt in the debate. Early on, the search for water first draws the colonists out from their underground shelters to experience the planet's beauty and sublimity; later, the planet's massive elevation differential facilitates the uneasy compromise between red and green. Rather than a melancholy repetition of archetypes sublimating past guilt and relitigating bygone disputes, the Trilogy speculates on the emergence of new forms of life as a complex cast of human actors explores, negotiates, and compromises with both each other and with the Martian terrain itself.

Unlike Zubrin, for whom Mars is merely a jumping off point for humanity in the eternal recurrence of the frontier, and similarly unlike Left melancholics, for whom ostentatious

³⁵⁴ Robinson, *Red Mars*, 72.

abstinence from exploration and colonization is sublimated guilt from past failures, it is apparent that Robinson and his characters truly love Mars in itself and for itself. Even Ann, the arch-red, who for a time detested all living things and preferred the company of bare Martian rock, eventually makes her peace with the nature-culture amalgam that is a fully terraformed Mars. Robinson even gives her the final word of the Trilogy, as she admits that there is beauty in what the Martian terrain and humans had co-created, even on the coast of a terraformed Hellas Sea:

And why not admit it. Nowhere on this world were people killing each other, nowhere were they desperate for shelter or food, nowhere were they scared for their kids. There was that to be said. The sand squeaked underfoot as she toed it. She looked more closely: dark grains of basalt, mixed with minute shell fragments, and a variety of colorful pebbles, some of them no doubt brecciated fragments of the Hellas impact itself. She lifted her eyes to the west of the sea, black under the sun. The bones of things stuck out everywhere. Waves broke in swift lines on the beach, and she walked over the sand toward her friends, in the wind, on Mars, on Mars, on Mars, on Mars, on Mars.³⁵⁵

Ann's realization that "the bones of things stuck out everywhere" signals her new capacity to see how the old, pre-terraformed red Mars that she loved has not been destroyed as she had previously thought, but instead its planetary features continue underlie and structure everything about the new green and blue world around her. Whereas long ago she had accused Sax, "you've never even seen Mars," in his rush to terraform, Sax now helps her to cultivate the ability to see beauty in the particular fusion of red and green. Through application of the planetary topics, Robinson's Trilogy creates a Martian utopia-in-process in all its haecceity and granular particularity. As such it is not merely an effort to deconstruct or critique the frontier archetype, but rather to create a new utopian vision of a planetary totality, a new object of desire. It is thus an early bellwether for the emerging trend identified by Dean, that the Left has finally begun to work through its melancholia, replacing

³⁵⁵ Robinson, *Blue Mars* 761.

it with “more energetic attach-ment to new objects of inquiry and interest,” and in particular human collaborations with nonhuman objects, where theorists are discovering “new kinds of agency, vitality, and even politics.”³⁵⁶ It is perhaps telling that this emergence from Left melancholia has been accompanied by a new orientation towards objects, as if the stubborn particularity of “the things themselves” is the only thing that can shake us out of the eternal recurrence of archetypes.

I argue that these new objects of desire must necessarily be particular objects, granular and fully textured, thought into a particular existence by the planetary topics, in order to avoid falling back into the compulsion to repeat the same old archetypal debates. Furthermore, it is only through the process of application and adaptation to the local terrain and the particular situation that the new desire can be instantiated. This is why, as discussed in chapter two, I break with Jameson’s reading of the Trilogy on one key point: the name of the new “impossible color” mixing red and green is not utopia, it is Mars. We need the particular to think the general, and we need the art of the topics to think the particular.

Consider the work of three speculative thinkers: Zubrin, Robinson, and Charles Stross, all dealing with what Robinson was the first to describe as the “*accelerando*,” or rapid acceleration of human development and concomitant colonization of the solar system. Zubrin’s version of the *accelerando* (though he does not use the term) is an endless repetition of an exploitative, capitalist American frontier that flattens all difference: the resources of Mars are only desirable in that they are resources, and gives us a toehold for further endless expansion throughout the asteroid belt and beyond. This is precisely the attitude that is satirized in Stross’s novel, *Accelerando*, where all of humanity, and even the planets of the solar system, is systematically devoured by an AI-driven

³⁵⁶ Dean, *The Communist Horizon* 177-178.

capitalism.³⁵⁷ Yet, I hold that we should reject both of these options, Zubrin's repetitive ideological archetype, and Stross's satirical-dystopian critique. Instead we should return to Robinson's original conception of *accelerando*, characterized by an ever-expanding diversity of human cultural forms throughout the solar system, imagined in their particularity via the planetary topics: a sun worshipping theocracy on Mercury's Terminator, individual humans flying for transit through Titan's thick atmosphere, and collectives of varying ideologies on asteroids spun to create their own custom artificial gravity. A distributed syndicate of humanity, free to experimentally choose not only their own laws and social structure, but even their planetary preferences.

I am advocating for a speculative public oratory and criticism that moves away from archetypes and fantasy themes, and toward something like evaluating the artful application of a speculative planetary topics. It is a subtle, but important difference observable in the shift from Frederick Jackson Turner to Kim Stanley Robinson: in the former "the wilderness masters the colonist," while in the latter the *local terrain* "aeroforms" with them: "Wilderness" is an idealized archetype, always elusive, never to be possessed in its pure form. As Gouge puts it, "Our investment in the promise of the frontier to make us whole and powerful citizens will, in fact, simply ensure that we remain split and inadequate."³⁵⁸ Frontier-chasers like Zubrin are thus condemned to repeat an endless cycle in which their achievements will never measure up to the ideal of an archetype. However, what the Left melancholic critics miss is that their anti-frontier critiques merely join him in this repetitive quest for an illusory wholeness, albeit in an inverted form, as if denouncing Mars exploration could absolve them of the original sin of imperialism. In contrast, to the melancholy repetition of the frontier, the local terrain is always a unique

³⁵⁷ Charles Stross, *Accelerando*. (New York: Penguin Group, 2005).

³⁵⁸ Gouge, "The Great Storefront of American Nationalism"

particularity, endlessly varied and holding unmatched potential for human speculation and adaptation. The role of the critic should be to ascertain how fully and how creatively the speculative author has explored the possibilities of what human and terrain can areoform together.

6.0 Conclusion: “Meanwhile the rest of them could continue the work of making a decent civilization”

In a recent work, McKenzie Wark offers a provocative and succinct synopsis of the problems with ideology critique that have in part motivated this dissertation. In capitalist ideology’s greatest coup, she tells us, our allegedly most radical critical theorists have come to agree entirely with its own most totalizing pronouncement: “the essence of Capital is eternal.”³⁵⁹ Until the moment of its final negation, which of course never comes, and for these critical theorists is literally unimaginable because ideology has defined the limits of our imagination, Capital “can change its appearance but never its essence.”³⁶⁰ The linguistic proof is in the ever-extending series of modifiers attached to capitalism attempting to theorize some fresh particularity: necro capitalism, communicative capitalism, racial capitalism, platform capitalism, neoliberal capitalism, space capitalism, and so forth.³⁶¹ “Capital” has become an idealized empty signifier, for all intents and purposes meaning “evil” or “things we identify as being against” rather than a material description of a historical mode of production. Wark suggests that critical theory’s attachment to Capital has become a theological one, and such theorizing is no longer able to look clearly at the world and to consider that possibly, as she argues, Capital is dead, and we are now living in something worse, a new “vectoralist” mode of production. It is only through our excessive attachment to the old God/Devil term Capital that we have missed it. To properly show fidelity to the legacy of Marx, then, we should move away from endlessly repeating and citing his own

³⁵⁹ McKenzie Wark, *Capital is Dead: Is this Something Worse?* (New York: Verso, 2019), 24.

³⁶⁰ Ibid.

³⁶¹ Ibid, 21.

descriptive formulations of Capital, and instead repeat his grand gesture of theorizing, from the ground up, the nuances of production our own historical moment.

At the moment I do not take up Wark's affirmative case that we have silently entered a new historical mode of production; however, I am interested in her argument that there is an idealist temptation hidden in the theorizing of even the most ardently Marxist-materialist critical theorists, at least since Althusser. Inspired by Wark's provocation, I suggest that there is an eternal idealist bias lurking in the very practice of ideology critique as currently practiced in the academy. Ideology critique has flourished in the disciplines of ideas, such as literary criticism and rhetorical theory and criticism. Because the objects of inquiry of these fields are so expansively defined, the fields have a tendency to become theory or idea-driven, rather than object-driven. This is the first movement of eternal idealism, and is not necessarily problematic in itself. However, in the second movement of eternal idealism, these theoretical abstractions become reified and treated not only as if they were really-existing entities in the world, but also as if they have been and always will be present in some form. Poststructuralist and other counter-enlightenment critics sometimes try to outflank even Wark's eternal Marxists by locating the source of the trouble in the ideas of early modernity, or even the Greco-Roman antiquity. However, their position is not secure, because Morton in turn outflanks them by arguing that all of these ideas are merely inevitable footnotes to the original sin of Mesopotamian-style agrilogistics. Of course, this way of thinking stands Marx's materialism on its head, as it supposes that our consciousness is determined by the unfolding of ideas set in motion long ago.

Wark is not the first to observe the phenomenon of eternal idealist creep. Latour has problematized "sociologies of associations," and its most overdeveloped form, "critical sociology" for their tendency to reverse *explanandum* and *explanans*: if we set about asking a research

question of why a certain social group experiences an imbalance of social power, our answer cannot also be “because of an imbalance of social power,” or else our enterprise becomes completely cyclical. This focus on idealist explanations has the effect of obscuring the actual objects, or for Latour the network, that carries or instantiates these existing relations of “social power,” itself an abstraction that does not really exist, and is of course a sociologist's convenient fiction. As Latour tells the tale of the debates between Durkheim and Tarde at the birth of French sociology as a discipline, it is easy to see why the sociology of the social won out: by claiming that there is a special social “stuff” of ideas that exist independently from the objects studied by science and the other disciplines, it more effectively makes the case that sociology should exist as an independent discipline with its own institutions and funding lines. Thus, the temptation exists to make social theory ever more idealist, abstract, and permanent, as if it describes laws of society as firm and unchanging as the laws of nature.

The field of rhetoric has gotten itself inextricably involved in ideology critique, particularly since McKerrow and his followers announced the project of “critical rhetoric.” The linguistic proof can be observed in the names of panels at disciplinary conferences which often take the form of “rhetoric(s) of x,” which could just as easily be titled “ideologies of x” without much loss of description. The basic gesture is the one called for by McKerrow, “unmasking” the rhetoric of dominant ideologies in order to reveal their “true” content. However, for the many reasons I have discussed in chapter one, this gesture is no longer effective, if it ever was. As Salazar shows, of all the Left melancholics, it is perhaps the rhetoricians who are the most afflicted, having lost access to robust public debate via “rhetorical culture,” and forfeited the side of the discipline focused on invention and action in favor of critically describing the status quo. Hence critical rhetoric’s

formulation of the rhetoric of x, in which an observed rhetoric is thought to be a property held by some preexisting social x, rather than being a capacity to create and define its own x.

What are the alternatives to the now-exhausted gesture of unmasking? As the underappreciated theorist Vilém Flusser argues, social theory has always been obsessed with the trope of the mask, to the point that every gesture involving a mask has been overused and played out, especially the routine of unmasking.³⁶² To this I add that the evidence for the overabundance of the unmasking gesture is ubiquitous in our communication and media artifacts: in addition to the plethora of conspiracy theories, which Latour rightly identifies as critical theory's own shadowy reflection, the trope of unmasking how our seemingly neutral or beneficent institutions secretly plot our oppression is already written into our media blockbusters, albeit in crude allegorical form, from *Star Wars* to *The Matrix* to the *Bourne* films. Thus, no one is surprised at all when yet another case of this now familiar narrative is exposed in our lived reality, as we are primed to suspect as much. This is why Flusser tells us that the only original gesture left to be made with a mask is that of turning the mask around to look at its stamped and imprinted inside face, in order to see how the thing is made. While perhaps some of the more sophisticated versions of unmasking do give some account of the historical accretion of the dominant ideology, such accounts still suffer from an "n equals one" problem: they treat the dominant ideology and its actual lived history as the only available subject of serious inquiry. In practice, this has the effect of solidifying the symbiotic relationship between critique and its eternal object, leading ultimately to the constellation of problems with critique discussed in chapter one, as well as the Left melancholy as discussed in chapter two. Instead of studying the dominant existing mask from

³⁶² Vilém Flusser, *Gestures*, trans. Nancy Ann Roth. (Minneapolis: University of Minnesota Press, 2014).

every angle, perhaps we might learn more by asking what other, speculative masks might be possible to create.

In this dissertation, I have explored the question: what happens when ideological difference is discovered in the speculative mode, as in the case of the Mars Trilogy's Red and Green factions? I argue that it has a number of beneficial effects. It can help us break out of, at least temporarily, the repetitive drive of Left melancholia, and its codependence on Wark's eternal Capital. Perhaps it is no coincidence that Wark's desire to theorize the mode of production comes on the heels of her prior scholarly engagements with the Mars Trilogy and videogames, including the *Civ* series: if we have to sharpen our inferential skills in the crafting of a new speculative ideological situation, it might help us retheorize present reality in a productive way. This also raises the question, what is the substance, or the particular skill that makes one a perceptive critic of ideology or society? Is it the memorization of a particular history, and a set of static theoretical terms, or instead a flexible ability to make possible inferential connections in situations as yet unobserved? Of course, there is some relation between the two, as history is our perhaps primary and even best teacher, but one always limited by the "n equals 1" problem. Worldbuilding, of the type required to engage in science fictional speculation, is a general skill for seeing the possible inferences that connect the natural world, humans, and their institutions and ideologies.

I now refine the definition of speculative radicalism first introduced in chapter one. Speculative radicalism is a mode of thinking making use of two abilities or capacities. First, it requires the ability and desire to reason probabilistically from a novum, or point of difference, towards a speculative social totality that incorporates both nature and culture. I have in mind primarily speculative social totalities that are utopian or ameliorative in nature, however the

dystopian, or even the simply other could also be productively explored in this way as well.³⁶³ I argue that worldbuilding in the speculative radicalist mode is valuable in and of itself, regardless of the desirability of the imagined world. Of course, speculative radicalism is most valuable for honing such a skill, not when it is unconstrained or fancy-free, but rather when it is beholden to a series of constraints/opportunities such as the planetary topics. When such a topic is the source of invention, rather than the mere repetition of an archetype, surprising new agents and outcomes can come to the fore, such as the outsized influence exercised by the tiny Martian fines to the inspiration of an elevation/pressure-based peace accord.

Second, speculative radicalism must be prepared to answer a host of “how” questions in a speculative mode. This is where it diverges most notably from some of the received wisdom of the Marxist tradition, as I argue that speculative radicalism should in fact embrace writing detailed recipes for the cook shops of the future. Often, answering one how question will become inextricably entangled with multiple other how questions. This answering of how questions is approached in a synthetic way throughout the Mars Trilogy, as Robinson has to imagine new detailed cultural forms capable of responding to the problematic posed by the planet’s unique combination of planetary topics. It is approached in a combinatorial way in *Civ* games in general and *Gathering Storm* in particular, as the player must allocate resources and account for the affordances of the planetary terrain in order to accomplish in-game goals such as the successful management of climate change.

³⁶³ In *The Years of Rice and Salt*, Kim Stanley Robinson envisions an alternative modernity established on Earth without the influence of European cultures. It is most notable for portraying this state of affairs as neither utopian nor dystopian, but rather as a modernity that is simply other, complete with its own shifting cultural antagonisms and class conflicts.

Finally, it is important that both of these aspects of speculative radicalism resist what I have called the archetypal mode of invention and criticism in chapter 4. Archetypal invention looks to the structure of past narratives or historical experience for inspiration. Thus, its ability to introduce novelty into a situation is limited, even if it attempts to negate or become the opposite of a given narrative trope. By starting with something like the local terrain or planetary topics as the jumping off point, speculative radicalism introduces an estrangement-inducing break, even if our existing assumptions and historical experiences will inevitably reappear in some form while attempting to solve the problematic introduced by the topic.

6.1 Whither Materialism?

Throughout this dissertation I have generally avoided reference to “materialism,” despite often putting myself in conversation with avowed materialists of both the Marxist and new materialist varieties. Yet some might see in my praise of artifacts that hew closely to the planetary topics something of a call to return to a more materialist mode of theorizing. So why the avoidance of the term?

First, in some of its theoretical guises the term materialism undeniably carries the implication of placing limits on possibility, as in the apocryphal materialist who kicks a rock or pounds a table to refute any idealist position. And a version of this crude materialism is, in fact, commonly held: as Badiou tells us the dominant, oppressive ideology of our time can be summarized as “democratic materialism,” or the certainty that “there are only bodies and

languages.”³⁶⁴ Similarly, as Wark describes, Marxist materialism is sometimes associated with an overly deterministic view of history, to the extent that its purported idealism threatens to reverse into theological belief that capitalism must be eternal, as it can only be overcome through a final negation by utopian communism, a messiah who never arrives. In both cases, the rock-kicking materialists demands that the idealist give up on hopeless fantasies and return to a well-defined, perhaps constrictive space of political possibility.

Second, materialism is sometimes used to signify precisely the opposite: a vast, mysterious, and untapped reservoir of limitless potentiality. This vitalist trajectory can be traced back from the new materialists like Jane Bennett, through Deleuze, and back to Bergson. Yet perhaps it finds its most apt expression from its progenitor, Spinoza: “no one has yet determined what a body can do.” In Spinoza’s open-ended aphorism, the potentialities of matter to change and self-organize are thought to be infinite, illustrating how for the vitalists, matter and materialism are not a license to proclaim tight constraints upon a situation as they are for the rock-kickers, but rather a belief in the spontaneous creativity of matter and nature. I find that there is much to admire in the thought of the vitalists, and perhaps they are even quite correct on a long enough time scale. However, per the economist John Maynard Keynes, “in the long run, we are all dead.” Yes, something as yet unknown, likely even some form of humanity, will undoubtedly survive and emerge from the coming crisis of even the most dire projections of a bad Anthropocene, but that is cold comfort for everyone else.

³⁶⁴ Alain Badiou. *Logics of worlds: Being and event II*. trans. Alberto Toscano. (New York: Continuum, 2009), 1. Interestingly for Badiou, the constellation of thought known as postmodernism is one of the worst perpetrators of democratic materialism. When language and culture are theorized as inescapable, eternal material constraints, the ability to imagine novelty is abandoned entirely.

While the two most common strands of philosophical materialism have tended toward these two extremes of either articulating only one possibility as materially present in an existing situation or else asserting that they are infinite, what we really need, as citizens of the Anthropocene, is an ability to imagine and begin to sketch out a handful of possible futures. The number of these needs to be greater than one, but non-infinite. Thus I am calling for a materialism that is on the side of plural, non-infinite possibility. It has to recognize the material as both an opportunity for introducing novelty and difference, and as a constraint for narrowing our focus.

The discipline of rhetoric, and in particular the topical tradition, has in the past taught the art of simultaneously navigating opportunity and constraint. In identifying planetary topics at play in SF novels, strategy video games, and science writing, I have tried to show how the existing state of scientific knowledge about a material world can similarly function as both constraint and opportunity for invention. Perhaps a topical materialism, of which the planetary topics are just one example, could rescue the idea of materialism from the two extremes outlined above. This would finally be a materialism aimed at articulating and defending particular possibilities.

6.2 What is to be Done?

I argue that the humanities in general, and rhetoric in particular should replace (or at least supplement) “critical thinking” as the take home skill of choice with speculative radicalism. The building up of speculative ideologies, plausibly rooted in material conditions, is at least as useful as the skill of deconstructing and tearing them down, and at the moment is far less widely taught. Previously, this project was reserved only for SF authors and other creatives involved in the work of fictional worldbuilding. Additionally, such literature was only accepted as “serious” by critics

when it is read convolutedly as an implicit allegorical critique of the present, rather than an exercise in speculative possibility that stands on its own. However, in addition to suggesting that speculative creativity finally be given its due, I also suggest that critics, scholars, and students must also find ways to join in practicing speculative radicalism.

First, future speculative radicalists might follow in my attempts to catalog and map various topics of speculative radical invention. The planetary topics I have discussed in this dissertation is my first effort, and could be improved or built upon in many ways with future work. Regarding the planetary topics specifically, I fear that while I have mapped the likely jumping off points for speculative radical invention and shown some of the possibilities they enable, I have not yet done enough to describe the art of the planetary topics. When speculating from the planetary topic itself to imagine how human culture might adapt to address it, what makes for more insightful and interesting speculation, and could a list of heuristics be applied to assist in answering the question? I addressed this briefly when evaluating *Beyond Earth* as a foil for the Mars Trilogy, and the game's affinities system provides an interesting starting point that could perhaps be expanded. In addition, a modified list of the planetary topics could serve to aid speculation on the more nuanced, but potentially devastating changes likely to occur in the near future if climate change and other impacts of the Anthropocene continue unabated.

Second, the work of criticism itself could incorporate some aspects of speculative radicalism. As I have shown, the majority of critics often fail to read or interpret artifacts like the *Civ* series with sufficient generosity to comprehend what makes them interesting to fans or practitioners. This is because they pay insufficient attention to the “how” questions raised by the game, in particular the game's own topics of decision. Rather, they look only to what they suppose to be the game's grand narrative, whether they believe that to be an allegory of conquest or

mediated optimization, and assign their critical judgement based upon that general category. In chapter four, I went on to call this upward reduction that ignores an artifact's detailed answers to "how" questions archetypal criticism, and showed how it is related to the phenomenon of Left melancholy. Instead of continually striving to fit cultural artifacts into our preconceived ideological archetypes, I suggest critics turn their attention to ways in which the granular topics of such games or speculations could be improved. For instance, if you believe *Gathering Storm* fetishizes technological solutions to global warming and minimizes diplomacy, suggest a speculative game mechanic that could alter that. If you believe that Zubrin, or another speculative scientist, fetishizes a libertarian frontier fantasy, show how the planetary topics of Mars itself would render that fantasy problematic.

Conventionally, there are two objections made to the type of affirmative theorizing I am calling for. The first is that it could lead to an uncritical fetishization of one or another speculative solution, leading to either an ossification of the imagination or to a totalitarian cult dedicated to that future. I reject this complaint on a number of grounds. In our time the risk of apathy, despair, and acquiescence to the status quo on the grounds that there is no alternative is far greater than that of misguided revolutionaries. Additionally, the fear of a utopian totalitarianism is a throwback to the days of the Soviet Union, when Western Marxists and other social critics sought to differentiate themselves from that regime. And finally, the objection, raised by critics like Ercolini and Gehrke invoking Foucault, that the critic should not endorse particular visions of the future, has in our time acquired a suspicious resemblance to neoliberalism: even in the contexts of our speculative utopias, we are told not to pick winners and rather to let the market decide. The irony is that it is exactly this attitude that has produced the theology of eternal capital raised by Wark, as the refusal to engage in affirmative theorizing eventually culminates in the elevation of the objects of our

critique to eternal status. Here the singular (Marxist) and infinite (vitalist) strands of materialism I previously diagnosed become one: the unwillingness to name a particular future, which the critics say would compromise or cede the limitless possibilities of the future utopia, leads us immediately back to the singular tyranny of the status quo.

The second critical objection is that such affirmative theorizing, particularly in a world full of suffering, amounts to a diversionary escapism, or a sublimation of genuine revolutionary energy. Of course, the first problem with this is that there is no reason to believe that critique as currently practiced is any less of a diversionary sublimation. And as Mark Fisher's work points out, the overdeveloped faculty of critique in the absence of alternatives currently serves as the ideology of the status quo. We should recall the aphorism, variously attributed to Tolkien and CS Lewis: "who are the people most opposed to escape, but the jailers?" Recently, the practice of US prisons of denying prisoners access to books containing any maps, from *Game of Thrones* to maps of the moon, has made the news as an example of absurd overreach and abuse of a regulation clearly meant only to apply to local maps that might aid in a jailbreak. However, we might consider that in fact the prison wardens know exactly what they are doing, rightly apprehending that the ability to read maps and make detailed connections on other worlds hones the skills of speculative radicalism needed for changing this one.

And speculative radicalism, this faculty of growing the roots of the imagination that can underlie future activity has never been more important. At the time of this writing, atmospheric carbon is above 412 ppm, a new form of fascism is resurgent around the world, novel pandemic diseases have spread, and corruption and graft are rife at all levels of public leadership. The unmasking gesture of an ideology of critique may not have caused this state of affairs, but its soft ban on imagining alternatives has clearly not helped in the quest to motivate a sustained opposition.

In any case, in our time all masks are off, anti-utopian critique's central role in the humanities is over. It's time to start imagining something else. As Wark put it, "we all know this civilization can't last. Let's make another."³⁶⁵ And why not? Per Robinson's Sax Russell, the Trilogy's unassuming scientist-hero who deserves the last word:

But they had certain capabilities now as a group, as a — a civilization. The accumulated body of scientific knowledge was growing vast indeed, and that knowledge was giving them an array of powers that could scarcely be comprehended, even in outline, by any single individual. But powers they were, understood or not. Godlike powers, as Michel called them, though it was not necessary to exaggerate them or confuse the issue — they were powers in the material world, real but constrained by reality. Which nevertheless might allow — it looked to Sax as if these powers could — if rightly applied — make a decent human civilization after all. After all the many centuries of trying. And why not? Why not? Why not pitch the whole enterprise at the highest level possible? They could provide for everyone in an equitable way, they could cure disease, they could delay senescence until they lived for a thousand years, they could understand the universe from the Planck distance to the cosmic distance, from the Big Bang to the eskaton — all this was possible, it was technically achievable. And as for those who felt that humanity needed the spur of suffering to make it great, well they could go out and find anew the tragedies that Sax was sure would never go away, things like lost love, betrayal by friends, death, bad results in the lab. Meanwhile the rest of them could continue the work of making a decent civilization. They could do it! It was amazing, really. They had reached that moment in history when one could say it was possible.³⁶⁶

³⁶⁵ Wark, *Molecular Red*, 225.

³⁶⁶ Robinson. *Blue Mars*, 64.

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