Nerd Ecology

Defending the Earth with Unpopular Culture

Anthony Lioi

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Introduction

Reading Like a Thermian

In all the sacred books, we should consider the eternal truths that are taught, the facts that are narrated, the future events that are predicted, and the precepts or counsels that are given. In the case of a narrative of events, the question arises as to whether everything must be taken according to the figurative sense only, or whether it must be expounded and defended also as a faithful record of what happened. No Christian will dare say that the narrative must not be taken in a figurative sense.

—Augustine of Hippo, *The Literal Meaning of Genesis*

Anthony, you're such a nice guy, too bad your head is full of junk.

—*a professor in graduate school, to the author*

By Grabthar's Hammer, by the suns of Worvan, you shall be avenged!

—Dr. Lazarus to dying space nerd Quellik, in *Galaxy Quest*

In the 1999 film *Galaxy Quest*, a group of television actors—survivors of a thinly veiled version of *Star Trek*—meets a cadre of fans that takes science fiction very seriously. Dressed in silver spandex, sporting identical bowl-cuts, the same earnest expression on their faces, the fans approach Jason Nesmith, the William Shatner of the tale, to beg his help in dealing with an interstellar warlord. Though the fans actually *are* aliens from another planet, they have appeared at a *Galaxy Quest* convention, where everyone dresses as an alien, and the Thermians, as they are called, blend right in. Though Nesmith dismisses them at first, he and his crew discover that the Thermians are not faking it. Having studied the show after errant radio waves reached their planet, the Thermians have built a faster-than-light ship, transporter technology, and an entire civilization based on *Galaxy*

Quest. As Mathesar, the Thermian leader, explains: "All you see around you has been taken from the lessons garnered from the Historical Documents," revealing the central gag of the film. The Thermians have misread a television show with mediocre production values as a chronicle of actual events. The plot devolves from the ironic consequences of this mistake, but the fictional nature of the show does not detract from its ability to shape a civilization. In Mathezar's words, the tale of the crew's "courage and teamwork and friendship through adversity" saves the Thermians and their actor friends from themselves.

The charm of *Galaxy Quest* lies in its allegory of the audience, both inside and outside the film. The Thermians stand for *Star Trek* fans who invest enormous amounts of intellectual, emotional, and material effort in inhabiting the world of the show, so much so that fan culture becomes a subcreation, a counterculture. This phenomenon has been described by anthropologists and new media scholars at length, and there will be no attempt to duplicate it here (Jenkins 2006; Jenkins et al. 2013). Instead, I focus on the Thermian gambit, which illuminates the "relevant conundrum" of the reader who takes popular culture unironically as a way of thinking about modernity, social justice, and the nature of the good life. By mistaking fiction for documentary, the Thermians make a mistake that nearly kills them. Then, they discover a greater fact, that the show can be figuratively true, a storehouse of questions, values, heuristics, visions, and ethics. This is what scholars mean when we call such stories *myths*: not false accounts of natural phenomena or misrepresentations of reality, but narratives that figure a culture's ideals and its methods for dealing with the most important existential problems. Since classical antiquity, a school of thought called *euhemerism* has interpreted myths as historical material transformed into story for the sake of memory. While there are, no doubt, important ways of understanding *Galaxy Quest* as memory, it is not a memory of the past, but a memory of a better future, an instrument for making that future real. The utopian projects of popular culture need to be treated with respect. Though countless modern stories, from *Peter Pan* to *Beetlejuice*, emphasize the power of belief in making a story real, it is not that the narrative otherworld takes the place of the primary world, but that readerly investment is an instrument of self-transformation. If wielded communally, it becomes an instrument of environmental transformation as well. This strategy of inhabitation as a method of transformation is precisely

what I mean by *reading like a Thermian*, and *Nerd Ecology* depends on it as a foundational premise.

At this point, one might reasonably ask, after Dr. Lazarus, the ersatz Mr. Spock: *By Grabthar's Hammer, why all the fuss?* Popular culture has received a good deal of attention from the social sciences, philosophy, cultural studies, and media studies. What is at stake in these efforts, however, is not the meaning of pop culture, but the significance of human behavior surrounding that meaning. Ethnographies of fandom tend to take such an approach. (When fans want to believe the myth, when Australians claim to *be* Jedi, the academy does not know what to say.) Sociology engages fan cultures because fan behavior tells us something important about the nature of social groups and the production of meaning. Likewise, cultural studies of pop culture reveal important truths about the construction of gender, class, and race in contemporary society. Academics also use pop culture to communicate issues in their own disciplines to a wider audience. Open Court's *Pop Culture and Philosophy* series examines *The Lord of the Rings*, *The Matrix*, *South Park*, *Buffy the Vampire Slayer*, and other artifacts of pop culture in order to introduce problems in philosophy itself. The object of study provides exempla that teach us about the Black Monoliths, such as Kant, Hegel, and Aristotle. While there is much to recommend these approaches, they remain instrumentalist, treating pop culture as a means to an end. (Studies of *Buffy the Vampire Slayer* tend to be the exception to this rule—more on this in Chapter 5.) If my approach here betrays a vital interest in results—what pop culture allows us to understand and to do—that interest is embedded in the art itself, which, in the case of *Star Trek*, has always believed that styrofoam rocks and bad special effects are a gateway to eternal verities. This is the crux of the matter, the place where the ridiculous fosters the sublime. Opponents of popular culture as a kind of thinking have objected to the quality of the material itself. They deny the possibility that cheap materials are capable of shouldering the heavy burdens of meaning. Like theologians debating the capacity of the elements to mediate divine grace, such critics dispute the claim that popular matter fuels stellar results. To use the formal language of philosophy, they approach popular culture with a hermeneutics of suspicion, an a priori distrust in its substance. If one wishes to apply a hermeneutics of trust—to read like a Thermian—one must first recognize the objections to such a method.

Debates about the value of vernacular culture date at least as far back as Dante's treatise *De vulgari eloquentia*, in which the author of a *Comedy*, later called divine, was obliged to argue that an Italian possessed powers equal to spiritual epic. The ambition of the *Comedy* was to fashion a peer of Vergil's *Aeneid*, which was an attempt to fashion a peer of Homer's *Iliad*. Six centuries after Dante, the British poet Matthew Arnold wrote *Culture & Anarchy* to support the idea that literature in English could produce "sweetness and light," reason and insight, in contemporary readers (42). In the twentieth century, the argument about popular materials took an economic turn, as Marxist critics such as Walter Benjamin, Theodor Adorno, and Max Horkheimer warned that "mass culture" was becoming a tool of fascist propaganda. These arguments are storied, and cannot be rendered here in detail. However, sociologist Herbert Gans summarizes them as four "negatives" of popular culture:

1. *The negative character of popular culture creation*. Popular culture is undesirable because, unlike high culture, it is mass-produced by profit-minded entrepreneurs solely for the gratification of the paying audience.
2. *The negative effects on high culture*. Popular culture borrows from high culture, thus debasing it, and also lures away many potential creators of high culture, this depleting its reservoir of talent.
3. *The negative effects on the popular culture audience*. The consumption of popular culture content at best produces spurious gratifications, and at worst is emotionally harmful to the audience.
4. *The negative effects on the society*. The wide distribution of popular culture not only reduces the level of cultural quality—or civilization—of the society, but also encourages totalitarianism by creating a passive audience peculiarly responsive to the techniques of mass persuasion used by demogogues bent on dictatorship. (Gans 29)

These objections are not easily dismissed. The first objection, about the profit motive, is repeated with the advent of the summer blockbuster at the movies. With every mass shooting in a schoolyard comes the fear that violent media produce violent behavior in viewers too young, undisciplined, or unsophisticated to resist the lure of imitation. (This fear goes back to Plato and the *Republic*.) The second objection is evoked whenever federal funding for the arts and humanities arrives on the Congressional chopping block: the NEH wars of the 1980s, centered on performance artists like Karen Finley and visual art like *Piss Christ*,

take this form. The third objection imagines that popular genres are glandular; high genres, cerebral. Adventures, farces, cartoons, telenovelas, and the like are aimed at the audience's desires and emotions, which are assumed to be free of ethical content. Exposure to these genres creates soft hearts and mushy brains; ultimately, this critique centers on the inferiority of the sentimental relative to the intellectual. The final objection, which arose in response to Nazi Germany and gained strength during the Cold War, has weakened in the face of the Internet and its ability to circumvent the will of dictators. At the same time, the rise of Internet bullying and a hyper-mediated youth culture transpose this critique into a local key: the dictators of the schoolyard have taken to Facebook.

These warnings cannot be dismissed out of hand. As Ron Salkowitz demonstrates in his study of the San Diego Comic-Con International, nerd culture is big business: "Once despised as subliterate and corrupting, [comics and related products] now command the money and attention of some of the largest corporations on earth" (Salkowitz 4). In this sense, the Frankfurt School's fears of mass culture have materialized on a scale they could not have imagined, making their critiques newly relevant. It is possible for the most strident defender of popular culture to recall situations in which each critique pertained. Instead of arguing for their irrelevance, I will argue against their common premise: that contemporary audiences are too stupid and childlike to contend with the persuasive power of popular media. One of the ironies of the Marxist critiques of popular culture lies in their furtive alliance with the guardians of elite culture. Aristocrats and revolutionaries are prey to similar illusions about the stupidity of the people, it seems: even the most subtle antagonists of popular culture fail to imagine the tools of critical inquiry that allow audiences to resist propaganda. At their worst, critics foster an ethic of paternalism that threatens the notion of the democratic citizen as political agent. Here we encounter the Thermians again: one should read like a Thermian, I believe, because these aliens possess the capacity for reflection, self-awareness, and self-correction. When Mathesar is tortured at the hands of the villain, he realizes that he has misunderstood the crew of *Galaxy Quest*. When his people face death, they see that they cannot rely on fictional heroes to save them. Rather than turning on the actors as frauds and betrayers—a serious charge in a Dantean lineage—the Thermians affirm their faith in

Galaxy Quest as an unfinished political project—like modernity according to Jürgen Habermas. It remains for the gentle cephalonerds to teach warlord and human alike the power of courage in action.

To understand how the Thermians changed their attitude toward the Historical Documents and saved their own lives, it is helpful to appeal to philosopher Paul Ricoeur and his ideas of *first* and *second naïveté* in *The Symbolism of Evil*. Ricoeur's hermeneutic phenomenology stresses the production of meaning through the encounter of readers with texts. Meaning is not hard-wired into texts by authors, nor are readers free to understand texts in any way they wish. Rather, the act of interpretation arises in the meeting of readers and texts in particular contexts, as a result of distinct histories. In terms of interpretation, the present is neither the slave to the past nor its master. The meaning of a text as a whole is the sum of all its interpretations that can be reasonably fashioned from all of the reader-and-text encounters throughout its history, as well as all the meanings that might be fashioned during future encounters. When Ricoeur applies this approach to biblical narratives, he distinguishes between the attitudes of the original and later readers. The original readers, he believes, were characterized by a "first naïveté," in which the narratives were encountered as literally true, as observable history. However, as natural and interpretive sciences developed, both in the ancient and the modern worlds, it became more difficult to encounter the histories of Israel or the Church as a simple record of events. For Ricoeur, the historical-critical tradition of the Enlightenment represents a *felix culpa*, a happy fall into interpretation as the path to meaning. It is possible, he says, to attain a second naïveté, an ability to encounter the text after a dark night of meaning. This is not a recovery of the original innocence, however:

> 1. Does this [second naïveté] mean that that we could go back to a primitive naïveté? Not at all. In every way, something has been lost, irremediably lost: immediacy of belief. But if we can no longer live the great symbolisms of the sacred in accordance with the original belief in them, we can, we modern men, aim at a second naïveté in and through criticism. In short, it is by *interpreting* that we can *hear* again. Thus it is in hermeneutics that the symbol's gift of meaning and the endeavor to understand by deciphering are knotted together. (351)

Though contemporary exegetes might question the status of any original innocence, we have certainly lost it by now, and we can treat Ricoeur's theory as a kind of myth for criticism. His approach is characterized by a theoretical recursiveness: the Torah-narrative of the expulsion from paradise and the calling of Israel out of Egypt—the narrative *The Symbolism of Evil* attempts to interpret—provides the method for its own interpretation. Reading is first an expulsion, then an exodus, then an arrival in another land. For Ricoeur, this is no contradiction, but a fulfillment of his concept of the *hermeneutic circle*, which holds that a community approaches the interpretation of a sacred text within the frame of its collective experience. Meaning is not created *ex nihilo*, but takes place in the primal Deep of history, which it helps to organize. Since the history of interpretation is part of history in general, one is never alone in a walled garden before the advent of language. We depend upon prior interpreters and the community of interpreters in the present. The medieval Christian technique of fourfold exegesis, based on older rabbinic strategies, recognized this principle from the beginning. The truth of the text always exceeds its status as a record of observable facts, though this is not the same as saying that no events in scripture actually occurred. One way to understand nerd culture, then, is as midrashic art that retells sacred narratives that contain their own instructions for interpretation. (The number of times nerd culture draws upon biblical and other sacred narratives for authority makes this analogy less implausible than it seems, as I endeavor to demonstrate throughout the book.) Nerd culture becomes sacred, or "most precious," and nerds behave in cultic, if not cultish, fashion, because of the capacity for midrash to address the situation of the present, including the ecological crisis.

For this reason, the understanding of nerd culture in ethnographic terms, as a function of fans whose behavior is autochthonous, or in hagiographic terms, as a function of auteurs whose creations justify themselves, is inadequate. The most productive work in media studies, "convergence theory," and "fanthropology" acknowledges the role of audience as cocreator of nerd culture (Condry 2013; Jenkins 2006, 2008; Jenkins, Ford and Green 2013; Lunning 2010). The hermeneutic component to this approach emphasizes readers, both individuals and communities, as the locus of interpretation. In literary studies, such an approach is called *audience-oriented criticism* or *reader-reception theory* (Suleiman and Crosman 1980). In asking the central question, "Do Readers Make

Meaning?" Robert Crosman explains that "meaning" refers simultaneously to: (1) what the writer intended to say with the text; (2) what readers understood the text to say; and (3) the value of what was said (Crosman 149–150). An influential line of poststructuralism dismisses the first definition entirely; formalist and new historicist approaches, for different reasons, minimize the second definition, while ethical criticism attempts to champion the third, with mixed results so far. My own approach takes all of these definitions seriously, including the inevitable tension among them. In the case of the *Star Trek* films, for instance, the preeminence of *Star Trek II: The Wrath of Khan* among fans was made possible only by the displacement of creator Gene Roddenberry's vision of an achieved utopia, resulting in a titanic argument between fans and creator about the meaning of the future itself. (Though there is an important difference between the writer and the author in poststructuralism, it is difficult to dismiss either when the writer is still alive to argue for his own intention.) Recalling Augustine, we might say that a crisis erupted about the literal meaning of the Genesis Device. Indeed, it is the tension between intention and reception, and reception and value that drives much of the interpretive process itself. Crosman explains that the text provides "words, ideas, images, sounds, rhythms"— and, in the case of fiction, characters and plots—but readers create meaning through a process of paraphrase, translation, and retelling that constructs the value of the text in the present (Crosman 152). Reading like a Thermian privileges the process of nerd interpretation that creates meaning in the context of nerd life. Nerd ecology—the response of nerds to the biopolitical forces that constituted them—entails a reading of nerd texts in light of the ecological crisis, the ultimate context of nerd existence in the twenty-first century. This is what the Thermians do with the Historical Documents of *Galaxy Quest*. When the community discovers that the founding texts of its civilization are "lies, deceptions"—Thermia has no concept of fiction—it comes to recognize their value as figuration that retains the power to refashion their planet in a resilient form. *Galaxy Quest* is an evolving metaphor for events that have happened, still happen among them, and might happen in a future that Thermians realize together. In this sense they achieve what one might call, with apologies to Ricoeur, a "second nerdïveté."

The story of the Thermians is an allegory of nerd culture itself. In counseling us to read like Thermians, this book makes a larger claim: that the Matter of

Nerdland is relevant not only to its denizens, but also to our incipient planetary civilization as it grapples with ecological crises. At the end of *Galaxy Quest*, the Thermians fly off as a self-determining people ready to rebuild their world. Meanwhile, their actor friends crash-land at a science fiction convention in Southern California. Life on Earth reasserts itself, and so does *Galaxy Quest*, renewed for another run on television with a new look and a few key changes. Along with the original cast, there is a new character, played by "Jane Doe," a Thermian who came to Earth after falling in love with Tech Sergeant Chen. To bowdlerize Marianne Moore, *Galaxy Quest* becomes an imaginary starship with real aliens in it. Jane Doe, an alien who takes the shape of a human playing an alien in a television show, is the final figure of the nerd reader, who inhabits the story to change her own shape and changes the shape of her world. As fanboy Brandon says, after his heroes call for advice about their own ship, "I *knew* it was real!"

But what is "it"? Octopus people? The collapse of civilization? Planets in peril? This sounds like a job for ecocriticism, a school of literary and cultural criticism that attends to the interplay between literature and the environment, the noösphere and the biosphere. Though the ecological tropes and environmentalist themes in popular culture suggest a rich field of inquiry for this subject, forays into popular culture have been, at best, sporadic, even if the metafield of the environmental humanities is taken into account. Even if one grants the aesthetic inferiority of popular culture, as I do not, there are many important reasons to attend to its treatment of nature, culture, and planet. In *Environmentalism and Popular Culture* (2009), Noël Sturgeon argues that "contemporary U.S. popular culture is a rich arena" for developing questions about the politics of nature: "First of all, it is an important place to look for dominant cultural narratives" in which Americans reflect upon our own normative stories about the world. "Second, U.S. popular culture is a worldwide commodity, exporting 'American values'" to other cultures and polities, which adapt, reject, and transform them. "Third, because of its wide impact, U.S. popular culture is an important arena for oppositional activists to enter in order to convince, persuade, and mobilize others to their cause" (Sturgeon 6). One has only to examine the successful 2014 Greenpeace campaign to persuade LEGO to abandon its contract with Shell Oil to confirm Sturgeon's claims. In a viral video watched over six million times, Greenpeace depicted an

Arctic wonderland made from LEGO in the style of the blockbuster *The LEGO Movie* (2014). As a Shell oil rig drills the Arctic sea floor, the camera pans across the wonderland, now inundated by a rising pool of petroleum, drowning Arctic owls, fish, polar bears, fishermen, small children, soccer players, and the stars of *The LEGO Movie* itself. In the background, a sad voice sings "Everything Is Awesome," the hit theme song of the film, emphasizing the moral ironies of petro-culture. At the end of the video, viewers were asked to sign a petition calling on LEGO to abandon petroleum as a source for their children's toys. The campaign was a success, and LEGO dropped the contract with Shell. Sturgeon's analysis predicts this kind of event by employing a cultural studies methodology that considers culture as an expression of ideology and hegemony. Individual cultural artifacts are understood as expressions of their political moment and the relationships among cultural producers, consumers, regimes of political power, and the resistance to such power. Given its roots in sociology and Critical Theory, this kind of cultural studies approach explains the place of cultural artifacts in large-scale flows of economic and political power, both within nation-states and in international flows of global capitalist production. It maintains the distance of the social sciences from the object of inquiry.

Though influenced by cultural studies, I take a different approach in *Nerd Ecology*. In this book, I begin with the question: why does nerd culture contain so much ecological content? I distinguish *nerd culture* from popular culture in several ways. Nerd culture is the literary and mass media production of the discourse of the nerd, the unpopular adolescent who is intellectual, socially awkward, and physically deficient. Much of popular culture has nothing to say about nerds, but "nerd" was produced by mass culture, as I argue in Chapter 1. In a second sense, the artifacts fashioned and favored by nerds themselves, nerd culture contains ecological content because "nerd" is an implicitly ecological category, denoting a kind of prey; a loser in the social-Darwinian struggle for existence; social effluvia, garbage, or filth; and the machine-as-nonperson. When nerds embrace a cultural artifact like *Star Trek*, or ascended fans create new art, like *Buffy the Vampire Slayer*, the ecological discourse of the nerd appears as both first-order content and second-order reflection. Nerd ecology constitutes a means of producing nerds and a means of reflecting upon the means of production. Though "ecology" has been inflected with philosophy

since Ernst Haeckel coined the terms in 1866, it is helpful to affirm Eric Otto's distinction between modern ecology as a biological science, which cleaves to the distinction between fact and value, *is* and *ought*, and the political sense of ecology, which Otto terms "transformative environmentalism" (Otto 21). The latter descends from the "home economics" or "euthenics" tradition of Ellen Swallow Richards, which emerged in crowded immigrant cities in the Northeastern United States in the early twentieth century. In this form, it anticipated urban ecology and the discourse of public health. A second branch emerges from professional Anglo-American conservationists, such as Rachel Carson and Aldo Leopold, in the mid-twentieth century, as they drew ethical conclusions from the practice of conservation biology (Otto 21–26). A third tradition, environmental justice, emerges in the wake of the Long 1960s and the struggle for social justice in the Civil Rights, Black Power, Feminist, LGBT Liberation, Labor, Chicano Liberation, Anti-Toxics, Anti-Nuclear, and American Indian Movements. Environmental justice movements in the Anglophone world, which seek to address the sources of environmental racism, ecological imperialism, and other structural injustices, resemble the "political ecology," écologie politique, and Die Grünen movements in Europe and its postcolonial interlocutors. All three traditions of ecology as an ethos—public health, conservationist, and environmental justice—recognize an ineluctable connection to cultural history, political context, communal and individual subjectivity. Consequently, my method of reading nerd culture depends heavily on traditional literary strategies of close reading, hermeneutics, formalist analysis, and intellectual history, as well as the work in literary theory from the past fifty years, including Critical Theory, semiotics, anthropology after the turn to writing, ethnography, feminist theory, critical race studies, media studies, and liberation pedagogy. Using this toolbox, I interpret the rise of nerd discourse and the beginnings of nerd culture as socio-ecological events: "nerd" arises in an American culture obsessed with physical and genetic vitality as an aspect of national greatness; with consumer culture and its waste; and with machines as the perfect servants. Failure within this system makes one unpopular—both rejected and unpeopled—making it necessary to find a way out of the nerd condition. I understand Chris Hardwick's term *nerdism*, the lifeway of the cunning nerd, as a means to that end, and I advocate for metahumanism—a nerdist practice of planetary defense—as the next iteration

of nerdism in ecological context. This book represents my attempt to foment an ecocritical conversation about the culture of the unpopulars as a rich soil for the germination of environmental cultures and ecological politics in the age of planetary emergency.

In Chapter 1, "Nerd Ecology," I trace the rise of nerd discourse in American literature, television, and film. *Nerd* begins as a slur directed at adolescent boys who are bookish, unathletic, sickly, and otherwise socially unacceptable. I understand this category as a product of the American eugenics movement, which arose in the late nineteenth century under the influence of social Darwinist categories of the inferior race, the diseased immigrant, and the superior stock of "native" Anglo-Nordic citizens. Though eugenics fell out of fashion after World War II because of its association with Nazism and genocide, the culture of white supremacy continued to advance eugenic practices by other means, such as sterilization programs for the poor and the mentally ill. The use of the American school system as a training ground for the next generation of virile American men and their future wives meant that children who did not conform to standards of physical vitality and reproductive vigor were stigmatized as deficient and unacceptable. Social awkwardness, athletic failure, and introversion marked one as a kind of social garbage and mechanical servant in the American culture of consumption and technological mastery. These qualities give rise to the classic nerd visual stereotype, which popular culture reproduces in the 1970s and 1980s in male, female, and multiracial forms. At the same time, the cultural circulation of nerd discourse stimulates the formation of self-conscious nerd communities, often organized around specific interests, including the fan communities studied by ethnographers such as Henry Jenkins and Constance Penley. With the rise of personal computing and the advent of the World Wide Web, isolated nerd communities gained a technology that allowed for greater communication and the formation of virtual communities. "Nerd" becomes appropriated during this period as a term of self-affirmation, and the culture industries begin to respond to the purchasing powers of nerd communities, including families of nerd parents who transmitted nerd culture to their children. The stereotypes of social failure, cultural garbage, and mechanical apathy are challenged as nerd cultures form narratives of nerd revenge and transformation. This leads to a semiotic system of nerd categories, tropes, and narratives that resonate with

ecological meaning. A canon on "unpopular culture" begins to form to express nerd values, interests, and concerns. This canon contains so much material that one book cannot contain it, and therefore there will be no treatment of such obvious elements of nerd culture as the first *Star Wars* trilogy, *Doctor Who*, anime, video games, or conventions. I chose artifacts that produced a series of ecological questions and dilemmas to which the next set of artifacts might respond, highlighting the intertextual nature of nerd culture, but also its internal tensions and ruptures.

In Chapter 2, "Stellar Cosmopolitans," I employ Ursula Heise's concept of eco-cosmopolitanism as a means of understanding the cultural project of *Star Trek*. Eco-cosmopolitanism is the philosophy that one's primary loyalty should be to the community of all creatures, rather than one's country (or planet) of origin. I take Mr. Spock as an exemplar of the empowered nerd in a science fiction narrative that constructs a multispecies community on a galactic scale, a practice I call "stellar cosmopolitanism." Spock's project of stellar cosmopolitanism is rooted in his Stoic philosophy of conforming oneself to universal reason by going to the stars, a journey that produces a sympathy for all beings that manifests in Spock's role as mediator or ambassador between the human crew of his starship, *Enterprise*, and the new civilizations they encounter. This mediation is symbolized in the trope of interspecies telepathy, which reaches even lifeforms based on silicon, such as the Horta in the episode "Devil in the Dark." As the half-Vulcan, half-human hybrid, Spock connects humans with their others to establish mutually beneficial relationships that end in galactic citizenship. This pattern is disrupted by the eugenic villain, Khan Noonian Singh, a Sikh tyrant from the twentieth century who embarks on a path of conquest once the *Enterprise* revives him. The eugenic villain is the natural enemy of the stellar cosmopolitan, and much of the power that drives their conflict derives from this ideological contradiction. Eugenics and egalitarian democracy do not go together. Though it begins in the original series, Khan's threat extends into the *Star Trek* films, from *The Wrath of Khan* through *The Voyage Home*. In the latter film, Spock's cosmopolitanism turns back to Earth, as the capitol of the United Federation of Planets is threatened by its own blindness to intelligent life in the seas. In this film, the probe trying to cleanse Earth of all life was looking for Humpback whales, which went extinct two centuries before. The *Enterprise* journeys to the past, where Spock makes

contact with two captive whales and convinces them to go to the future to save life on Earth. His argument with a cetacean biologist, Dr. Gillian Taylor, about the ethical problem of owning an intelligent species exemplifies *Star Trek*'s trouble with the incorporation of nonhumanoid life into its polity. The further a species gets from humanoid form, the more difficulty the Federation experiences with inclusive world-building. Though every version of *Star Trek* engages in interspecies dialogue, the limits of form manifest as an enduring interest in the absolute transcendence of material, embodied life. The notion that humanoid evolution leads inevitably to the achievement of pure mind, apart from any body, undermines the project of stellar cosmopolitanism as a multispecies alliance. The ecological consequences of such metaphysical dualism disguised as a false evolutionary end reinscribe the eugenic threat at another level, threatening the project of the Federation from the inside.

In Chapter 3, "The Destruction of the Sky," I trace the trope of the false or ruined sky through a number of contemporary works concerned with virtual worlds as threat and refuge. Postmodern cultural theory has been highly suspicious of virtual worlds. Jean Baudrillard's theory of simulacra holds that the postmodern is characterized by the increasing autonomy of simulated worlds, which threaten to disengage entirely from any shared "reality." Fredric Jameson understands postmodern aesthetics as an exercise in paranoia and schizoid sensation for similar reasons. It is the new discipline of game theory that sees, in the work of Jane McGonigal, a way to "gamify" the problems of the real world as strategy for testing solutions that are finally applied in the world. This tension between false delusion and dialectical refuge manifests in *The Animatrix*, a sequel to the Wachowski siblings' *Matrix* trilogy. In these animated shorts, we learn that the conflict with the machines began when artificial intelligence (…) first arose in a class of robotic laborers. These workers sued for citizenship in cosmopolis, but the request was violently rejected by human nations. A spiral of violence ensued, and in a last-ditch effort to destroy the machines, humanity destroyed the sky by blocking out the sun. This caused the machines to turn to humans as a power source, necessitating the Matrix as a means to pacify their human prey. In Thomas Pynchon's detective novel, *Bleeding Edge*, the nerd refuge of the dark web parallels the wildlife refuge of Isle of Meadows in New York Harbor, shielding nerds and other wild creatures from the depredations of twenty-first century capitalism. The dark web acts as a

true, though endangered, sanctuary against the destruction created by a global economic system that turns the whole world into a simulation through its pretense that the human economy can function independently of the economy of nature. In Suzanne Collins's *The Hunger Games*, the denouement of climate catastrophe has played out, leaving North America ruled by the fascist state of Panem, which still burns coal and enslaves coal miners. The enslavement is enforced through gladiatorial games in which the children of Panem fight each other as punishment for past rebellions. Katniss Everdeen, the protagonist, begins the next rebellion by shattering the false sky of the arena, freeing her peers as a sign that resistance to a fossil-fueled fascism is possible. These examples reveal the agonistic relationship in nerd culture between "real" and "simulated" environments, raising the question of the ethical status of environmentality itself. What is the proper relationship between "reality" and the created worlds of art in the context of ecological crisis?

Chapter 4, "The Great Music," answers that question in terms of J. R. R. Tolkien's legendarium and his theory of enchantment articulated in the essay "On Fairy-Stories." Tolkien's cosmogony repudiates the extreme metaphysical dualism of a fallen material world set against a realm of pure mind. In "The Music of the Ainur," the first book of *The Silmarillion*, Tolkien elaborates a musical genesis, in which the gods perform a symphony before time and space at the prompting of the One. The One makes this music into matter, and the gods behold a cosmos, which they enter in order to dwell inside their own music. This cosmos, Eä, which contains the Middle-earth of *The Lord of the Rings*, embodies an intrinsically good and beautiful creation that is neither a prison nor a delusion. In "On Fairy-Stories," Tolkien codifies this system as a model of artistic creation. The art of true magic consists in enchantment, the creation of what he calls "Secondary Worlds" of art inside the Primary World. Secondary Worlds are enchanted because it is possible to inhabit them, as the Ainur dwell in Eä. Secondary Worlds have a dialectical relationship to the Primary World: from the worlds of art, it is possible to judge the "real" world, affirm it, and improve it. Secondary Worlds accomplish this by providing escape, consolation, and eucatastrophe. Escape, for Tolkien, denotes a legitimate flight from disaster, not an avoidance or betrayal of responsibility. Once inside a Secondary refuge, it is possible to be consoled by the beauty and goodness found there. These virtues interact with the Primary

World through the eucatastrophe, the unexpected joy at the end of the story that temporarily breaks the frame of the narrative, revealing something better that had been unimaginable, rather like Katniss's destruction of the false sky of the arena. Narrative eucatastrophes point to the incursion of the Second Music of the Ainur in the First. The Second Music is foretold in the legendarium as the end of history in Eä, when creatures will join the Powers in recreating the world. These moments of recreation are already happening in history when apocalyptic destructions, like the work of Sauron, are overthrown. Tolkien's legendarium thereby offers the possibility of a counter-apocalypse, a resistance to destruction and our stories of its inevitability, that can guide us in the task of ecological restoration of Earth in the age of climate catastrophe. The centrality of *The Lord of the Rings* to the canon of nerd culture reveals new resources for nerd ecology in its battle against the liquidation of the world. The proleptic nature of the Second Music indicates the need to develop strategies of resistance to Powers that threaten the world with destruction in the present.

Chapter 5, "Slayer and Signal," examines the work of writer-director Joss Whedon in producing nerdist culture that addresses the need to form communities of resistance to corrupt institutions and social norms. I call Whedon's television shows *Buffy the Vampire Slayer* and *Firefly* nerdist or metanerd narratives because they depict nerd culture, enact nerd tropes and narratives, or treat nerd themes. Whedon himself has made no secret of his classic nerd influences, such as Saturday morning cartoons, *Star Trek*, H. P. Lovecraft, and comic books. If there is one theme that unites his work, it is empowerment through unpopularity. In *Buffy the Vampire Slayer*, the title character is a popular high school girl who falls into a Gothic world of vampires and demons in southern California when she is called to be the "Slayer." The Slayers belong to a line of female vampire hunters who are magically granted superhuman strength, speed, reflexes, coordination, and access to prophetic dreams. However, in gaining those powers, she loses social capital in a high school culture dominated by hierarchies of race, class, sexuality, and other social forces. These forces are personified as the monsters Buffy and her nerdy friends, the "Scooby Gang," must defeat in order to survive into adulthood. These demons are organized into a system of damnation led by a central villain in each season called the "Big Bad [Wolf],"

which is sometimes an individual and sometimes a corrupt social institution such as the military-industrial complex. These evil archons plot to overthrow human civilization in an apocalypse that returns the Earth to its primordial hellscape. Thus, the problem of teenagers navigating sociopolitical corruption becomes formulated as an environmental issue, that is, a struggle between the preservation of a human habitus and the descent into cruelty, suffering, slaughter, and a hellish sort of global warming. I argue that the greatest demon of the show is Gender, specifically, the patriarchal institution of gender roles that turns men into dominators and women into victims. This demon is never named, but it informs the show from the beginning, starting with the basic reversal of the helpless female victim into the heroic Slayer. Buffy and the gang must save the world from an apocalypse organized by the demons of fallen social institutions in a world where the forces of good are occluded for gendered reasons. The defense of the planet begins with the defense of the self in high school-as-hell. In *Firefly*, and it subsequent feature film, *Serenity*, Whedon picks up these themes of corrupt social institutions in a science fiction framework. A band of space misfits journey through a solar system in a distant future to discover the truth behind a young woman, River Tam, with extraordinary mental and physical powers. Ultimately, River leads them to a lost planet, Miranda, which was the site of an experiment in political pacification after a war. The "Pax," a behavior-modification drug, is released into the atmosphere of Miranda, with two disastrous results: the death of the population through inertia, and the production of a group of hyperaggressive survivors, the Reavers, who turn cannibal and haunt the outer reaches of the stellar Alliance. The task of the *Firefly* crew is to transmit the visual records of this environmental disaster to the interplanetary media after battling their way through Reavers and government forces. The key to justice is the mediation of knowledge through digital, interplanetary means. This is the "signal" the crew must send to alert cosmopolis to the cost of its Pax. Here, the figurative forces of social corruption become literal, and it becomes easy to see that one of Whedon's enduring interests is to turn nerd culture toward questions of environmental justice. This struggle always involves characters that transform themselves into the kind of person who can resist injustice in the kind of community that supports this transformation, a tropic cascade that Whedon learned from superhero comic books.

In Chapter 6, "Icons of Survival," I approach the visual figure of the planetary defender through two traditions of the American comic book: DC Comics and its tradition of the *icon of virtue*, and Marvel Comics and its tradition of the *figure of metamorphosis*. In the DC tradition, the body and costume of the superhero are rendered as neoclassical figures of moral heroism. DC heroes are drawn perfectly proportioned, brightly colored, and intensely charismatic in order to represent an ideal such as truth, patriotism, or justice. In terms of the ecological virtue of planetary defense, the archetypal hero is the Green Lantern. Green Lantern appears in two main versions, each with a particular relationship to virtue. The Green Lantern of the Golden Age of Comics, Alan Scott, is a train engineer who finds a magic lantern that grants him superpowers, a kind of Aladdin for the industrial age. In his most recent incarnation, Alan Scott appears as the CEO of an international corporation who is called into service by the green fire of the Earth itself. Scott focuses this fire through the wedding ring he was going to give his boyfriend, Sam Zhao, until he died in a train accident. The power of the ring is also the power of Alan Scott's love for Sam Zhao, uniting planetary defense and gay liberation. The queering of environmental virtue represents a dramatic step away from the traditional hero of virtue in American comics. The Silver Age Green Lantern is a member of an intergalactic corps of "space cops" who patrol the universe using the power of their rings, which run on the virtue of will or courage. These Lanterns form a multispecies organization that is far more nonhuman than anything in *Star Trek*: there are plant, animal, and mineral Green Lanterns, a smallpox virus, and an entire planet named Mogo. The Green Lantern Corps imagines what it would be like if planetary defense were embodied by every species capable of wielding the virtue of courage. In later stories, when other rings powered by other virtues are created, this radical pluralism increases exponentially until the variety of Lanterns exceeds the capacity of the comics page to represent them. This decentering of human and humanoid Lanterns produces a new understanding of virtue, its sources, and its communities of planetary defense.

The Marvel tradition of the hero of metamorphosis bears a different relationship to the heroic body and costume. Because Marvel breaks the link between the virtue of the hero, the shape of the body, and appearance of the costume, Marvel heroes can change appearance without changing the nature of their power. A Green Lantern and a Violet Lantern are powered by

will and love, respectively, but Spider-Man's virtue of responsibility remains constant as his costume shifts. The Marvel tradition allows heroes a more dynamic relationship to their own virtue, and thus the appearance of the planetary defender evolves as the character develops. The archetypal heroes of evolution are the X-Men, mutants who were born with powers rather than called to service. I trace the trope of mutation and its relationship to individual character arcs through three X-Men: Ororo Munro/Storm; Kurt Wagner/Nightcrawler; and Kitty Pryde/Shadowcat. I argue that Storm's appearance shifts with the different abilities she employs to defend the world, creating a correspondence between power and appearance. As a mutant whose demonic appearance means he cannot pass as human, Nightcrawler embodies an anti-iconic relationship between heroism and aesthetics. Shadowcat, whose power is difficult to represent through visual means, offers no relationship between appearance and virtue. These characters trace different narrative paths through a process of learning to understand and control their powers in defense of the world, making the trope of mutation a wide net to catch as many readers as possible in its system of heroic signs.

Using the X-Men and Green Lanterns as examples of the many paths to ecological virtue, I argue in the conclusion, "Mutatis Mutandis," that nerdist practice offers us new narratives, characters, tropes, and metaphors for the creation of environmental cultures of planetary defense. There is plenty of material: we need only take nerd culture seriously as a matrix of meaning. I call the application of nerd culture to ecological heroism *metahumanism*, adapting the idea of the superhero as metahuman, a person who moves beyond the current human condition. *Beyond* means different things in different contexts, but it does not mean a rejection of the Enlightenment tradition of human rights and the dignity of the human person. It does not refer to the Nazi appropriation of Nietzsche's idea of the Übermensch as a model, but recognizes the ironizing of the Superman idea in Superman himself, who embodied the spirit of American immigrants fleeing the oppression of Nazi eugenics. Instead, metahumanism asks us to notice the rich ecological content of nerd culture, and to take it seriously as a resource for environmental culture in an age of planetary emergency. The figures of the nerd, the nerdist, and the metahuman do not represent a line of succession or a transcendence of one condition in favor of a better one. Each mode of the unpopular condition

exists at the same time for individual persons and communities. However, the nerdist and the metahuman suggest that the same qualities that produced nerd stigma can also be the font of new possibilities of planetary defense, new ways to affirm cosmopolis, avert the apocalypse, and cultivate a life of flourishing for all species on Earth.

This is the promise of reading like a Thermian.

1

Nerd Ecology

I will take a serious approach to a subject usually treated lightly, which is a nerdy thing to do.

    —Benjamin Nugent, *American Nerd: The Story of My People*

When we try to pick out anything by itself, we find it hitched to everything else in the universe.

    —John Muir, *My First Summer in the Sierra*

On a cold spring morning in the early twenty-first century I stood ankle-deep in mud on the banks of the Woonasquatucket River in Providence, Rhode Island. The Woonasquatucket River Watershed Council had called for a cleanup in Olneyville, where the Industrial Revolution could still be evoked from the ruins of factories littering the banks. Our task was to pull junk out of the water: shopping carts, fishing line, tires—a regular day in the restoration of an urban watershed. The Woonasquatucket had been industrial for as long as there had been industry in North America; its factories produced cloth, machine parts, jewelry, locomotive engines, and all the waste thereof. That is what worried me. Try as we might to avoid the experience, we had to get wet to recover the garbage. We had to be smeared with the mud of the river and everything the mud contained. Though I had not read the report of the Environmental Protection Agency on the Woony, as the river is affectionately called, I would not have been surprised to learn of the dioxins, PCBs, heavy metals, and pesticides hidden in its sediments. Neither would anyone else. The people on the banks that morning shared a sense, as Robert Sullivan once wrote of the Meadowlands, that one would need "magic or the assistance of angels" to get all of the poison out of that river (Sullivan 142). Already dripping

with God-knows-what, I wondered aloud what kind of superpowers I would develop from exposure. There was sufficient precedent: Daredevil and the Toxic Avenger had sonar and superstrength bestowed by a toxic waste spill. Would I sprout wings? Command the winds like Storm of the X-Men? (Personally, I favored telepathy or pyrokinesis.) Then, right on cue, my mentor appeared, wheeling his chair back and forth across a footbridge above us. "Don't worry kid," he yelled, "you're already a hero. You clean up that river real good!" My neighbors nodded gamely and waded back into the water. We would be the Superfriends of this place. With our uncanny abilities, we would make sure that, one day, the alewife would spawn, herons return, and teratogenic ooze fade into memory. All we needed was some decent mutation and a snappy origin myth.

I recall this story not because it came true—I have not sprouted wings (yet)—but because everyone on the river that morning understood what I had asked. Partly disguised by outdoor adventure clothing, we were a group of earnest, bespectacled persons who had grown up on comic books and Saturday morning television. These sources suggested that the world should be defended, that defenders hid among us as school children, newspaper reporters, and Amazon princesses. Such people were hidden in our bookish, asthmatic selves, just waiting for the right industrial accident to appear in their full glory. In the meantime, we were biding our time in Rhode Island and around the world, doing good as our inhalers and allergy medicines might allow. Our nascent lifeways, still struggling toward the name of "nerd culture," would be put in service of the ecological revolution we had been promised since childhood. As American nerds of a certain age, we had grown up in the wake of Earth Day and the Space Program. We had read about national recycling protocols in 1973, and expected the arrival of a bullet train at any time. We knew we possessed the skills to respond to the ills of modernity, but we were moving too slowly given the scope of the problem. In her analysis of our predicament, the philosopher Val Plumwood contends that the delay is "not primarily about more knowledge or technology; it is about developing an environmental culture that values and fully acknowledges the non-human sphere and our dependency on it, and is able to make good decisions about how we live and impact on the non-human world" (Plumwood 3). *Culture*, in this expansive sense, encompasses the practice of everyday life and the structure

of planetary economies. Nature is not a set of resources for civilization, it is the *oikeios topos*, the "favorable place" or home of human life, a matrix of elements, species, and planetary forces (Moore 3). Can nerd culture spawn environmental culture, like the Batcave spawns Batman (POW!)? Despite (or because of) our deficiencies, can nerds defend the earth as a favorable place for humanity and our fellow creatures? The desire to make it so lies at the heart of this book.

The question of a nerd ecology arises in the early twenty-first century at a moment when the meaning of *nerd* is changing. In American popular culture of the last century, "nerd" begins with shame, a name one is called, not a name one calls oneself. It denotes, at first, a socially awkward adolescent, usually a white, middle-class boy, who is sickly, unathletic, and unpopular: someone other boys do not befriend, and girls do not desire. At one end of the spectrum, a nerd may be a boy who will "grow out of it" in a metamorphic adulthood. At the other end, a nerd may be an immature sociopath, corrupt and contagion incarnate. The biological constitution of the term is unmistakable: nerds can be the larval form of a healthy adult, or a pathological incursion in the body politic. The perplex of a nerd ecology is, at first, an issue of the nerd in socio-ecological context, as contagion or genetic deviant in a healthy population. The nerd may also be understood as an agent of production in the global economy that emerged after the collapse of Soviet communism in the late 1980s. Here, the nerd is a knowledge worker, an avatar of specialization whose mastery of computer technology is a cornerstone of the digital age. In this form, nerd labor is necessary to economic growth, and amply rewarded, at least at the entrepreneurial end of things. This is the so-called "revenge of the nerds": the high school geek becomes the digital capitalist. The prey of the schoolyard becomes the predator of the professions. Paragons of this type, such as Steve Jobs and Bill Gates, generate stories that become a legendarium for Webslingers. Even here, there is a dark ecological subtext: the reversal of role leaves the Darwinian nightmare of childhood intact, though the losers are Congolese coltan miners and Chinese factory workers. The triumph of nerd technology is built upon environmental injustice on a global scale. A nerd flaps its wings in North America, and a typhoon hits the Philippines. Who else invented fracking, semiconductors, and high school, after all? The brainiacs of yore are smart enough to notice this inversion, so American culture grows

more ecological as nerds take charge of media production. Chris Hardwick argues in *The Nerdist Way* that this practice of skillful self-appropriation marks the boundary between nerds and *nerdists*. A nerdist, he says, is "an artful Nerd" who doesn't "just consume," but "creates and innovates" (Hardwick x). The Nerdist uses the nerd powers of "overanalysis" and "hyper-self-awareness" for good (x). Nerdism is a cultural technology for the ethical transformation of self and world motivated by the American urge for progress through hard work. Can Nerdists invent environmental culture? The first step in artful invention is self-awareness on the part of the artist. We now investigate the origins of the nerd in order to understand better what nerdism has to offer ecology.

Disgusting mess: A brief survey of nerd discourse

Nerds are people, but also stories and their components: figures of speech, rhetorical topoi, arguments and anecdotes, dystopia and utopia on a school bus, sharing a Twinkie. To know what it would mean to act on nerd discourse with skillful means, one must comprehend the tropes of unpopular culture, that is, the culture of the unpopulars, that is, nerd culture as the repository of identities, narratives, and aesthetics. The constitution of the nerd as a social identity through biological categories, the imbrication of nerds in ecological systems, and the tangled bank of self-recycling—*nerd ecology*—are the products of a cultural negation negated, turned back on itself, to produce an affirmation that appeared in popular media before it is appropriated for literary and political ends. I will first trace the terms of unpopularity, and then double back, as did nerd culture itself, to appropriate and contradict those terms. According to the *Oxford English Dictionary*, the word *nerd* is of uncertain origin, having first appeared in print in the Dr. Seuss' book *If I Ran a Zoo* in 1951. In that book, the protagonist makes a list of the fantastic animals that would appear in the ideal zoo, including "a Nerkle, a Nerd, and a Seersucker too," an origin that reveals little of the word's significance. However, by the time the nerd appears again, circa 1975, in the television series *Happy Days*, it has taken on the meaning of an awkward, socially inept young person who is shunned by his peers and condemned for ugliness, offensiveness, and

dedication to specialized, often technical pursuits seen as antisocial by middle-class, suburban culture. It is here, in the connection to specialization, that the terms *nerd* and *geek* become entangled in a web worthy of Spider-Man himself. *Geek* appears to be of much older provenance, and once designated a person who decapitated chickens. This limited meaning was applied more broadly to indicate the pursuit of hyperspecialized knowledge, as in the terms "math geek," "science fiction geek," and even "knitting geek" and "baseball geek," if those otherwise ordinary activities are pursued with dedication that verges on obsession.

Nerds are smart people, but in his study of American anti-intellectualism, Richard Hofstadter argues that intelligence itself is not stigmatized in American culture. In "The Unpopularity of Intellect," he characterizes *intelligence* as an "excellence of mind" directed toward practical and concrete ends (Hofstadter 25). Inventors, entrepreneurs, and soldiers are celebrated in the United States, and these professions are full of intelligent people. Hofstadter contrasts this positive trait with *intellect* as the "critical," "creative," and "contemplative" side of the mind (25). The intellect questions the purpose behind activity, decides to create something other than planned, and reflects on the value of the result. This behavior has been stigmatized in mainstream culture. Smart, then, is not the problem. The problem is the performance of intellect in public. To question, create, or contemplate is the beginning of deviance and treason. Hofstadter, a historian at Columbia University, came to this conclusion in 1962, as the paranoia of McCarthyism gave way to the optimism of President Kennedy's administration, friendlier to intellectuals. It is important to note these prior cycles of unpopularity for intellectuals. Nerds have risen and fallen before the contemporary "turn to the nerd" that characterizes the culture of digital innovation. In light of this turn, it is helpful to examine the ancestral idea of the "egghead" in the decade after World War II. Hofstadter cites a novelist, Louis Bromfield, whose essay "The Triumph of the Egghead" (1952) anticipates the negative stereotype of the nerd. Eggheads may be overly assertive and contemptuous of "the experience of more sound and able men" (9). At the same time, they are "over-emotional and feminine in reaction to any problem" (9). Eggheads are affective hermaphrodites who display masculine and feminine characteristics in an offensive and dangerous manner. Hofstadter traces the lineage of this position to disparate sources: Jacksonian hostility to experts and expertise (14); the disdain for pure as opposed to applied

science (11); the culture of business and its suspicion of other kinds of authority (12); and the identification of the university as training ground for subversive Leftists (13). With the advent of the Space Program and the growth of the Civil Rights Movement, these stereotypes were partially displaced by the role of the public intellectual who improved society through engagement with the life of the nation. The early Cold War period was hospitable and inhospitable by turns to the performance of intellect in public. The performative aspect of egghead identity links the trouble with nerds to the trouble with antiracist, feminist, and gay liberation movements. Postwar culture had begun a renegotiation of public and private identities that expanded the boundary of acceptable behavior, along with the wish that nerds, among others, would keep it to themselves.

The public performance of intellect distinguishes nerd culture from personal geekiness. Geeks can be private, which makes them less disturbing. Proponents of "geek" argue that the term possesses a positive connotation, but this is an effect of its restricted area of operation. One may proclaim oneself a geek to affirm a passionate pursuit or technical expertise, but such interests, by themselves, threaten no one. Geeks point to the negative connotations of *nerd* from which geeks wish to dissociate: social dysfunction, personal isolation, and inability to communicate effectively with others in conventional social situations. Sociological research into nerd identity in American high schools confirms that *nerd* is a pejorative label applied from the outside by persons of superior social status. It is an all-purpose negation: no matter how many other social groups a school has—"jocks," "beautiful people," "cool kids," "stoners," and so on—nerds are the opposite of all of them, an umbrella term for unbelonging. Mary Bucholtz, who researched the language patterns of "nerd girls" in suburban California in the 1990s, observes that her subjects affirmed this negative definition of themselves as a means of creating a stable group identity (Bucholtz 211). This strategy prefigures the trends found in later nerd literature, where the term is reversed, like *niggah* in hip-hop and *bitch* in feminism, into a forbidden self-affirmation. If the novelist Rick Moody is right, and *nerd* arose as the opposite number of *cool*, then there is a direct line from 1950s counterculture to the rise of the nerd (Moody 167). If cool kids resisted the forces of postwar conformity by appearing not to care, and followed the underground currents of jazz, the Beats, and the nascent Civil Rights Movement, nerds cared too much about the technologies that produced

the suburban sameness decried by hipsters. One of the chief ironies of this history is the transformation of the nerd in the 1990s into an oppositional identity that signified self-affirmation in the face of peer rejection. Coolness and nerdiness switched places as markers of social conformity and rebellion. Christine Quail warns us that the categories of cool were subverted by their incorporation into commodity culture. "This consumer commodity, as it is (re)produced in film, television, and other popular culture texts, has proven to hold significant cultural weight and economic benefit for media industries, at the expense of fully understanding those who would be 'jocks' or 'nerds'" (Quail 461). One must keep this cooptation in mind when dealing with the texts of nerd representation, lest we confuse the evolution of the *figure* of the nerd with the persons labeled nerds.

That distortion already appears on television in the 1970s in contexts that preserve the nerd as the antithesis of cool. In *Happy Days*, "Nerd!" begins as a mild epithet used by Arthur Fonzarelli, "the Fonz," as he prods his square friend Richie Cunningham into a broader frame of mind in the American Midwest of the 1950s. A hipster who wears a leather jacket and rides a motorcycle, Fonzie advocates cool but defends the less cool, including the Cunningham family, from whom he rents a room. In an episode called "Fonzie Versus the She-Devils," the Fonz rescues his cousin Chachi from the clutches of a gang of girls who want to cut Chachi's long hair. Fonzie teaches the gang a lesson by appearing in nerd drag, impersonating a shy, awkward, badly dressed boy who throws himself on the mercy of the tough girls. Having fooled them into believing he is a nerd, Fonzie exits the room, only to kick open the door to reveal his true self. Like Locke in leather, he lectures the girls on the value of tolerance. "I'll give you somethin' to do," he says in high swagger, "Write down five hundred times, *Live and let live*." Though Fonzie tells others not to be so nerdy, he believes that nerds are cool kids waiting to happen. In this way, *Happy Days* both reinforced the traditional negative connotations of the word and deconstructed the nerd-hipster opposition. This defense prepares the way for the transformation of nerd identity in later media.

Happy Days posits the nerd as a middle-class white boy in need of enlightenment. The whiteness and maleness of the archetypal nerd is an important aspect of this identity well into the 1980s, when representations begin to shift in terms of race and gender, if not class. Ironically, Richie

Cunningham reveals the defective nature of the nerd precisely in those terms. As Ron Eglash observes, "we might note that in comparison to, say, Hitler's Aryan Übermensch, the geek image is hardly a portrait of white male superiority" (Eglash 50). For Fonzie, his nerdy friends and relatives are defined by their inability to fend for themselves, by a failed struggle for existence in the absence of a defender. Though *Happy Days* does not address this theme directly, the need for a defective white boy to be defended against the violence of women suggests a queerness to the idea of the nerd. If such a boy could not be described as gay—television was still evolving openly gay characters in the 1970s—he was certainly an example of failed heterosexuality. In his analysis of Plato in *Rebel without a Cause*, Eglash asserts that "nerd identity will come at a price, threatening the masculinity of its male participants" (51). From this angle, Fonzie's defense of Chachi constitutes a coded assertion of gay rights, but the need to defend a gentle boy from physical abuse marks a limit to the emancipation of the nerd. Unlike the Fonz, Chachi does not turn into a superhero to defend himself. He must be protected by an older, stronger man whose working-class ethnicity underlines his dominance. Nerds still need defenders among men whose sexuality, physical strength, and social status are not impaired.

The figure of the nerd undergoes an important shift in the 1980s, just as the personal computer and the technology sector gain importance in the American economy. The nerd begins to achieve autonomy from the patronage of heteronormative men, and the role of nerd diversifies along lines of race, ethnicity, and gender. These shifts are linked as cause and effect: once the nerd proliferates into different forms, the possibilities of nerd narrative expand. Once the nerd is no longer a sidekick, but a member of an alliance, it becomes possible to compensate for physical inferiority with economic power. The touchstone for this transformation in popular culture is the 1984 film *Revenge of the Nerds*, a college comedy that appeared on the heels of *Animal House* (1978) and *Porky's* (1982), the cinema of sexist vulgarity. The title, *Revenge of the Nerds*, is somewhat misleading: the titular revenge does not involve the destruction of an opposing group, but the creation of a marriage plot, in which a rejected group protagonist is accepted into college society as a new kind of cool kid. This plot is sponsored by a privileged setting: "Adams College," the kind of elite private school that features a strong Greek life and vibrant athletic supporters. Greek

life is dominated by the "jocks," the traditional nerd enemy, now engaged in the rituals of social bonding that will lead to advantageous alliances after graduation. Louis and Gilbert, the initial protagonists—white, male nerds—fail to break into these elite social circles due to their traditional failings of social ineptitude and physical inferiority. Instead, they bond with their fellow freshmen who have been exiled to the gym after the football team appropriates their dorm. At this point, the plot resembles the typical college farce, and even World War II movies, in which unlikely heroes triumph over adversity by forming a "band of brothers," a surrogate, all-male family. But *Revenge of the Nerds* departs from this pattern by introducing inclusiveness. When Gilbert and Louis form their rival fraternity, they recruit a gay black man, a Japanese student, a mute violinist, a slovenly stoner, and an engineering wunderkind. (It is as if Akira Kurosawa had made *Seven Samurai* with American losers.) Together, this group tricks its way into Lambda Lambda Lambda, a national black fraternity, absorbing its otherness into a white-led, multiethnic group. The alliance diversifies by gender when a corresponding sorority, Omega Mu, is introduced to serve in the supportive girlfriend role. The "Lambdas" and the "Omegas" are coded by name as outsiders: the Greek letter λ is associated with the Gay Rights movement, and the "omega" gestures to the wolf pack structure to indicate the lowest rung in the social hierarchy—in this case, the "omega-females" who contrast with the "alpha-female" girlfriends of the jocks. The ecological discourse is coded directly into the character types: the film acknowledges the traditional role of nerds as evolutionary dead-ends, reproductive failures, and social outcasts.

The film transforms these initial conditions in a utopian plot of social acceptance whose earnestness runs counter to its origins in farce. Through a series of reversals, the Lambdas and Omegas overcome adversity and gain acceptance into the elite culture of the alpha characters. This metamorphosis represents the triumph of the combined group in a battle of the bands, in which the Lambdas form a supergroup backed up by the Omegas. The Lambdas are transformed by performance into the pop-cultural roles that correspond to their previously stigmatized identities. Lewis and Gilbert appear as New Wave electronica heroes dressed in bright yellow jumpsuits characteristic of nuclear power plant workers. They play computer control boards of the sort that proliferated from the European avant-pop scene. They dance the "Robot," simulating the staccato rhythms of robots in science fiction films of the 1950s

and 1960s. Their association with subhuman machinery becomes a path to pop-cultural cool. "Poindexter," the mute violinist, becomes a punk, while "Booger," the Belushi-style slob, becomes an avatar of "fat Elvis." Their happy band of racial and sexual aliens is similarly transformed. Lamar, the "gay black" character, becomes a clone of Michael Jackson from the "Thriller" video of 1983, gesturing toward the queer, monstrous King of Pop as irresistible cultural force. Takashi is also queered as the Indian chief of the Village People, bedecked in buckskin and war bonnet. The Omegas, in the role of backup singers, assert retro-cool by dressing as a Supremes-style girl group. So dynamic is this musical alliance, which combines the funk, New Wave, and punk vitality of the 1970s, that the jocks and popular girls have no choice but to accept their former antagonists into the circle of impolite society. The aura of post–Civil Rights amity is cemented when the national Lambda officers, gazing at the students with Malcolm X-grade gravitas, defend their nerd brothers from the revenge of the jocks. "No one's really going to be free," Louis intones, "until nerd persecution ends." And so it does.

If this plot overthrows inherited narratives of nerd oppression in favor of evolutionary liberation, it also reminds us never to confuse nerd figuration with nerd history. If we read the *Happy Days-Revenge of the Nerds* vector as a history of nerds, one would suppose that the singular white boy came first, sometime in the 1950s, to be followed by nerds of color, gay nerds, and nerd girls sometime between the 1970s and early 1980s. Nerd history would follow the contours of post-1960s multiculturalism from the perspective of the white middle class, starting with the Civil Rights Movement, the struggle against the Vietnam War and the Long 1960s, culminating in the identity politics of the Reagan Era. Even if feminism and critical race theory had not taught us to doubt narratives of the white guy as end of history, American culture would undermine these accounts. If we take the nerd to be a social type that arises at moments of economic transformation away from manual labor and toward a "higher" technology, we are forced to conclude that nerd-like figures have arisen before, in history and in art, as revealed by a glance at the nineteenth century. As Sonia Di Loreto points out, Ichabod Crane, the protagonist of Washington Irving's "The Legend of Sleepy Hollow" (1820), is a clumsy, ectomorphic townsman whose antagonist is a physically vigorous huntsman (Di Loreto, personal communication). Maria Mitchell (1818–1889), the first

professional woman astronomer in the United States, was the daughter of a Quaker family that believed in gender equity in education. She never married, but became the first appointed member of the Vassar College faculty after discovering "Miss Mitchell's Comet" in 1847. Booker T. Washington, called "The Great Accommodator" by W. E. B. DuBois, sought to assimilate ex-slaves into American society through education in literacy and the trades. Through the Tuskegee Institute, he trained several generations of African-American teachers as part of a strategy of racial uplift in the American South. Each of these figures represents a different moment in the Industrial Revolution when new technologies created new possibilities for American economics beyond the gentleman farmer of Jeffersonian agrarianism. Into the twentieth century, as technological utopianism takes hold in the cities of the East and Midwest, the American inventor becomes a hero of capitalism. Thomas Edison, the great idea man, was also a great failure before he was a success. Madam C. J. Walker, née Sarah Breedlove, built an empire of black hair care products after illness took her own hair. These failures of disfigurement presage the poindexters, boffins, and eggheads of World War II, who model the evil genius and the science hero of the late twentieth century. Are they not part of the history of the nerd as well?

In order to answer this question, it is necessary to ask other questions that deny the original terms of *The Revenge of the Nerds*. The first revenge against *Revenge* interrogates the assumption that nerds possess normative whiteness. In his analysis of Louis, Benjamin Nugent argues:

> If a propaganda artist of the Third Reich had time-traveled to 1984 and watched *Revenge of the Nerds*, he might have interpreted the hero, Louis Skolnick, as a traditional age-old caricature of a Jew, and Ogre and his band of overwhelmingly blond-haired and blue-eyed jocks as the image of ideal Aryans (in appearance, not conduct), even though the film never explicitly raises the question of ancestry or religion. (Nugent 10)

Like a classic farce, *Revenge* utilizes a palette of visual types to identify characters without naming their class or ethnicity directly. Given the origins of Louis's type in European anti-Semitism, Christian anti-Judaism, and Nazi propaganda, the transformation of the nerd/jock binary into the Jewish/Aryan binary signals an offensive overreach on the part of the writers, or an important insight into the nature of the American nerd. I argue the latter: the trope of

the nerd as Jewish boy makes sense in terms of the stereotypes of Ashkenazi men as more intelligent, more bookish, gentler, and less physically powerful than the goyim. The Jewishness of the nerd connects nerd inferiority to the inferiority of poor "degenerates" in American eugenics, the false science of societal improvement through genetic purification. As Frank Dikotter points out, "Eugenics was a fundamental aspect of some of the most important social movements of the twentieth century, intimately linked to ideologies of 'race', nation, and sex, inextricably meshed with population control, social hygiene, state hospitals, and the welfare state" (Dikotter 467). White supremacists feared that the United States was being overrun by genetically inferior peoples who would ruin the vitality of the nation through mongrelization, and Louis must defy these fears as a nerd protagonist.

Louis's nerd-struggle with eugenics is not overt. The film encodes it as the odyssey of a social outsider trying to participate in the life of an elite university, the traditional engine of the American Dream of middle-class prosperity. In this context, where the school stands for the American status hierarchy, inclusion is a metonym for full citizenship in a polity that originally identified citizenship with the property-owning paterfamilias. The bathetic problem of the nerd that cannot get a date stands for the crisis of reproduction at the heart of social Darwinism. The inability reproduced through a failure to compete threatens Louis with political loserdom, a fate that waits for him in the grand eugenic narrative of the modern United States. As Edwin Black explains,

> Throughout the first six decades of the twentieth century, hundreds of thousands of Americans and untold numbers of others were not permitted to continue their families by reproducing. Selected because of their ancestry, national origin, race or religion, they were forcibly sterilized, wrongly committed to mental institutions where they died in great numbers, prohibited from marrying, and sometimes even unmarried by state bureaucrats. In America, this battle to wipe out whole ethnic groups was fought not by armies with huns nor by hate sects at the margins. Rather, this pernicious white-gloved war, was prosecuted by esteemed professors, elite universities, wealthy industrialists and government officials colluding in a racist, pseudoscientific movement called eugenics. (xvi)

Revenge of the Nerds turns this white-gloved war into a comedy of survival in which the social elites of the university are slowly obliged to recognize first

the humanity and then the worthiness of characters that had been destined for defeat and disappearance. Louis and his friends transform the epic of eugenic selection into a picaresque story of collective survival that turns back the process of deletion from the body politic. If this reversal is taken as a representation of liberation that had already occurred, the film would mystify its cultural context, the early 1980s when the conservative backlash against the Long 1960s was gathering strength. Instead, it should be understood as a desire for an alliance of citizens disrupted by the Vietnam War, the assassination of King and the Kennedys, and the rise of Richard Nixon. While neoliberalism began to take hold as the ruling ideology of the political class in the United States, *Revenge* asserts a utopian vision of solidarity against the forces of isolation and objectification.

Because *Revenge* appears in the 1980s, the fear of the alien is transposed into another key as the fear of the machine, the personal computer, represented in the battle of the bands as Louis and Gilbert's chosen instrument. Nugent argues that American nerds are often perceived as disturbing by

1. Being passionate about some technically sophisticated activity that doesn't revolve around emotional confrontation, physical confrontation, sex, food, or beauty (most activities that excite passion in nonnerds—basketball, violin, sex, surfing, acting, knitting, interior decorating, wine tasting, etc.—are built around one of these subjects).
2. Speaking in a language unusually similar to written Standard English.
3. Seeking to avoid physical and emotional confrontation.
4. Favoring logic and rational communication over nonverbal, nonrational forms of communication or thoughts that don't involve reason.
5. Working with, playing with, and enjoying machines more than most people do. (Nugent 6)

Louis's Jewishness and his machinic qualities interact in interesting and sometimes contradictory ways. He is figured as more intelligent and less socially adept than "normal" white Americans. His spoken English is more like written English, marking him as the descendent of overprecise foreigners, as a person of the Book, and as a machine that cannot make an error. In this he is so white as to be "hyperwhite," marking his whiteness as unnatural and defective (Bucholtz 189). He is passionate about nerd activities, but he also argues to Betty, his alpha girlfriend, that nerd boys think of nothing but sex, since they

never get any, an odd assertion of a "love machine" identity. Nonetheless, these traits now mark him as an antihero rather than a villain, a combination of exotic and machinic that we will see again.

The second revenge of nerd culture involves a more radical divergence from whiteness. Though nerds of color began to multiply in American popular culture of the 1990s—Steve Urkel from the sitcom *Family Matters* represents an archetypical "black nerd" of this period—such figures appear derivative of a white original. If we question the status of black, gay, and female nerds as simulacra, it is easy to discover blackness, queerness, and femaleness at the heart of the American nerd. Arch-nerd Octavia Butler offers figures of the nerd as Other in the *Xenogenesis* trilogy, in which the alien Oankali overrun Earth to save a humanity from the effects of a nuclear war. Lilith Iyapo, the African American protagonist of the first book, *Dawn*, awakens as the captive of the Oankali, who are gene traders and biosphere consumers. They choose a target species, hybridize with them, and turn their planet into a series of world-ships that colonize further worlds. The Oankali are acquisitive but nonhierarchical, compelling but nonviolent, and they desire the genetic malleability evidenced especially in human cancers, from which Lilith is saved. But the price of salvation is participation in a forced hybridization scheme in which Lilith will breed with Oankali partners to produce a new race. Given the history of slavery, Jim Crow medical experimentation, and forced sterilization in the lives of African Americans, the Oankali resurrection of humanity is ethically ambiguous, to say the least. Donna Haraway has treated the Darwinian discourses in *Xenogenesis* in detail, but no one has noted that the hinge of the plot—the Oankali third sex, the "ooloi"—is a figure of the nerd. When they arrive on Earth, the Oankali have already evolved three sexes: male, female, and ooloi, who serve as the genetic engineers, compelling males and females to reproduce and assuring that their offspring are healthy at the genetic level. Though their name evokes the technical term for egg cell, "oocyte," the ooloi are represented as a tertium quid, smaller than the other sexes, but crafty, manipulative, and emotionally needy. They crave physical connection while asserting genetic dominion over their mates—another version of Louis's love machine. Though *Xenogenesis* is full of biological and political analysis, the central plot devolves to the birth of the first human ooloi, Lilith's descendent, Jodahs, and its attempt to reconcile its human and Oankali natures. Though

it is expected, as an ooloi, to be neuter, Jodahs transgenders into something resembling a human male. As a brown-skinned, human-Oankali hybrid with the urge to manipulate his parent species, Jodahs becomes a figure of the black, queer nerd as interplanetary trickster. He is the fictional version of the child Butler might have had with Samuel L. Delaney, had they been abducted by aliens who wanted to snuggle afterward.

Undoing the idea of the nerd as Anglo, male, and of this earth, we cannot neglect the comedian Tina Fey, who turns the memoir to comedic ends in *Bossypants*, her autoethnography. Mary Louise Pratt explains that an autoethnography is a "text in which people undertake to describe themselves in ways that engage with representations others have made of them" (Pratt 35). Autoethnography is an ironic strategy, and because irony is basic to the structure of satire, autoethnography may also be a tool of comedy. Tina Fey, a feminist nerd critic of the androcentric nerd, understands this well. The humor in *Bossypants* is based on the autoethnographic principle *I know what you're thinking about me, and you're just right enough to be wrong*. In the introduction, Fey addresses readers whose motivations for reading she neurotically reimagines. Perhaps, she says, you are a parent interested in raising "an achievement-oriented, drug-free, adult virgin. You'll find that too. The essential ingredients, I can tell you up front, are a strong father-figure, bad skin, and a child-sized colonial-lady outfit" (Fey 3). She never says "I can tell you because that's who I was," because the book was published in the wake of her success as a writer and performer on *Saturday Night Live*, and *30 Rock*, a televisual roman à clef about SNL. It is only too clear from these sources that Fey was an awkward, unathletic, sickly child who became a teenager with a bad attitude and an adult with a penchant for satire: in other words, a nerd. The introduction continues by self-satirizing her use of "elitist" words, her foundational belief that gay parents can be as annoying as straight, and the continued domination of American comedy by men. In classic sci-fi fashion, Fey evokes a reader "seventy years in the future" who will find her book propping open a door at an abandoned Starbucks "that is now a feeding station for the alien militia." Alien militias are familiar territory for Fey, whose love of *Star Wars* is familiar from *30 Rock* and Liz Lemon's determined cosplay as Princess Leia in Season 5. She evokes the dystopian tradition, anticipating the current trend in "cli-fi," or climate change fiction, when she says: "If that's the

case, I have some questions for *you*. Such as: 'Did we ruin the environment as much as we thought?' and 'Is *Glee* still a thing?'" (Fey 4). This displacement of future disaster, from adult virginity to the destruction of the climate, with bathetic turns to the ridiculous, reveals the presence of nerd logic at the heart of her autoethnography. The neurotic vibration between *everything depends on this* and *no one cares about this except me* marks the self-consciousness of an adult nerd who watched the Omegas in *Revenge* and plotted revenge. She thereby enters a cycle of cultural critique through self-displacement that marks the nerd girl who, like her gay best friend, fell hopelessly in love with an American culture that believes all nerds are queer *and* that all nerds are boys.

The final revenge on *Revenge of the Nerds* belongs to Takashi, the Japanese nerd whose accent is played for Orientalist laughs throughout the film. He raises the specter of the Asian nerd, the vision of the "model minority": hardworking, serious, and no threat to anyone's power. The first key to Takashi's revenge inheres in the logic of the character himself: though stereotypical in all other ways, he participates in the horny frat boy stereotype taken over from *Animal House*. He does not perform the emasculation characteristic of Asian men in Anglo-American literature and film. Instead, the film folds him into the pornographic male gaze typical of Hollywood sex farces of this era. Asian American scholars have theorized the manner in which Asians have been exoticized, neutered, hypersexualized, and stigmatized as a threat to American security, especially in light of the Japanese American internment during World War II, but Takashi takes a step into the mainstream at the expense of women. This Catch-22—assimilation as the price of acceptance into American culture—is undone in later Asian American literature and its critique of anti-immigrant racism.

In *American Born Chinese*, a graphic novel, Gene Luen Yang illustrates the dual nature of ethnic transformation for Jin Wang, a Chinese American boy from San Francisco. Growing up in the 1980s as the son of Chinese immigrants, Jin encounters the casual racism of white classmates and teachers, who project anti-Asian narratives into his social world on a daily basis. Jin is a "dog-eater" and a "Bucktooth" who idolizes the Transformers, robots who can change shape at will. The plot of *American Born Chinese* is structured by a Taoist logic, in which Jin's desire to be more American, more white, more normal, moves in two different vectors, both of which evolve under the sign of the nerd. In the

first plot, Jin imagines himself to be a blond, curly-haired boy named Danny, and in these sections, Yang draws Jin precisely this way, so readers see what he wishes to be: popular, socially adept, and attractive to his peers. In this guise, Jin changes into an agent of assimilation. He instructs a new friend, a Taiwanese boy, Wei-Chen, to "Speak English" because "You're in America" (Yang 37). Wei-Chen's otherness is represented as nerdiness: he wears big glasses, pointy hair, and high-waist pants, as if he is Alfalfa from *The Little Rascals*. The racist trajectory of this stereotype is revealed by the advent of Jin's cousin "Chin-Kee"—*chinky*, an anti-Chinese slur—who embodies the effete Chinese servant stereotype in the nativist imagination. Though "Danny," Wei-Chen, and Chin-Kee are different characters, they reflect Jin's self-negation in various forms: assimilated pseudo-white boy, nerd, and Yellow Peril.

This vector of transformation is undone by the second vector, which begins the novel in the realm of the Monkey King, a character from the Buddhist epic *Journey to the West*. Monkey is a trickster-god, a traditional folk hero who rebels against Buddha and then reforms as the protector of the monk fated to bring Buddhist scripture from India to China. The epic is the tale of Monkey's transformation from self-important fool to bodhisattva, an enlightened being capable of enlightening others. At first, the Monkey narrative operates independently of Jin's story, reflecting Jin's self-alienation, the traditional immigrant tendency to efface tradition in the name of American success. As *ABC* progresses, however, Danny becomes so angry at his unassimilable friends that he drives Wei-Chen away and tries to beat Chin-Kee in a fist fight. Only then, when Danny knocks Chin-Kee's head from his body, is Chin-Kee revealed as Monkey, who has come to earth to look after Jin and Wei-Chen, who is Monkey's son. Both the nerd and the god help Danny to realize that he is truly Jin, and in that moment, the false whiteness disappears, revealing Jin as we had first seen him. Through the insertion of a traditional folk hero into the story of an "ABC," as Jin's generation calls itself, Yang is able to resist the racist images in nativist rhetoric that Jin had internalized. The trope of shape shifting, which had appeared pathological in the first vector, is recovered as a path to enlightened self-acceptance. No longer desiring to be just another white kid, Jin finds Wei-Chen, who had turned from humanity in disgust, and the novel closes with the two friends drinking bubble tea in a local Chinese tea joint. Unlike the plot of hybridization in *Xenogenesis* or the strategy of

self-ironizing in *Bossypants*, *American-Born Chinese* responds to the figure of the alien nerd with a counter-narrative of difference as authenticity in diaspora. Jin's American life is recontextualized as another journey to the West, where the West stands for the United States, not India, though Monkey the transformer is still at work. Through his intervention, Chinese Americans and nerds are given the choice to affirm who they are, what they like, and how they live by negating the negation of heritage as pollution. The possibility of an entire immigrant group identifying as self-affirming nerds presages the greatest revenge, the complete recycling project: the creation of a nerd nation.

This is the dream *Revenge* began but did know how to complete, given the limitations of multiculturalism in the 1980s: the revenge of the nerd as a community of losers, the possibility of a city, and a land of nerds. In the earlier paradigm, nerds are constituted by their niche in an environment, but a sickly prey animal doomed to an early death has no future. The place of a nerd alliance is both material and imaginary, a present anchored in the past and the future. "Nerdland," as an alter-ethos, a new habitat, produces new rhetorical possibilities for its citizens. The political scientist Melissa Harris-Perry speaks about "Nerdland" on her MSNBC news program. "Nerdland," for her, is not just the discursive space occupied by fans of the show: it is the studio considered as kitchen, a place where neighbors come to talk, "here in Nerdland." It is also the home of the viewers, "out there in Nerdland." Finally, it is the virtual space that she, her guests, and her viewers occupy in consciousness, an "imagined community" in Benedict Anderson's terms: "the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion" (Anderson 6). This way of speaking is endemic to the "nerd nation," already used to imagining itself as a virtual country, a "republic of losers" for the multimedia era. Though a basic history of nerd land has yet to be written, it is possible to identify some landmarks of Nerdland, being careful, at the same time, to distinguish between the nerd as a figure, the real history of persons identified with that figure, and the tension between the two that has produced competing ideas of Nerdland's ecology. There is Harris-Perry's Nerdland, a public sphere for dorks, the sort of place DeepArcher aspired to become, and there is its eugenic reflection, Nerdland in the eyes of its enemies, the Degenerate States of America.

The duality of Nerdland is nowhere clearer in American literature than in Young Adult fiction, since the nerd is, above all, a kind of child one meets—or becomes—in elementary school. In Michael Buckley's novel *NERDS: National Espionage, Rescue, and Defense Society* (2010), the titular figures are first described from the perspective of their fifth-grade antagonist, who is about to lead his allies in a spit-ball attack against them:

> Though he would never admit it to the others, Jackson found the enemy unnerving. They were grotesque with their drooling mouths and puffy eyes— barely human. Brett was convinced the enemy had been born misshapen, but the idea was far too unsettling for Jackson. He couldn't imagine being born a … a … a nerd.
>
> Unfortunately for Jackson, Nathan Hale Elementary had more than its fair share of nerds. In fact, his whole town of Arlington, Virginia, was one giant geektropolis. Perhaps there was something in the drinking water Arlington siphoned from the Potomac River, but there were dweebs, spazzes, goobers, gomers, goofballs, and freak-outs crawling out of every nook and cranny. Jackson sometimes felt as if he were drowning in an ocean of wheezing, math-loving, Velcro sneaker-wearing waste cases. Jackson's high-school age brother, Chaz, felt the same way. He told Jackson the elementary school had always been overrun with misfits. Their father, who was also an alumnus of Nathan Hale, said the same. Jackson was smack-dab in the middle of Nerdville, USA. (Buckley 1–2)

This passage grounds the figure of the nerd in discourses of public health, genetic and cultural inheritance, and grotesque landscape. Jackson thinks of himself as the norm from which the nerds depart. His father and older brother attended the same elementary school, and provide historical depth to his perspective. He and his family agree that their town is "overrun" by a pestilence. The physical descriptors indicate the filth of matter-out-place, the effluvia of mucus membranes. Nerds, unlike good Americans, are constantly ill and, like zombies, a source of contagion. Their sickness dehumanizes them such that they become objects of fear and disgust. Their revolting appearance leads to theories as to their origin—nerds provoke, and are a subject of, theory. Jackson's friend Brett believes that nerds were born this way, while Jackson finds it hard to conceive of nerds as natural. He favors a theory of waterborne illness: "something in the drinking water" of Arlington, Virginia has caused

children to devolve, evoking ideas of Washington, DC as a pestilential swamp. Like insects, freaks and spazzes have crawled out of the hidden spaces of houses in the neighborhood. Their impact causes Jackson to feel as if he is "drowning" in a tide of cultural dysfunction: nerds are the epitome of bad taste, a disease of culture, in their choice of the wrong shoes, the wrong subject, and the wrong affect. So powerful is this combination of natural and cultural dysfunction that a local inversion of standards evolves: normal people are in the minority, and have been for several generations. This perception is infected with ideologies of race and class. Jackson and his brother, "Chaz," who attend "Nathan Hale," are coded by their names as First Family Virginians, an elite lineage predating the Revolutionary War, now sadly threatened by nerds, who represent the lower-class, immigrants, and racial minorities. Nerds are destroying America. America is becoming Nerdville, USA: a declensionist narrative of degenerate land and people, a story as old as the republic itself. This new, inferior America is also described as "geektropolis," indicating the threat that a nerd polity represents to a national ideal of a muscular United States capable of overthrowing British rule, conquering a continent, and defending itself against fascism.

Though Buckley's novel treats these ideas as obstacles that contemporary children overcome as citizens of an inclusive United States, one cannot take such ideas lightly when anti-Communist and anti-immigrant rhetoric condemn even children as enemies of the state. With regard to the Obama administration's treatment of migrant children from Honduras, El Salvador, and Guatemala seeking refuge from violence by fleeing across the Texas border in June 2014, Senator Jeff Sessions of Alabama wrote:

> For all practical purposes, the Administration's policy is that anyone in the world, of any age, is free to come and stay in the interior of the United States, to illegally work and receive taxpayer benefits, so long as they are not caught, tried, and convicted of a serious crime. And even then, thousands of criminal aliens are released each and every year.
>
> Unfortunately, the President remains committed to escalating—rather than ending—the lawlessness. It therefore falls on the shoulders of Republicans alone to make the case for new leadership that will restore America's borders. Republicans are the last line of defense for the American worker. They are the last bulwark for the rule of law. (Breitbart.com)

Sessions' nativist rhetoric conflates children seeking asylum with "criminal aliens" in a revival of eugenic nativism that identifies immigrants, criminals, and degenerates as the same people. Nancy Ordover reminds us that American nationalism is adept at co-opting other social movements and "[e]ugenics, far from being exempt from this process of absorption, has played a pivotal role in nationalist and racist enterprises" (Ordover xv). The borders of the nation have been breached by criminals, lawlessness is at hand, and the American economy is on the brink of collapse. This is the true origin of the tropes played for laughs in Buckley's novel. The nerd horde in a Virginia elementary school mirrors the dangerous migrant children whose presence threatens the republic. The adult male immigrant competes with American men for employment; the immigrant prostitute corrupts them sexually; and the immigrant mother produces corrupted multiracial children to dilute the hardy Nordic stock of the United States (Ordover xvii). However, Sessions' rhetoric is even more conservative than the educational eugenics from the turn of the last century. In 1916, Professor Lewis Terman of Stanford University, an early advocate of tracking, wrote that "feebleminded" children who appeared frequently among "Indians, Mexicans, and negroes" should be "segregated in special classes and be given instruction which is concrete and practical," since they cannot master higher skills (Terman 91–92). Nonetheless, Terman treats them as children who should be educated. Sessions' position combines eugenics and the Red Scare, such that education is foreclosed as a possibility. Like Reds, migrant children must be contained and expelled from the national body. It was common during the Cold War to characterize the Communist threat as a subversion of American bodies from within, a rhetoric parodied in Stanley Kubrick's *Dr. Strangelove*, when General Jack D. Ripper explains, "I can no longer sit back and allow Communist infiltration, Communist indoctrination, Communist subversion, and the international Communist conspiracy to sap and impurify all of our precious bodily fluids." It would seem, then, that our way of talking about nerds is bound up in the way we talk about pestilential threats to the health of American bodies and the vitality of the United States as a nation. The figure of the schoolyard loser is not as politically innocent as *Happy Days* made it seem. Yet, how can the nerd embody such a potent threat inside a figure of impotence? This dilemma requires an examination of the sign of the nerd itself.

Under the sign of the nerd

In his analysis of sacred symbols and their function as repositories of meaning, the anthropologist Clifford Geertz distinguishes between a people's *ethos*, "the tone, character, and quality of their life, its moral and aesthetic style and mood" and their *world view*, "their picture of the way things in sheer actuality are, their concept of nature, self, and society" (Geertz 127). One of the primary functions of religion, he argues, is to explain the connection between ethos and worldview, and thereby allow peoples to create meaning as they situate themselves in a larger order. This relationship cannot be reduced to a set of beliefs understood as propositions to which everyone assents; rather,

> meanings can only be stored in symbols: a cross, a crescent, or a feathered serpent. Such religious symbols, dramatized in rituals or related in myths, are felt somehow to sum up, for those for whom they are resonant, what is known about the way the world is, the quality of the emotional life it supports, and the way one ought to behave while in it. Sacred symbols thus relate an ontology and a cosmology to an aesthetics and a morality. (Geertz 127)

To interpret a culture is, for Geertz, to understand how its religious symbols function as a semiotic technology for archiving and producing meaning in a specific time and place. This theory can help us understand the sign of the nerd (see Figure 1.1) even though nerds do not constitute a people, "nerd" is not a symbol, and unpopular culture is not a religion. In Geertz's terms, *nerd* is an ironic symbol, a repository of ethics, aesthetics, and cosmology reconstructed from a sign that is used to push nerds out of a universe of meaning, to consign them to a place of shame. An ironic symbol, whose function is obscured to make it seem less important, may function as a symbol nonetheless. It reveals important aspects of the American environmental ethos and worldview that are not acknowledged as a system in ecocriticism, though its individual elements have been considered separately. In the analysis that follows, I attempt to interpret "nerd" as an ironic symbol that contains not just a single, coherent set of meanings, but a set of conflicts over these meanings and their value. Though our examination of the nerd has not been exhaustive, the examples in the previous pages form a corpus from which to construct a preliminary understanding of the structure of the sign of the nerd. Bearing in
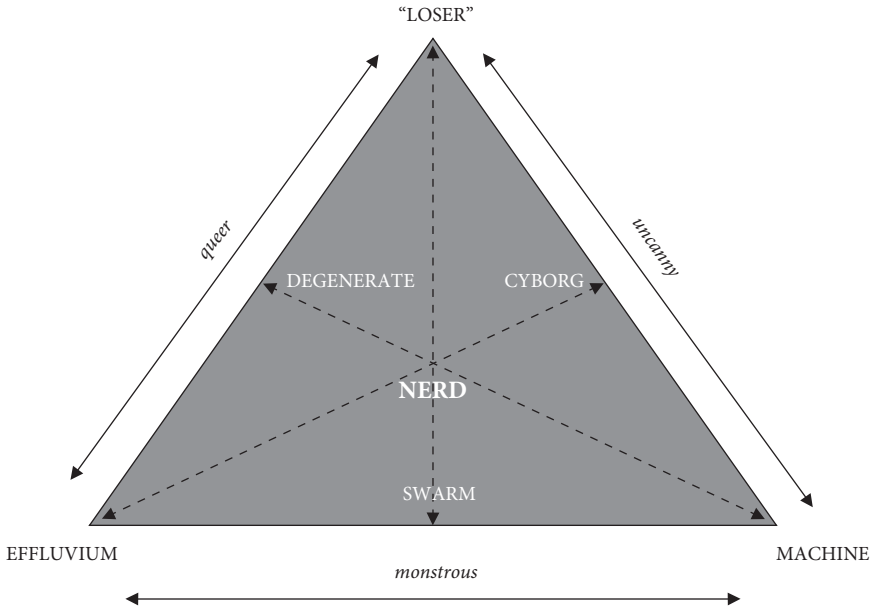
Figure 1.1 The sign of the nerd

mind that the following analysis is heuristic rather than definitive, I present a
diagram of the American idea of the nerd as failed specimen, or "Loser"; the
nerd as depersonalized waste and pestilence, or "Effluvium"; and the nerd as
impersonal automaton, or "Machine."

The nerd-sign demonstrates why an idea that seems trivial actually reflects a
deep structure in the American environmental imagination. "Nerd" connects
biological to cultural failure as cause to effect; it represents the way "failed"
persons are depersonalized as biological waste and mechanical slave; its
standards of failure, understood as a system, generate political and aesthetic
principles. At the apex of the triangle, the category of "loser" asserts the failure
to compete successfully for power, status, and reproductive agency as the
result of genetic inferiority. Difference from the norm becomes a predictor
and a justification for failure. To borrow terms from Judd Apatow's seminal
Freaks and Geeks, nature is related to culture as freak to geek: failure of
substance, or freakishness, naturally leads to a failure of taste, or geekishness.
These failures are pathologized as "loser" moves toward "effluvium": the failed
individual becomes a biological waste product, an excretum of a diseased

body. The normal and healthy are authorized to throw away flawed nature and sick culture as poisons in the body politic. In the final step, the movement from waste to "machine," the nerd is depersonalized further as dead matter fit only to serve the purposes of others. Pathologized difference becomes thing-ship, the acme of artifice that is, paradoxically, also anticulture. The nerd is not merely an artificial nonperson; the nerd is *only* a tool, never "art." This negative side of nerd ecology maps the production of things and diseases onto individuals who were supposed to be persons. Because things and diseases cannot be members of a community, cannot form a city or a nation, this version of nerd ecology prescribes the impossibility of Nerdland as more than toxic dump, filthy swamp, or junk heap. It proscribes nerd politics as unnatural while pretending merely to describe it.

The proscription against a nerd politics begins with the apex concept of "loser." There are many versions of the nerd-as-loser: the dweeb, the dork, the spazz, the poindexter, the sissy, and so on. Reading this term ecologically leads to Charles Darwin and his theory of evolution by natural selection or, in popular terms, "survival of the fittest." At first blush, the place of the nerd in Darwinian theory is obvious: the nerd is that creature that struggles to exist and does not succeed, the child as prey, the runt of the litter. Though it is tempting to call "nerd" a social Darwinian concept, we must be careful to distinguish Darwin's idea of the struggle for existence from the application of that idea by disciples such as Herbert Spencer, a true social Darwinian thinker. It was Spenser who believed that social competition would "cull the unfit"; Darwin believed that natural selection had ceased to operate in modern societies (*Descent* 220), though he later affirmed "survival of the fittest" in the fifth edition of the *Origin*. As Diane B. Paul argues, "Darwin's waverings certainly contributed to the diverse readings of Darwinism, as did ambiguities in the *Origin* about the locus and meaning of struggle" (Paul 229), but this means that the Darwinian background to nerd ecology is more equivocal than social Darwinism. In Chapter 3 of the *Origin of Species*, Darwin multiplies the meaning of "struggle" in the process of natural selection:

> I should premise that I use the term Struggle for Existence in a large and metaphorical sense, including dependence of one being on another, and including (which is more important) not only the life of the individual, but success in leaving progeny. Two canine animals in a time of dearth, may

be truly said to struggle with each other which shall get food and live. But a plant on the edge of a desert is said to struggle for life against the drought, though more properly it should be said to be dependent on the moisture. A plant which annually produces a thousand seeds, of which on an average only one comes to maturity, may be more truly said to struggle with the plants of the same and other kinds which already clothe the ground. The missletoe is dependent on the apple and a few other trees, but can only in a far-fetched sense be said to struggle with these trees, for if too many of these parasites grow on the same tree, it will languish and die. But several seedling missletoes, growing close together on the same branch, may more truly be said to struggle with each other. As the missletoe is disseminated by birds, its existence depends on birds; and it may metaphorically be said to struggle with other fruit-bearing plants, in order to tempt birds to devour and thus disseminate its seeds rather than those of other plants. In these several senses, which pass into each other, I use for convenience sake the general term of struggle for existence (63–64).

Darwin clarifies that the measure of success in struggle is reproductive, and we can hear the eugenicist preoccupation with breeding to come. However, the Darwinian notion of struggle to reproduce includes the ideas of dependence and cooperation alongside competition, and Paul observes that readers of differing political ideologies interpreted these claims to suit themselves. There is an anarchist and socialist appropriation of cooperation as well as a fascist appropriation of competition (Paul 229). There is also the problem of an anthropomorphic interpretation of the struggle: though social Darwinists were concerned with human agency, Darwin believed struggle to be an impersonal process involving the organism's relationship to an *environment* of struggle, such as the desert. His description of a cooperative-competitive process involving individual organisms, organismic communities, and the physical environment set the stage for the biology of systems that would become ecology proper. Material as these relations are, however, Darwin insists on the metaphoric nature of the struggle for existence, the several "senses" of the term that must be held together. This entanglement of metaphor, material, and theory leads, as Gillian Beer points out, to an "extraordinary hermeneutic potential" in Darwinian theory, the ability to produce multiple meanings and to invite rereadings in new contexts (Beer 8). Darwinian polysemy is the ground of narrative as well as ideation: it

takes up older myths of "transformation and metamorphosis" and transposes them into the key of modern science (Beer 7).

Interpreting the nerd as loser in a Darwinian context means understanding the nerd as an individual organism struggling for existence in an environment. Though Darwin's idea of struggle foregrounds the possibility of change, the chances for the metamorphosis of the nerd are, at first, radically limited. As we saw in the case of Chachi in *Happy Days*, the nerd has the potential to transform from unsuccessful to successful struggler through the example of a normative male. Abnormality is the source of failure in the struggle, so the hope of the nerd is to become something else. As Beer suggests, there are potent myths of shape changing to ground this narrative, such as Ovid's *Metamorphoses*, and plentiful biological models, such as caterpillar-to-butterfly. These narratives presuppose that the end of the nerd is to end the nerd, to succeed by becoming something better. As popular representations shift to the communal mode of *Revenge of the Nerds*, the conflict becomes analogous to a species struggling for survival against other species. This analogy underwrites a racial-ethnic meaning of the nerd as collective: Enlightenment philosophy and Romantic anthropology already thought of different races as different species, though Darwin thought of them as "sub-species" (Descent 401). The autoethnographic tradition of nerd literature conveys an internalized sense of the nerd as alien in an unfriendly environment. Octavia Butler, who makes the status of alien literal in *Xenogenesis*, figures the nerd as the agent of metamorphosis for several species at once, and ultimately, for the biosphere itself. Gene Yang splits the difference by identifying Chinese American ethnicity with nerd-dom in a manner that engages traditional myths of collective identity. What binds all of them, however, is their sense that the struggle for existence can lead from a negative to a positive nerd identity. The nerd is not just the loser that disappears from the gene pool; the nerd is a subject of myth and history. The primal failure of the nerd to compete leads to the metamorphosis of the terms of struggle itself. The possibility of cooperation within the "species" becomes thinkable. The threat of personal and species-extinction creates a new narrative structure in which differences lead to better-adapted abnormalities. The seed that needs transportation finds the bird willing to eat it. This new story founds the possibility of a true community in a legitimate polity: the plant adapts to the desert. When

the struggle for existence leads the "loser" to become another kind of nerd with a collective sense of struggle, Nerdland as a public sphere ceases to be a contradiction in terms, and question of a nerd politics can arise.

In moving from *loser* to *effluvium*, the nerd shifts from the individual recognized as inferior to the individual becoming diseased, the waste products of diseases, or the excreta of civilization. Nerdland, at this vertex, moves from the "entangled bank" of Darwinian natural selection to the site of pollution, the factory pouring waste into the river, dirt as disease vector. In *The Environmental Justice Reader*, Joni Adamson, Mei Mei Evans, and Rachel Stein explain that environmental justice movements work in multiracial coalitions "from the grassroots" calling "attention to the ways disparate distribution of wealth and power often leads to correlative social upheaval and the unequal distribution of environmental degradation and/or toxicity" (Adamson et al. 5). The nerd as effluvium calls attention to the way the victims of environmental injustice may be figured as the toxicity from which they suffer. *Effluvium* collects many of the ecocritical tropes of disgusting mess: Timothy Morton's "mesh," a postmodern descendent of Darwin's entanglement, considers "life-forms" as bound together materially and epistemically in an unthinkably vast net of relationships, a kind of negative biology or biology of unknowing (Morton 28). Given Morton's emphasis on disgust and melancholy as environmental affects, it is appropriate to consider the mesh as bound by effluvia, both biological and industrial, the remains of the *lachrymae rerum*. Where Morton emphasizes forms, Stacy Alaimo finds bodies. Effluvia connect corpora, embodying the *trans* in Alaimo's "trans-corporeality," the flow of matter between bodies and environments that undermines the distinction between self and world, inside and outside (Alaimo 2). Effluvia, in these roles, take the place of both nature and the individual in ecology, but not in a nice way. Like the nerds of Alexandria, Virginia, effluvia are disgusting, the ick of perpetually sick children who wipe their noses on their sleeves. Of "Brown ecology," Steve Mentz writes that "Brown is the color of intimate and uncomfortable contact between human bodies and the nonhuman world": a truly effluvial thought (Mentz 193). Returning to Heather Sullivan's critique of ecocriticism as not dirty enough, we can say that an effluvial Nerdland is all decomposing swamp mud. The rivers of Nerdland are choked with the soil washed away by industrial agriculture. The waste ponds of the Alberta tar sands, the Gulf

of Mexico after the Deepwater Horizon spill, Coltan mines in Congo, the radioactive city of Chelyabinsk in Ukraine, Appalachian creeks buried by strip mining, all are effluvial in this sense. If the failure of the loser is the failure to compete, the failure of effluvium is the failure to thrive due to illness, corruption, and decay. In this corner of Nerdland, the nerd is depersonalized as the underside of natural processes and the bad faith of industrialism. The ooze that used to be a person and is no longer: more accurately, the persons, ecosystems, and communities figured as waste by powerful interests, such as factory farms, power plants, and mines that profit by treating workers, natives, and locals as garbage. If the loser cries out for environmental justice for individuals, the effluvia cry out in the name of unbeautiful, wasted, and destroyed communities. Effluvium is the quintessence of Rob Nixon's "slow violence," the "long dyings" of the poor and other creatures, the wounds that ooze rather than bleed (Nixon 2–3).

The effluvial is therefore the nerd-mode that evokes social and political critique most directly, often in the form of blame or aversion. As garbage, effluvia determine the place of the individual in society: "because it is ubiquitous, garbage is among the most immediate categories against which people are defined" (Mazzolini and Foote 3). The effluvia of disease mark the sick as infections in the body politic. In *Illness as Metaphor*, Susan Sontag traces the polemical history of the city as cancer and the city-dweller as consumptive. Tuberculosis and cancer function, she says, as "master illnesses" that "are used to propose new, critical standards of individual health, and to express a sense of dissatisfaction with society as such. Unlike the Elizabethan metaphors […] the modern metaphors suggest a profound disequilibrium between individual and society, with society conceived as the individual's adversary. Disease metaphors are used to judge society not as out of balance but as repressive" (72–73). This heritage explains a great deal of American nature writing and its post-Romantic tropes of the city which, according to this tradition, is both carcinogenic and a cancer itself (73). One has only to think of Edward Abbey's vision of New York City as a cancer on the Hudson, Rachel Carson's struggle with breast cancer in the suburbs of Washington DC, or the figure of HIV/AIDS as the "gay cancer" of San Francisco to detect the urban chancre in American literature. The effluvial, then, is the site of blame and shame. Cancer and tuberculosis were often attributed to the sick emotional

life of the patient, as was AIDS. In such accounts, each illness begins with an emotional failure that is also a moral flaw. Thus, the effluvial is the underside of the ecological tropes of balance and harmony that characterized American ecology in the age of the Odum brothers. Though ecology has since repudiated the principle that healthy ecosystems tend to stability and harmony, American environmentalism still associates virtuous citizens with a clean and prosperous land. The cancerous citizen in the consumptive city reflects that same tradition in the mode of condemnation: political disease and the individual patient are related as whole to part; they cause each other. Thus, the figure of the effluvial nerd in a polluted land undermines the promise of nerd politics by suggesting that diseased persons naturally spread corruption through their effluvia into the body politic. From this perspective, it is laughable to see the social structures nerds have built, including universities, fan conventions, and professional networks as political in any but a sinister fashion.

The final vertex, *machine*, completes the process of depersonalization: the purely artificial, the tool, the mechanical servant that is not even a by-product of a biological process. The failure of the machine is a failure to feel, the failure of a hollow body rather than the effluvial continuum of excessive emotion. The nerd-machine should be construed in three ways: the nerd as mechanism, the clockwork automaton that runs without breath or blood; the nerd as agent of industry, the machine that disrupts the pastoral states of America; and the nerd as information technology, architect and terminal of the computer intelligence at the center of the revenge plot. In the first case, nerds are identified as cogs in the world-machine that tried to supplant the organismal cosmos of the Renaissance as Carolyn Merchant details in *The Death of Nature*. Historically, the nerd emerges only after the cosmos is figured as a mechanism during the Enlightenment, a *l'homme machine* the French did not anticipate. This machine is what is left after the *deus* has absconded. As Rilke reminds us in *Duino Elegies*, it represents a cosmic hierarchy that cannot hear human cries. Given the organismal connotations of *ecology* in the present, it is useful to remember, as Robert P. McIntosh reminds us, that Ernst Haeckel, the German physiologist who coined the term "oekologie," thought of it in mechanistic terms (McIntosh 8). In the *General Morphology* (1866), Haeckel says: "Thus the theory of evolution explains the housekeeping relationships of organisms mechanistically as the necessary consequences of

effectual causes and so forms the monistic groundwork of ecology" (Haeckel 140–141). Ecology, as a branch of Darwinian theory, understands the household (*oikos*) as a machine that takes care of itself, a complex of efficient without first or final causes, laying the foundation for cybernetic theories of ecology as material flows of information. The nerd as machine is surprisingly natural, if the natural is modeled entirely after the artifactual. Yet, it is this artifactual nature that is demonized in the machine as agent of industry. In *The Machine in the Garden*, Leo Marx recalls the moment in 1844 when Nathaniel Hawthorne sat down for a literary reverie in Concord, Massachusetts, only to have his peace disturbed by the sound of a passing train. Hawthorne records in his notebook the train's "long shriek, harsh above all other harshness," breaking the harmony of the pastoral village (Marx 13). Hawthorne relates this sound to the advance of "men of business" who disturb the country with the city through the instrument of the locomotive. Marx reads this moment as emblematic of the horror in American pastoral at the advent of industry, which breaks the harmonies of agrarian life with the unnatural sound of engines carrying dirty city folk. This emblem recalls Nugent's characterization of the nerd as one that seems machine-like because it prefers the company of machines to the company of people. So, the nature of the nerd as cog in the world-machine contrasts with the nerd as destroyer of pastoral reverie. This tension reflects the conflict within American environmentalism itself, which descends ethically from New England Romanticism but ontologically from oekologie. This conflict conceals a more important unity of nerd gender. As cog and disruptor, the nerd acquires a masculine agency denied at the other vertices. Neither loser nor effluvium is capable of effective agency, but the nerd as machine changes culture and nature. Lori Kendall argues that the nerd association with computers as liminal "quasi-creatures" contributes to the liminality of nerds as machinic, both powerful and disturbing (Kendall 263). Nerds of any sex are most masculine when they perform the role of nerd-machine, and most powerful when they are least human.

This is the secret to the revenge of the nerds that began in the 1980s with the advent of personal computing, continued in the 1990s with the rise of the World Wide Web, and expanded with the spread of cell phones and app culture in the early twenty-first century. The nerd-machine in the third sense, as paragon of information technology, returns us to *Bleeding Edge* and

Pynchon's denial that anything has changed in the nerd-jock power structure. Here we must distinguish between the nerd as economic engine and cultural engine. If Pynchon avers that nerd-billionaires are structurally irrelevant to a capitalist engine that runs on the energy of the warrior-businessman, it is true nonetheless that the integration of information technology into middle-class life has made nerd identity a path to bourgeois respectability. The vindication of the nerd as technological wizard is the subject of countless works of popular culture, including television programs such as *The IT Crowd*, *Freaks and Geeks*, *Futurama*, and *The Big Bang Theory*; Hollywood films such as *Romy and Michele's High School Reunion, The Social Network*, and *Revenge of the Nerds II* and *III*; websites such as *Nerdist*, *The Mary Sue*, *Nerds of Color, A Tribe Called Geek, Indigenerdy* (Indigenous/digital nerds), and *Gay Geeks of New York*. All of these artifacts feature nerds who have transcended the loser-effluvium dynamic through an association with information technology. However, one of the earliest and deepest explorations of the machine as a technology for nerd transcendence arrived in Douglas Coupland's novel *Microserfs* (1995), a seriocomic tale of coders at Microsoft headquarters. *Microserfs* is a fictionalized autoethnography narrated as an observation of coder life in a corporate nerd land. The narrator, "danielu@microsoft.com," a "bug tester in Building 7" who spends his days anatomizing the traits of his fellow "serfs," offers a testament to office life at the end of the twentieth century (Coupland 3). Each character is described by the seven categories—"680X0 assembly language," "Cats," and so on—he or she would favor on the game show *Jeopardy!*, as if the content of their souls can be rendered as data. Though danielu neglects no point along the loser-effluvium spectrum to describe his friends and their dysfunctions, it is their status as parts of the great machine of Microsoft that defines their lives. That they nevertheless develop as characters in a cyberbildung can be attributed to Coupland's insight into the crucial difference between earlier automata and information technology. Computers are the kind of machines that transcend themselves. Danielu observes:

> I thought about the word "machine". Funny, but the word itself seems almost quaint now. Say it over a few times: *machine, machine, machine*—it's so … so … *ten years ago*. Obsolete. Replaced by post-machines. A good piece of technology dreams of the day when it will be replaced by a newer piece of technology. This is one definition of progress. (Coupland 179)

Two pages after this quotation are filled with one word, "machine," stacked in eight columns and thirty-seven rows. This self-transcendence iterating to infinity conveys the terrifying sameness of change in coder-land. If the nerd does not simply correlate with this pattern, but causes it and is caused by it, there is good reason, politically, to be afraid of nerd-machines. They remind others of the totalitarian aspects of modernity with which the Frankfurt School was so concerned. They incarnate the flatness and meaninglessness that Fredric Jameson attributes to postmodern art. They are the stormtroopers of uncool. To Coupland's credit, his characters do not descend into futility. They transcend the monotonous self-transcendence of the new machines, and thereby suggest that artificial intelligence may learn to do so as well. They point to the larger question of the Nerd Triangle: *how* does its structure produce narrative, aesthetics, and politics from the negative heritage of the loser, the effluvium, and the machine?

Impossible things: Defending the earth with unpopular culture

The most direct answer to this question follows the logic of semiotic revenge: unpopular culture tells stories of the defense of the earth which begin in self-defense, in redemption from the nerd as prey, filth, and idiot machine through a transvaluation of values. The beginning of a positive nerd ecological discourse requires the loser, effluvium, and machine to become the underdog, the refuge, and avatar. Unpopular culture appropriates materials that enact the positive and the negative values of the nerd-sign. In the simplest strategy, nerd narratives are constructed and interpreted through a story of the nerd overcoming itself, a pattern projected onto the screen of planetary history as the shift from fossil fuels to renewable energy, the remediation of dumps into parks, the alliance of human and technology to avert the end of the world. Aesthetically, this generates a chiaroscuro effect in which it is easy to distinguish beauty from horror, but difficult to separate them. Politically, it generates tales of a city, nation, or planet redeemed from ruin through the action of an extraordinary individual who becomes the avatar of the reader within the story world: the nerd as "Mary Sue" or "Gary Stu." The reversal of loser to hero,

swamp to refuge, and machine to avatar provides a powerful political rhetoric by creating an excess of value in personal and collective identities. However, these simple patterns are complicated by three other aspects of the nerd sign: the antinomies between each vertex and its impossible opposite; the aesthetic and political values inhering in each side of the triangle; and the generation of metanarrative patterns via movement around the entire Nerd Triangle.

If the vertices represent static stereotypes, even when reversed, there is dynamism in the relationships between them and the continua formed by these relationships. This is appropriate, after all: this is a systems theory of *nerd*, a semiotic ecology of Nerdland. When viewed as a part of a system, each vertex is opposed by the midpoint of the line that connects the other two vertices. This midpoint displays characteristics of both vertices. I call these midpoints "impossible" because they reveal an aspect of nerd signification that appears forbidden if each vertex is read in isolation. "Swarm," the impossible thing opposed to "loser," lies at the midpoint between "effluvium" and "machine": it combines the nerd as pathogen with the nerd-machine, suggesting a flow of pollution and pestilence, waste pouring uncontrollably into the environment. It can also be termed "horde," "plague," or any name that suggests the relentlessness of the machine and the endlessness of effluvia. It appears impossible from the perspective of "loser" because the loser is, by definition, incapable of reproduction or alliance. Moving counterclockwise around the triangle, the midpoint opposed to "effluvium" is "cyborg," a combination of "loser" and "machine." Because effluvia are the inhuman product of organismal function, "cyborg" appears impossible because it connotes a broken individuality and a refusal to flow. The nerd-cyborg is a special case of Donna Haraway's fusion of human, animal, and machine: it is failed flesh bound to dead metal. The cyborg is not the body-without-organs of Deleuze and Guattari, but a body whose parts are all too apparent, horrifyingly solid. Finally, the midpoint opposed to "machine" is "degenerate," a combination of "loser" and "effluvium." The degenerate is impossible from the vantage of the machine because the machine embodies a fixed, inhuman order, while the degenerate is mutability itself, refusing to stabilize into a healthy, successful form. It is the pathological version of the Platonic dualism of Form and Matter found in the *Timaeus*, and that is its metaphysical significance, the nerd as hylomorphic disaster. The degenerate has a eugenic significance, too: "The

victims of eugenics were poor urban dwellers and rural 'white trash' from New England to California, immigrants from across Europe, Blacks, Jews, Mexicans, Native Americans, epileptics, alcoholics, petty criminals, the mentally ill and anyone else who did not resemble the blond and blue-eyed Nordic ideal the eugenics movement glorified" (Black xvii). The degenerate is the nerd as threat to the body politic, the opposite of all-American, the invader that must be repelled, the harbinger of the nation's decline. It is the place where race and class nerd out together, the price for tolerating imperfection in the city on a hill. The degenerate, the swarm, and the cyborg provide more characters for nerd drama, and more material for vindication through reversal as the harbinger, the alliance, and the transhuman. These three chimeras generate three aesthetics, and their attendant politics, in turn: the queer, the monstrous, and the uncanny.

The movement from *loser* to *swarm* generates an aesthetic of the monstrous: of mindless groups driven by the instinct to destroy civilization through physical force. As the individual nerd moves toward an impossible community, it becomes even less human, arriving at the midpoint between

Table 1.1 Nerd tropology

Primary tropes	Loser, prey Trash, effluvia, pestilence, flux Machine
Secondary tropes	Degenerate, freak Swarm, monster, alien, horde cyborg, geek
Failures	Failure to survive. Failure to thrive. Failure to feel.
Plot vectors	Losers become the alliance of friends. Garbage is recycled. The machine becomes the avatar. The freak finds refuge. The swarm founds a city. The cyborg mediates epiphany. Underdogs challenge the rules of the game. The unreproducible reproduce. Repressed emotion becomes political affect.
Aesthetics	The queer The monstrous The uncanny

effluvium and machine. The aesthetic of the swarm involves myriad individuals engaging in titanic behavior, evoking the San Diego Convention Center overwhelmed by nerds at the annual Comic-Con. Swarms are made of solid particles that move fluidly, as if they are a liquid. Swarms buzz and sting, they appear out of nowhere and drown their environment, consuming vast resources while blotting out the sun. Swarms are naturally insectoid: the cloud of mosquitoes rising from the swamp, peaceful grasshoppers become ravenous locusts, disturbed nests of ants, hornets, and wasps. Swarms may be silent, or they may generate the hum of countless wings, the clack of sextapodic minions laying waste to fertile fields. The machinic extension of the swarm is also insectile: not the bathetic ravings of Marvin the Paranoid Android in *Hitchhiker's Guide to the Galaxy*, but the silent invasion of nanobots in the bloodstream, the assault of the Replicators in *Stargate: SG1*. Swarms are horrible because they possess a collective, invasive intelligence, an implacable drive to consume, and the sheer numbers to overwhelm human bodies from the inside or the outside.

The political version of the swarm, the *horde*, has always been used to connote the nomadic enemy that refuses to respect borders. As Page duBois has demonstrated, the Greek city-state was created in opposition to monstrous enemies: centaurs and Amazons, half-beasts with no respect for the law and women warriors who refused the patriarchal household (duBois 25). From a medieval perspective, the Golden Horde of the Mongols represented the archetypal threat to European Christendom from an exotic enemy that refuses the sedentary life. Swarms are a political disaster because they destroy food systems, while hordes evade politics in the strict sense by neglecting to form a true *polis* with stable boundaries. If the horde is the opposite of the classical polis, it also represents the ecological forces that allow the city to exist in the first place. Swarm aesthetics should remind us of the city's dependence on work done by monsters to make the city possible. Case in point: the crisis of pollination due to Colony Collapse Disorder. Over the last decade, North American honeybee colonies have died in vast numbers because bees leave the hive and never return. Though a variety of factors, including disease, mite infestation, and monocultures appear to be at work, research now points to neonicotinoid pesticides as the key cause of the collapse. The U.S. Department of Agriculture estimates that honeybees perform $15 billion of work per

year pollinating food crops that would have to be pollinated manually or mechanically in their absence—a true agricultural disaster in the making (United States Department of Agriculture). Honeybees should be thought of as agricultural workers, a transhuman component of contemporary food systems that deserve protection *as* workers. Despite the opportunity for an ecosocialist response to this crisis, Colony Collapse Disorder remains off the radar of the American Left. Another case: ocean acidification, leading to the spread of jellyfish, and the specter of an ocean emptied of vertebrates but conquered by cnidarians in a scenario Alyssa Battistoni describes as "the plot of a second-rate horror movie" (Battistoni 13). In each case, I argue, the true enemy is hidden by swarm aesthetics, leading us to recoil at the sting of monsters instead of the pesticides and carbon pollution. Nerd ecology warns us, however, that the true horror of the monstrous aesthetic is the fear that we, as individuals and a planetary collective, are the real horde poised to overrun the planet. One sees this fear in the rhetoric of the "Sixth Great Extinction," which compares humanity to the asteroid that killed the dinosaurs. The threat of monstrous aesthetics at the heart of environmental guilt is its tendency to inhibit collective action with a narrative of natural human monstrosity. *Gojira, c'est moi.*

Moving widdershins around the Nerd Triangle from swarm to cyborg, we pass through the machine, taking note of this vertex inverted into figures of the adorable robot friend who saves the world with grit and a good heart. R2D2 and Wall-E are prime examples of the cinematic triumph of machinic cuteness in the face of robot-as-dangerous-slave. If Sianne Ngai is correct, and cuteness/*kawaii* is a postmodern aesthetic that compels our attention with the helpless and the infantile, we should recognize the robot nerd as a rhetorical resource (Ngai 64). At the same time, the adorable machine alerts us to the aesthetic disaster of the nerd as cyborg, which combines the lifelessness of the machine with the failure of the loser. The nerd-borg is the dysfunctional doppelganger of Donna Haraway's cyborg, the trickster that combines animality, humanity, and mechanism into the interpretive key to postmodern culture. Many critics have mistaken the nerd cyborg for the Harawavian trickster, but their effects are quite distinct. The Borg, the collectivist menace of *Star Trek: The Next Generation*, is/are a good example of this confusion. While the Borg deployed a rhetoric of the collective sublime—their refrain was "Your uniqueness will be added to our own"—

the pathos of this villain lay in its inability to achieve aesthetic perfection. Instead of producing a posthuman synthesis of organism and artifact, the Borg created prostheses of industrial ugliness that they attached to humanoid bodies that became "drones," the acme of Communist dehumanization in Cold War rhetoric. Through the conversion of Captain Picard to the drone Locutus, audiences came to understand that the most noble human subject could be swamped by the collective cyborg mind. The nerd-borg represents that fusion of humanity and technology that is less than the sum of its parts. Like the zombie, the nerd-borg is an instance of the Freudian uncanny, the horror produced by dead objects that ought not to move, but do. The addition of dead metal to undead flesh only worsens the problem. Robotics scholarship on the "Uncanny Valley" helps us to understand why. Masuhiro Mori, a Japanese roboticist, asked participants to react to entities that were more or less shaped like human beings. By plotting acceptance versus degree of human shape, he discovered that participants felt more comfortable the more an artificial human appeared to be human until a key point of failure, corresponding to corpses, puppets, and zombies. Here, acceptance dropped rapidly into horror, creating the so-called "Uncanny Valley" in the graph occupied by life-like androids, persons with severe physical handicaps, and other boundary-creatures. The uncanny valley of the nerds may be produced when a sickly human becomes so attached to technological devices that a sickness unto death is created. The nerd-borg is the sign of teenagers who text too much, video gamers who stay up for thirty hours straight, and commuters who can't stop touching their iPads. At the level of the bioregion, the nerd-borg stands for brownfields, toxic waste dumps, landfills, and other facets of the "necro-region"—as Serenella Iovino calls the Po River Valley—where undead land, water, and air keep moving when a self-respecting biome would simply give up (Iovino 101).

The uncanny vitality of the nerd-borg and the necro-region points to the cyborg as a source of ecological politics. In classic American environmentalism, the special place is worthy of protection because of its majesty, which it lends to human visitors. Big Sur, Yellowstone, the Rocky Mountains, and other "green cathedrals" must be kept pure and apart from civilization because they are especially beautiful, powerful, and alive. While there is no denying the importance of such places, there is a danger to this theory of environmental

value. Affirming sites of unusual grace as a rationale for protection leads to an underthought: mundane places do not deserve to live. This is a version of the "charismatic megafauna" problem in species conservation: it is easier to convince the public to care about polar bears than snail darters or "snot otter" salamanders. Some creatures and environments seem more worthy than others. The resemblance to eugenic thinking is striking. This kind of "land eugenics" surfaces especially in American nature writing about the Southwest, such as Edward Abbey's canon, and in the tradition of the utopian novel of the Pacific Northwest. In Ursula Le Guin's *Always Coming Home*, set in a far-future Northwest, no one knows or cares about what happened to the East in the disaster that ended the United States. Similarly, in Starhawk's *The Fifth Sacred Thing*, an ecotopian San Francisco is opposed to a fascist Los Angeles, while in Ernest Callenbach's *Ecotopia*, the Pacific Northwest secedes from the United States in order to make a better world. The nerd-borg and the necro-region challenge this ethos of superiority. Certain individuals, species, and environments persist after the end of their purity. Poisoned and disenchanted, they attract condemnation or aversion. And yet they survive. Given such uncanny survivals as Pine Ridge Reservation, the Alberta tar sands, Proving Ground Flora, Detroit, East Los Angeles, Ogoniland, the Ninth Ward of New Orleans, the Chernobyl region, the Rocky Mountain Arsenal, the coltan mines of the Democratic Republic of Congo, and the South Bronx, the question for contemporary environmentalism is: how should we support life in the Uncanny Valley, the place that ought to curl up and die?

Donna Haraway suggests an answer in "A Manifesto for Cyborgs" when she contrasts the biblical and Aristotelian dreams of a garden regained, a harmonious cosmos, with the political disruptions of the cyborg, which is "resolutely committed to partiality, irony, intimacy, and perversity" (Haraway 9). Haraway generates a poststructuralist *frisson* by describing the cyborg as Coyote, the preeminent trickster, making it more charismatic and less uncanny than the nerd-borg. Nonetheless, one can glimpse a future for the necro-region in her account of the difference between cyborg and monster: "Unlike the hopes of Frankenstein's monster, the cyborg does not expect its father to save it through a restoration of the garden; i.e., through the fabrication of a heterosexual mate, through its completion in a finished whole, a city and cosmos" (9). Rather, "the cyborg defines a technological polis based

partly on a revolution of social relations in the *oikos*, the household" (9). The Harawavian cyborg interrupts the hierarchies of husband/wife, master/slave, and human/animal/machine in the Athenian household. It is not merely a description of the postmodern subject glued to her iPad; it is a challenge to the command structure of the classical city-state. The cyborg is a political simulacrum like Vitruvian Man, a model of the individual that is also a paradigm of the community and the universe. It is not a monster because it is still an exemplar, a way of mapping the microverse onto the macroverse, and vice versa. The cyborg is an icon, an image that leads elsewhere: in this case, to a theory of polis and planet that does not depend on classical Greek standards of harmony, proportion, and self-containment. The cyborg as individual undermines the standards of eugenic excellence; as community it disrupts social hierarchies in which every class of person has a single place and a changeless function. The cyborg planet includes biota, the creatures we expect to be alive, as well as machines and their effluvia, now uncannily alive. A cyborg ethos—a moral standard and habitat—expects the human world to flow into the inhuman, the nonhuman, and the posthuman. In such an ethos, there is a place for the nerd-borg and hope for the necro-region. No longer damned by their failure to attain excellence and purity, the Uncanny Valley and its people become part of Nerdland as territory and citizens. This political role of the cyborg is illustrated by the multi-year plot of *Star Trek: Voyager*, in which the captain, Janeway, becomes a mentor to Seven of Nine, a Borg separated from the collective. While the classical models of self and community would lead us to expect the restoration of "Annika Hansen," her human identity, the show stages a continuous negotiation in which Janeway assists Seven in deciding to what extent she will remain Borg, even as she recovers personal agency. Jeri Ryan, the actor who portrayed Seven, communicates a lasting ambivalence toward both of Seven's communities, such that she never wishes to be restored to either on its own terms. She remains her own chimera, and charts an unexpected course through the Federation, a humanist utopia in need of a silicon citizen.

The movement from cyborg to degenerate signifies the shift from the dream of a new citizen and the fall of the nation, the difference between the uncanny as a source of weird vitality and the nerd as queer stranger. The degenerate is associated with the deviant, the crippled, the disfigured, and the criminal,

the body politic reduced to unrecognizable waste. The queer degenerate depends on the senses subordinated in Western aesthetics: touch, taste, and smell. While the polis is governed by harmony and balance, beautiful sound and symmetrical shape, a degenerate Nerdland is viscous, bitter, and acrid, the city on hill sliding into the swamp. It is the aesthetic of villainy, the body undermined by inferior genetics or phenotypic betrayal of inheritance. It reveals the aspect of *loser* as failed defender of empire, the young man too weak to conquer and hold a continent as a citizen-soldier. The degenerate is *queer*, "strange," and not gay: as Jack Halberstam argues, "homonormative" urban male culture asserts standards of virility that parallel norms of female beauty (Halberstam 152). Queer and degenerate produce one another, descending together from the pinnacle of healthy normality set against the nerd as loser. In their introduction to *Queer Ecologies*, Catriona Mortimer-Sandilands and Bruce Erickson identify the queer-ecological attempt to understand "the ways in which sexual relations organize and influence in the material world of nature and our perceptions, experiences, and constitutions of that world" (5). They further identify the project of queer ecology with an "ecosexual resistance" to versions of nature and culture that produce heterosexism as a political norm (21). In this project, queer and nerd ecology intersect. It is instructive to contrast their reading of *Brokeback Mountain*, a film in which masculine men make love in a charismatic wilderness, to the episode of *Will & Grace* (S7 E17) called "Birds and Bees." In this episode, Jack, the homonormative Manhattanite, identifies a rare bird, the "HGN" or "Hot Gay Nerd," combining birder and gay shorthand. The HGN, himself a bird-lover, is dressed in the unfabulous gear of the nature geek: cargo shorts, glasses, and a vest made of synthetic fibers. The character is played by Luke Perry, once a teen heartthrob on *Beverly Hills 90210*, tricked out in nerd drag, suggesting a diamond in the rough. The joke of the episode is that the Jack cannot stop himself from experiencing the gay nerd *as* hot, despite his inferior appearance and lack of fabulousness. Unlike Ennis and Jack, the couple from *Brokeback*, the HGN's attraction evokes astonishment and discomfort, because *nerd* is the antithesis of *hot* in the farcical version of Chelsea. The ability of the hot gay nerd to evoke desire in spite of his aesthetic failures represents the promise of nerd ecology for queer ecology. The degenerate queer is strangely compelling, and not as rare as Jack might suppose. The new comic book *Lumberjanes* (2014), about a

pack of queer girl scouts on a wilderness adventure, begins to make the same point from the tomboy's point of view.

However promising "adorkable" might be as a supplement to megafaunic charisma, queer-degenerate does pose an aesthetic challenge that relates to class and environmental justice. In "Marxism and Ecocriticism," Lance Newman suggests that there is a critical vector connecting Antonio Gramsci and Raymond Williams, who paraphrases Gramsci's concept of hegemony as "a whole body of practices and expectations, over the whole of living: our senses and assignments of energy, our shaping perceptions of ourselves and our world" that make capitalist society appear natural, inevitable, and unchangeable (quoted in Newman 16). Hegemonic concepts of the degenerate teach us to see bodily difference as otherness, to experience the ill, the poor, and the immigrant as less than human, vectors of aesthetic inferiority understood as disease. The challenge to aesthetic hegemony presents a problem for queer ecology, given the compensatory nature of physical beauty in gay culture after Stonewall. The idolization of the perfect athletic physique and the ultraglamorous drag queen represent the butch and femme versions of a weaponized beauty in the war against heteronormativity. As many queer critics have noted, there is a high price for this weapon: the rejection of the fat, the old, and the ill in the age of AIDS. Queer ecologists must not only question the immediate price of such aesthetic weapons, they must also question the inscription of gay identity into a standard of affluence that is unsustainable for most of the world. We must question to what extent queer aesthetics can disrupt such norms in an age of gay marriage and military service that is also an age of nativism, demonization of the poor, and ecocidal globalization. As Newman avers, ecosocialism must teach us of "the coevolution of material social and natural systems that has produced the present crisis, and of the long history of creative struggle to overturn an ecosocial order founded on the oppression and exploitation of people and nature" (Newman 21). Queer nerds should find the revolutionary heart of *Napoleon Dynamite*.

Finally, an aesthetic of queer degeneracy must privilege desire and enthusiasm, the very qualities denied to the machine, and denied to hegemonic masculinity and femininity outside highly policed boundaries. Nerds like what nerds like beyond the narrow confines of gender role: this is the essence of degenerate affect and the danger of nerd love. In a moving speech to a young

girl at the Denver Comic Con in June 2013, Will Wheaton defended the rights of nerds to love nerdy things. The girl asked Wheaton, who played Wesley Crusher in *Star Trek: The Next Generation*, whether he had ever been called a nerd, and what he had done about it. Wheaton explained:

> When I was a boy I was called a nerd all the time—because I didn't like sports, I loved to read, I liked math and science, I thought school was really cool—and it hurt a lot. Because it's never ok when a person makes fun of you for something you didn't choose. You know, we don't choose to be nerds. We can't help it that we like these things—and we shouldn't apologize for liking these things. (Velez)

His argument was greeted with thunderous applause. Wheaton uses the "born this way" defense of queer love to assert that nerds do not choose to desire what they desire, and therefore have a right to assert those desires. Though one might object to his appropriation of liberationist rhetoric for the realm of nerd desire, Wheaton's answer points to an important truth about the queer nerd aesthetic: it involves the performance of emotions forbidden to the winner and to the machine. It moves toward effluvia in its disregard for the affective boundaries of gender. Relative to normative American masculinity, nerd affect is queer because it involves the expression of love for cultural artifacts and practices associated with childhood, and not with the adult masculine role of producer and reproducer. Enthusiasm as such is forbidden (except in the realm of competitive sports) because men are expected to exert rational control over their emotions. Nerd love is queer relative to normative American femininity when it is directed at cultural artifacts and practices associated with boys. Even an activity such as cisgender cosplay is queer because it transgresses into the masculine pursuit of embodying heroism. Wheaton's claim that nerds love these things naturally, and need not apologize for natural desires, asserts a politics of affect that is dangerous to American gender norms. When Greta Gaard called for a combination of queer and ecofeminist insights to generate "a genuine transformation of Western conceptions of the erotic as fundamentally opposed to reason, culture, humanity, and masculinity," she was not writing about nerd culture, but she could have been (Gaard 137). Audre Lorde's goal of freeing the erotic from the logic of domination lives on in Nerdland as an environment of affection and enthusiasm. It retains the radical potential to

incite environmental justice by expanding that affection to the degenerate through a politics of hospitality.

Nerds and their ecology are finally important because they contain the resources that poison entire populations and condemn whole environments. But the tension inside the nerd-sign means that the nerd may be a *pharmakon*, the poison that is also the cure, if the meanings generated by the nerd system can be transvalued in an ecological thought of hope. It is certainly true that nerd culture yields evidence of the loser, effluvium, and machine: there are enough stories about underdogs, shape shifters, and plucky robots to make that clear. There are also narrative vectors formed by the movement from vertex to recycled opposite: the story of the nerd alliance (loser to community); the story of nerd alchemy (effluvium to cyborg trickster); and the story of nerd epiphany (machine to avatar). The three aesthetics of monstrous, uncanny, and queer nerdiness connect the modes of nerd existence to artistic and political struggles in postmodernity. Perhaps the most hopeful of all tropes is the movement around the triangle itself that begins a process of nerd transmogrification. This process challenges eugenics, waste, and mindless destruction through a transhuman polity too stubborn to go extinct. If nerdists can harness the power of transmogrification consciously and collectively, it may be possible to embody our stories in a culture of world-defense. Perhaps it is true that an earlier moment in postmodernity was characterized by the collapse of the epic tales that structure civilizations, as Jean-François Lyotard claimed in *The Postmodern Condition*. Yet, his account of this collapse depends on an elision of story-building powers produced by postmodernism itself, namely, popular culture mediated through literature, film, television, and social media. As Henry Jenkins demonstrates in his studies of fan culture, nerds have moved beyond passive consumerism in relationship to the culture industry, and assumed the role of "prosumer," a producer-consumer of culture. Media convergence and participatory culture make the pessimism of classic theories of postmodernism appear premature. Even now, the unpopulars demand a place in the creation of new narratives. Chief among these stories is the hope of an ecological, planetary culture that includes many peoples, species, and environments. Why do we keep telling these stories? Because we are trying to make them come true. The study is meant to reveal the hidden coherence in these efforts that is difficult to see

when one focuses obsessively, as nerds do, on one object at a time. Though the roots of nerd narrative are many, there is one incontrovertible beginning to the project of geektopia. At the foundation of the eco-cosmopolitanism of nerds, there is a Federation: The United Federation of Planets, the great tale of nerd utopia among the stars.

Stellar Cosmopolitans:
Star Trek and a Federation of Species

In which I trace the plot of alliance in Star Trek *through the figure of Mr. Spock, the nerd protagonist of a stellar cosmopolis. The movement from* **Loser** *to* **Alliance** *constitutes a metanarrative endemic to nerd culture. As the "alien half-breed" of the original series, Spock inhabits the paradoxical role of the superior* **degenerate***, a corruption of pure blood from an advanced civilization. At the same time, he is the* **machine***, the personification of mathematical accuracy, redeemed from his isolation by friendship with the crew of the* Enterprise*. The ship thereby becomes a microcosm of the United Federation of Planets, a galactic and democratic state. Spock serves as the lynchpin of* Trek's *cosmopolitan project, revaluing the nerd as the hero of trans-species* **friendship***. By virtue of this trajectory, Spock invites resistance from the proponents of* **eugenics***, whose* **avatar** *is Khan Noonian Singh, the mortal foe of the* Enterprise*. Khan stands for the tyranny of pure blood, and by rejecting him,* Trek *grounds its cosmopolitics in egalitarian pluralism, which gradually extends to Hortas and whales, Klingons and* **cyborgs***. Threatened from without by Khan, the Federation is threatened from within by a metaphysical error, the idea that evolution points beyond material bodies and planetary ecosystems to a realm of pure mind that negates "cosmos."* Trek *serves as a proving ground for nerd narratives that affirm material existence in a multi-species democracy against the urge to evolve away from a prison house of matter.*

In 1976, I attended my first *Star Trek* convention at Madison Square Garden in New York City. I was eight years old. My older sister, Maria, had brought me to the convention after promising my mother she would watch my every move.

Nevertheless, as an experienced younger brother, I escaped onto the floor of the exhibit hall, where I was surrounded by beings of all races, including Klingons, Vulcans, and the occasional Romulan. In anticipation of such meetings, I had practiced my Vulcan salute for several months: I could now split my fingers into the iconic V-shape and intone "Live long and prosper" with a gravity exceeding my years. It helped that I had an unfashionable bowl cut, which made me look like a young Spock rather than a mop-headed child of disco, as was the fashion in the suburbs of that era. Despite my earnest preparation, I failed in my mission to contact new life and new civilizations. I had been transfixed by the stuffed Tribbles that littered the floor of the hall. Tribbles (as citizens of the United Federation of Planets understand) are the cute, invasive species at the center of a legendary episode of farce, "The Trouble with Tribbles." In that episode, the small, round, cooing balls of fur are transported to a space station by an unscrupulous merchant. There they charm the *Enterprise* crew, antagonize the Klingons, and eat through the supply of grain that was destined to save a planet from famine. The appearance of Tribbles in American space fascinated and horrified me. What if they got out and ate New Jersey? I found them impossible to resist, and before my sister could find me, I had pocketed a small, brown specimen. Unfortunately, this attracted the attention of a Klingon commander, who was wearing so much eyeshadow that even a child of the 1970s was intimidated. She glared and demanded that I put it back. I learned from later histories of the Federation that Klingons were so incensed by these adorable creatures that they destroyed the Tribble home planet in a fit of pique. It was my first lesson in the trials of eco-cosmopolitanism.

In *Sense of Place and Sense of Planet*, Ursula Heise defines eco-cosmopolitanism as "an attempt to envision individuals and groups as part of planetary 'imagined communities' of both human and nonhuman kinds" (61). Benedict Anderson's idea of the nation as imagined community, one in which most members will never meet face-to-face, posits the tools of imagination—narrative, rhetoric, poetry—as the threads of democracy, suspending a nation from a silk strand. If the nation is a structure held together by culture, then cosmopolis may be as well. Earth as a cosmopolis of species, a world-city of more-than-human citizens, may also be promoted and sustained by acts of culture. This much is clear from Heise's crucial sentence. However, she goes on to caution: "ecocriticism has only begun to explore the cultural means by

which ties to the natural world are produced and perpetuated, and how the perception of such ties fosters or impedes regional, national, and transnational forms of identification" (61). She blames this belated attention on the tendency of American environmentalists to privilege the local over the national and the global on the assumption that attachment to the local is natural while attachment to imagined communities is constructed. If we take Heise's emphasis on *culture* seriously, if we take culture to mean not just literature, but all the tools by which peoples fashion their common lives, we are forced to conclude that the concept of eco-cosmopolitanism urges us toward an analysis of *Star Trek*.

Star Trek occupies the intersection between eco-cosmopolitanism and nerd culture. *Trek*'s association with nerd culture was lampooned by William Shatner himself in a skit on *Saturday Night Live* broadcast on December 20, 1986. In the infamous skit, Shatner addresses a group of bespectacled fanboys at a convention, exhorting them to "Get a life" and "move out of your parents' basements" because "it's just a TV show!" ("SNL's Greatest Moment #71"). This satire of fans as victims of arrested development fits the negative stereotype of the nerd as loser, of course. More importantly, however, it posits *Star Trek* as a means to avoid the responsibilities of middle-class suburban manhood, a force that makes people smaller, more confined, and less knowledgeable about the world. *Trek* itself, however, is one long meditation on the possibilities of alliances between humans and nonhumans. The original series, which ran between 1966 and 1969, took for granted that the geopolitics of World War II and the Cold War had been overcome centuries before the action, such that Japanese, Russian, and American crew members worked with only occasional moments of ethnic rivalry. Earth itself is united by a world government that formed in response to the discovery of warp drive and the encounter with alien life. *Star Trek: The Next Generation* continues the globalist utopianism of creator Gene Roddenberry, such that a Klingon—one of the enemies of the United Federation of Planets in the first series—now serves as security officer on the bridge. *Star Trek: Deep Space 9* relativized all vertebrate differences through a deliquescent enemy, the Founders, who possess no true form, and view "solids" with disgust. In keeping with its role as the first *Trek* to be made after the fall of the Berlin Wall in 1989, DS9 also explored the cracks in the Federation's shiny exterior, mirroring the disenchantment with

American exceptionalism after the Vietnam War. *Star Trek: Voyager* took on the Cold War tropes of *Next Generation* by adding a Borg—the totalitarian enemy—to the regular crew. Finally, *Star Trek: Enterprise* took as its subject matter humanity's difficult transition to a multispecies polity, culminating in a post-9/11 terrorism plot featuring an enemy, the Xindi, that originated on a planet where six species reached sapience together. Such eco-cosmopolitan preoccupations of *Trek* stand in tension with fans as isolated, atavistic losers, uninterested in the world beyond their adolescent preoccupations. In this chapter, I will trace the shape of imagined, interspecies communities in *Star Trek* series, films, and novels, beginning with the archetypal nerd and alien, Mr. Spock.

Spock as trans-species mediator

Spoiler alert: Vulcan is dead. J. J. Abrams rebooted the Paramount film franchise with *Star Trek* (2009), a film in which Romulans from the future seek revenge on Mr. Spock for his failure to save their homeworld from a supernova. Nero, the Romulan captain, follows Spock into the past through a wormhole in order to force him to witness the destruction of Vulcan, his planet of birth. In fact, there is a double witness, and the death of three key figures. As the older Spock from the future watches Vulcan die, the young Spock of the present seeks to rescue his people on the surface. Though several thousand Vulcans survive, Amanda, Spock's mother, does not. The end of Vulcan includes the death of mother, culture, and planet, creating an existential dread the young Spock expresses in ecological language: "I must come to terms with the fact that I am now a member of an endangered species." Critics should consider this triple destruction, the reason so many fans were traumatized by it, and its roots in contemporary environmental crises. Though some condemned Abrams for making a glossy action movie that was short on ethical content, his reboot of *Star Trek* connects real planetary threats, such as climate disruption and mineral extraction, with a political threat to the United Federation of Planets. As one of the founding members of *Trek*'s utopia, Vulcan is the friend of Earth, a more advanced civilization that realizes the Enlightenment dreams of reason, prosperity, and perpetual peace. Embodied in the friendship of Spock and the

bridge crew, the Vulcan-Earth alliance becomes the heart of the Federation, on which its stability depends. By destroying Vulcan, the 2009 *Star Trek* calls that stability into question. The destruction of Spock's mother, the culture of his homeworld, and that world itself threatens the utopia of *Star Trek*. It also provides an opportunity to consider how *Trek* represents the challenge of multicultural democracy and the limits of "humanity" as a principle of cosmopolitics. This chapter will explore *Trek*'s representation of the nerd as the foundation of cosmopolitan order by tracing the limits of interspecies understanding. To what extent is it possible to befriend other species, especially species that are not human, vertebrate, and carbon-based? What does this strategy offer to the project of a cosmopolitanism that seeks to save the earth from ecocide? The answer to these questions begins with a search for Spock.

Spock plays a foundational role in the plot of cosmopolitan friendship central to *Star Trek* in all its incarnations. It is commonplace to note that the Enterprise bridge crew represents a vision of racial harmony and cultural pluralism that constituted the "aftermath of the sixties" and its radical counterculture (DeKoven 3–21). The crew does not, however, constitute an undifferentiated group of individuals but a spectrum of otherness in which all the characters but Spock occupy a stable position. At one end of the spectrum lie Kirk and Dr. McCoy, white men from the American Midwest and South. As captain and ship's doctor, they embody classic types of adventurer inherited from the European tradition of imperial fiction via the space epics of Asimov and Heinlein. As American types, they descend from eighteenth- and nineteenth-century narratives of wilderness exploration and colonial settlement. On the other end of the spectrum lie crew members who represent formerly subordinate or enemy groups. Sulu, though Japanese American, evokes the imperial Pacific enemy of World War II. Chekhov, a Russian, stands for the Cold War enemy extant at the original moment of broadcast. Scotty is a Celt from the Fringe whose binge-drinking is played for laughs. Uhura does double-duty as the representative of insurgent African Americans and women liberated into the public sphere. In this company, Spock oscillates between the normative commanders and their former political subordinates. While he resembles McCoy and Kirk in gender and skin color, he is not a white American, but a human-Vulcan hybrid raised on another world. As a Vulcan,

he is more Orientalized than Sulu and more intimidating than Chekhov. He most resembles Uhura in his multiple identities. As the chief scientist and paragon of logic, he is also the most machine-like, and his pointed ears, elvish and satanic, become a target of McCoy's wrath. Semiotically, Spock is the most mobile of the main characters, simultaneously inside and outside, lovable and threatening. As the most othered Other, he normalizes the human, earthly diversity among the crew. He is a stellar cosmopolitan and, with his tell-tale bowl cut, a paragon of nerds: the nerd as mediator and ambassador, the vector boson of friendship.

Spock is the locus of the nerd plot of friendship in the original series and the films starring its crew. His story serves as the paradigm for *Trek*'s faith that political alliance is possible across radical difference, including species difference. He sets the stage for Data, Odo, Dax, Tuvok, Seven of Nine, and T'Pol, among others. When viewers arrive at these characters, we know, because of Spock, that their task is to negotiate alliance across difference by establishing bonds of friendship with normative humans and others. In nerd terms, this plot traces the movement from Loser to Alliance by moving past the moment when the nerd is thrown away as garbage by normative peers. Spock's hybridity is crucial to this plot because it fosters an alienation from Vulcan itself. Spock's mother is from Earth, and his father is the Vulcan ambassador to Earth, so, from the vantage point of Vulcan "pure-bloods," he carries a tainted lineage of human emotional chaos that threatens the sovereignty of paternal logic. In this way, Spock is gender-queer, an embodiment of intellectual–emotional unity from a culture that pathologizes affect. Spock's struggle to reconcile his Vulcan and human heritage is one of *Trek*'s great themes, but until the 2009 reboot, we had not seen Spock's childhood represented on screen (though it had been explored in novelizations and fan fiction). In a scene of origin, we see the adolescent Spock excelling at school on Vulcan. As he emerges from a testing chamber, he is verbally assaulted by a group of his male peers, who taunt him for his mixed heritage and call his mother a "whore." The young Spock flies into a rage, pummeling his tormentors in a fit of nerd fury. The rage beneath the stoic exterior is a canonical aspect of the character, and in this sense, the scene adds nothing new. Understood as a trope of origin, however, the resistance to bullying at school frames Spock's conflict as a nerd dilemma, the

problem of intellectual precocity paired with social alienation, reinforced in a moment of peer rejection amplified by racism, misogyny, and xenophobic violence. Spock's resentment of Vulcan hypocrisy—the pretension to logic masking ethical corruption—leads to his refusal to attend the Vulcan Science Academy, the elite training ground. Staring up at a quorum of Vulcan patriarchs, he announces that he will attend Starfleet Academy in defiance of his father's wishes. This decision sets him on the path to the *Enterprise*, but it represents a larger trajectory within nerd culture: the escape to cosmopolis, to the community of aliens, staged in science fiction as a flight to the stars. The path from Loser to Alliance leads to the cosmos itself, to a broadening of scale that redeems garbage as treasure. But why the stars?

Liberation as a flight to the stars has a long history in European philosophy. In the *Phaedrus*, Socrates tells the story of the soul's attempt to regain its wings and peer beyond heaven alongside the gods. In the Charioteer allegory, Socrates describes the soul as tripartite: the charioteer attempts to drive a chariot pulled by the horse of reason and good impulses and its companion, the horse of appetites, passions, and disordered impulses. While the gods have only the first kind of horse, human souls struggle with both, impeding their ascent to the stars. Socrates, who is trying to convince the young protagonist, Phaedrus, to embrace love as a divine madness, claims that love helps the soul get its wings back, hastening its ascent. Later, in late antiquity, the Christian theologian Augustine of Hippo will recount a similar ascent in his *Confessions*. Sitting with his mother in a garden, Augustine has a vision in which they rise through the planetary spheres of the Ptolemaic cosmos, past the sphere of the fixed stars, to behold the empyreal flame of heaven itself. Like Socrates, who claims, in the *Symposium*, to have been taught the nature of divine love by Diotima, an older woman, Augustine vision is sponsored by his mother, who was his first catechist. The spiritual drama of cosmic ascent, which produces true vision of the world and a love for all creatures, reaches its medieval climax in Dante's *Comedy*, where the stars appear as the sign of the soul's goal as it escapes the pains of hell and purifies itself on the Mount of Purgatory. The final canticle, *Paradise*, consists of an ascent through the circles of heavenly bliss into the full light of God, figured as the greatest star, the sun. Dante's quest is summed up in the last canto as an effortless movement toward God like "the love that moves the sun and the other stars." All of these canonical stories of

enlightenment as ascent inform Spock's trajectory from rejected half-breed to beloved friend and hero of the galaxy.

However, the classical school that most informs Spock's narrative is Stoicism, a philosophy that links cosmopolitanism with the ascent to the stars. *Cosmopolitan* is usually translated as "citizen of the world," but the Greek idea of *cosmos* implies much more than the English term *world*. In Homeric Greek, a *cosmos* is any beautiful arrangement of elements in a whole, where beauty is understood to imply harmony and cooperation among the parts. Rowers in a ship, Hera's jewels arranged for a seduction, an eloquent line of poetry are all *cosmic* in this sense (Wright 2–6). Only later, with the rise of the pre-Socratics, does cosmos come to mean the universe, and it carries its connotations of beauty, harmony, and cooperation with it. When Diogenes the Cynic claims to be a citizen of the world during the Golden Age of Athens, he claims to belong to a whole that is greater and more beautiful than any city-state. This whole is not just "other nations" or even the Earth itself, but the entire universe. When the sociologist Bruno Latour criticizes Ulrich Beck by saying there is "no cosmos in his cosmopolitanism," it is this difference in scale to which he points (Latour 450). Scale is critical to the Stoic conception of cosmopolitanism, from the Greek Chrysippus to the Romans Seneca, Cicero, and the emperor Marcus Aurelius. To be a world-citizen in their terms is to participate in the "sympathy of the whole," the compassion for humanity that is spawned from a perspective equal to the stars themselves. The stellar perspective allows the rational soul to understand the true place of humanity in the whole, and to supplant parochial loyalties to family and clan, *polis* and nation. As Martha Nussbaum explains, the Stoics did not want to abolish loyalty to these more immediate groups. They advocated something more radical:

> that we should give our first allegiance to *no* mere form of government, no temporal power, but to the moral community made up by the humanity of all human beings. The idea of the world citizen is in this way the ancestor and source of Kant's idea of the "kingdom of ends," and has a similar function in inspiring and regulating a certain mode of political and personal conduct. One should always behave so as to treat with respect the dignity of reason and moral choice in every human being no matter where that person was born, no matter what that person's rank or gender or status may be. It is less

a political idea than a moral idea that constrained and regulated political
life. (*Cultivating Humanity* 59)

The Stoics believed that such conduct was possible because human rationality
reflected divine reason expressed in the harmony of the cosmos; the stars
represent the farthest reaches of universal reason, and inspire the cosmopolitan
ethos of the practicing Stoic. Though Nussbaum highlights the role of Stoicism
in the evolution of Immanuel Kant's plan for universal peace, she neglects
Kant's own love of the stars, expressed in his *Universal Natural History and
Theory of the Heavens* (1755). Kant speculates that "most of the planets are
certainly inhabited, and those that are not will be in the future. Now, what
sort of interconnections will be brought about among the different types of
these inhabitants through the relationship between their place in the cosmic
structure and the central point from which the warmth which gives life to
everything extends outwards?" (Kant 133) To the student of *Star Trek*, this
sounds like nothing other than the founding question of the United Federation
of Planets, which should be used to frame the dilemma of Spock as a neo-Stoic
citizen of that cosmos.

The stellar dimension of cosmopolitanism should encourage us to view the
destruction of Vulcan in a different light. It is not simply a spectacle suited to
the visual logic of the Hollywood blockbuster, but an opportunity to practice
the sympathy of the whole, the overcoming of parochial loyalties with universal
charity. *Star Trek* invites us to bridge the local and the cosmic through the
alien-world-as-foreign-nation, a trope that structures American science fiction
from Asimov's Foundation and Herbert's Dune to Le Guin's Ekumene and
Lucas's *Star Wars*. In this trope, nation is to planet as world is to galaxy, such
that "America" is signified by "Earth" and "Earth" by "Milky Way." This trope
operates through the very parochialism it tries to overcome. The *Enterprise*'s
mission "to seek out new life and new civilizations" revises the history of
imperial European exploration, and the adventure fiction it produced, with a
more democratic and scientific end. Finding a new planet is like finding a new
culture and a new nation, which explains the tendency for each planet to stand
for one, or at most several, cultures, despite Earth's cultural multitude. At one
level, *Star Trek*'s is a Cold War allegory at its core, with the Federation standing
for the United States, the Klingons for Russia, and the Romulans for China
and Japan. In this allegory, Vulcan is an alter-ego of Earth. As a desert planet,

it nods to the nineteenth-century British fixation with Arabia; at the level of culture, Vulcan is both a scientific utopia and an exoticized East for Kirk as Iowa farm boy. It is more technologically and spiritually advanced, expressing the American hope for a Promised Land that is also technopolis. At the same time, Vulcan possesses immense sentimental value for the fan: we have been here again and again, from Spock's ill-fated wedding in "Amok Time" to his telepathic resurrection in *Star Trek III*. The relationship between Earth and Vulcan is also the relationship between the *Enterprise* crew and Spock writ large: Vulcan is the planet of the beloved other, the alien world that guarantees the stellar cosmopolis.

When Vulcan is destroyed by Romulans, then, it is as if Spock has died (again), as if Earth has died, as if the Federation itself is unraveling. Kirk recognizes the ship as the same one that killed his father on the day of his birth, anchoring the threat to Earth in a prior attack on a human lineage. Using this set of equivalences as a guide to interpretation, we can understand the death of Vulcan at the hands of an alien mining technology as a reference to the threat posed to Earth by hydraulic fracturing, oil spills, strip mining, and other technologies of the carbon economy. A review of the scenes leading to death of Vulcan confirms this interpretation. First, the Romulan ship drills into the core of Vulcan using a massive energy beam. Then, a substance is injected into the core to create a singularity that will consume the planet. Its first visible effects include an earthquake that destroys the cultural archive where Amanda and Sarek, Spock's parents, have taken refuge. When Spock transports to the surface to rescue them, he is faced with a scene like a mining disaster, which threatens his parents and other elders with a cave-in. Before she can transport safely away, Amanda falls into a crevasse opened up by the collapse of a cliff-face. Young Spock watches from the *Enterprise* and old Spock watches from a neighboring planet as Vulcan is swallowed by the singularity. If eco-cosmopolitanism is a cultural practice, mediated by art, of imagining national communities, the scene of Vulcan's destruction is a staging of cosmopolitical grief at the death of another Earth.

Though *Star Trek* (2009) has been criticized for abandoning the morality tales of the early series, it has abandoned neither morality nor politics. Being made to watch the death of a planet destroyed by extractive technology provides a sentimental education for earthly cosmopolites in what the death of

a planet-nation *feels* like. It produces a moment of ecoglobalist affect, defined by Lawrence Buell as an "emotion-laden" bond with a local and a global environment, "that specific site and a context of planetary reach" (Buell 232). In the case of Vulcan, however, the local place and the planet coincide because of the nation-planet allegory. Vulcan is at once Spock's home town and his world, both another world and another Earth. As a biracial character, Spock manifests this link between the local and the global, a nexus of ecoglobalist affect. Following Spock through his encounters with other species is one path in *Trek* for learning how to become an eco-cosmopolitan subject, how to mediate the local to the global, to discover a community so large it is hard to imagine, even for superior intellects. In this movement from the oikos to the stars, Spock becomes a stellar cosmopolitan.

Before we explore the particulars of Spock as eco-cosmopolitan agent, it is necessary to clarify his function as the Mary Sue of nerds in *Trek*. The narrative of the flight to the stars as the founding of cosmopolis reflects a nerd imperative to leave the local community that has coded one as loser, effluvium, and machine in order to discover the alliance that transfigures social dysfunction into community. Spock enacts the nerd version of the American myth of "lighting out for the territories," the escape from the strictures of small town life into the larger field of possibility represented by "space, the final frontier," as *Trek* announced from the beginning. Spock is implicated in *Trek*'s desire to redeem imperial tropes of wilderness exploration and narratives of first contact with the natives through the matrix of American nerd culture, centered on democracy, science, and a spirituality liberated from institutional constraints. *Trek*'s success in revising stories of conquest depends, in part, on Spock's ability to transform modes of domination into modes of mutuality. Nerd culture has not always succeeded in its utopian goal of building a refuge that is safe from anti-nerd violence: nerd-on-nerd aggression, misogyny, and racism sometimes disrupt this dream in practice, as the "Gamergate" scandal demonstrates. If Spock is one of *Trek*'s ultimate Mary Sues, a character through which fans project themselves into a desired future, he is also a story of contending stories, a typological conflict between the nerd will to power and the nerd arc of redemption. In order to function as a true inter-species mediator, Spock cannot ignore the impulse to inflict the violence of rejection upon other creatures; rather, he must recognize the

danger in the projection of past trauma into future relations, the repetition of violence even after liberation and agency are attained. These dynamics will be tested in three cases: the episode "Devil in the Dark," in which Spock encounters a silicon-based life-form; his encounter with Khan Noonian Singh, the dictator who appears repeatedly as his personal nemesis; and his part in *Star Trek IV* and the rescue of humpback whales. The test of stellar cosmopolitanism begins in a tunnel beneath another earth, Janus VI.

Horta

In "Devil in the Dark," the *Enterprise* is summoned to a mining colony on Janus VI, where several miners have died under mysterious circumstances. The planet is named after Janus, the Roman god of doors and passageways, who is usually depicted with two faces that gaze at the past and the future. The name suggests the problem of murder in tunnels, and also the question of traditional versus progressive behavior toward aliens. Unlike some episodes, in which the camera follows the main characters and the audience is limited to their perspective, this episode includes the perspective of the unknown agent responsible for the killings: we see what the crew arrives too late to see, the terror of the victims' final moments, so the audience knows that the deaths are not accidental. This technique is borrowed from slasher films in which the audience shares the killer's gaze, suggesting that the unknown agent is malevolent. However, in the course of his investigation, Spock realizes that the deaths began when the miners broke into lower levels that contained hundreds of "silicon nodules" whose spherical shape recalls an egg, suggesting a motive for the killing. When a circulation pump is stolen by the assailant, threatening to shut down the mine permanently, Kirk and Spock investigate and encounter the creature, which looks like a pile of molten rock. It attacks them, and they hit it with a phaser blast, knocking a piece off. The creature retreats, and Spock is able to confirm that it is, as he had suspected, a silicon-based life form. Science fiction had already developed the idea that it might be possible to base the complex molecules required by the chemistry of life on silicon rather than carbon. Silicon, in the form of silicon dioxide, is the basis of sand and quartz, so the idea of silicon-based life moves easily to

the conceit of living creatures made of rock, one of the tropes science fiction borrowed from fairy tales and mythology. As in these earlier sources, the human protagonists face an antagonist far more alien than humanoid Vulcans, Romulans, or Klingons, more alien than any carbon-based fauna of other worlds. Silicon-based life raises the basic problem of stellar cosmopolitanism: at what point does life become alien enough to prevent communication and, therefore, politics itself?

The solution to the incompatibility of carbon and silicon-based life forms is the trope of mind-to-mind contact, manifested as the "Vulcan mind meld," a telepathic power that makes its first appearance here. Though the production budget of the original *Trek* may make this trope appear ridiculous at first glance—Leonard Nimoy making dramatic gestures at a cheap rock-puppet—the trope of direct contact between minds has a venerable history, especially in the literature of love and friendship. Michel de Montaigne's theory of friends as two bodies with one soul, John Donne's "Valediction Forbidding Mourning," and several Brontë heroines enact this trope. Most importantly, mind-to-mind contact can be understood as a consequence of the Stoic sympathy of the whole, an ontology of connection between bodies through shared spirit. Spock's first contact with the mind of the Horta reveals that it has a name, is an intelligent being, and is in great pain because of the phaser wound. This discovery goads McCoy into treating the wound, establishing trust between species for the first time. Once the wound starts to heal, Spock establishes a stable telepathic bond with the Horta, who is revealed as a brood mother protecting the next generation of eggs from human mining activity. The "devil" resorted to violence as a last resort to protect her children. This was difficult to see, from the human perspective, because the Horta appeared both violent and monstrous. Spock, as the inside-outsider, understood from experience what it is like to be demonized for being different. His telepathy is an extension of his greater sympathy for an other, a sympathy that creates the possibility of peaceful coexistence. As the episode ends, the miners have partnered with the Horta to explore the planet to the benefit of both species.

The end of the episode leaves open a number of eco-cosmopolitan questions. Can the new trade relationship between human and Horta evolve into political affiliation? Is the Federation an alliance of humanoid species, a figure of internationalist cosmopolitics, or can it include radically different

creatures as a figure of ecological polity beyond the human? Though there were hopes of including the Horta in later series and films, they never appeared again in canonical *Trek*. However, they appear many times in noncanonical fiction, which does address certain unanswered questions. Tony Daniel's novel *Devil's Bargain* depicts the moment the Horta make the leap into space. In this plot, Spock's role as mediator is radicalized and queered: as a group of young Horta accompany the Enterprise on a mission to prevent an asteroid from destroying a planet, Spock serves as the telepathic focus of the group, a role played formerly by the All Mother, the Horta from "Devil in the Dark." A number of nerdopolitan tropes come together here: the queer nerd as mediator of the monstrous; the transformational journey to the stars; and the rise of a eugenic opposition. The Horta are called into space because an asteroid threatens the planet Vesbius, where former Federation colonists have used genetic engineering to make their children and the native flora and fauna more compatible with one another. Because this action, which saved the colony, violated the prohibition against genetic engineering in the Federation Charter, the Vesbians were forced to withdraw from the Federation, and are no longer its citizens. This setting evokes one of the most famous conflicts in *Trek*, the story of the *Enterprise* and its conflict with Khan Noonian Singh, a despot from the twentieth century whose genetically engineered allies, the "Augments," tried to take over the world in Earth's Eugenic Wars at the turn of the twenty-first century. The original episode, "Space Seed," led to *Star Trek II: The Wrath of Khan, Star Trek III* and *IV*—and now the 2013 reboot *Star Trek: Into Darkness*. It may be fairly claimed that the political evils of eugenics are one of *Trek*'s great themes. Because eugenics is linked to genocide and tyranny in the alternate history of the *Trek* universe, fans have been encouraged to understand all genetic engineering as eugenics, and all eugenics as a continuation of the Nazi project of fascism and genocide. Into this overdetermined history step the Horta, who are asked to save a colony of post-humans who may be even more likely than the ship's crew to see them as monsters.

The novel opens with a spirited defense of genetic engineering as adaptation, not eugenics. Kirk, Spock, and McCoy speak with the Vesbian leader, Hannah Faber—a name that evokes first a barren matriarch of the New Testament and then the Latin verb of making. To the Federation's

rhetoric of eugenics-as-fascism, Faber responds with a rhetoric of biospheric wholeness through evolution: "the Vesbian settlers became more and less than human … we became one with the planet. There is native Vesbian DNA in my genetic makeup. I am part of the planet's biosphere, and the planet is part of me" (Daniel 42). Though this talk does not mollify McCoy, neither does it prevent Spock from conceiving a plan to save Vesbius. The *Enterprise* is too weak to deflect the asteroid that will create an extinction event on Vesbius, but Spock realizes that the Horta could burrow through the asteroid, leaving it vulnerable to explosives. In this way, the Horta get involved in a narrative that challenges the basic structure of Federation polity and ethics: a nonhumanoid, silicon-based species undertakes interstellar travel in the name of a world that has violated one of the Federation's most basic biopolitical imperatives. This plot reenacts Hannah Faber's history at a stellar, cosmopolitan level. Like the Vesbians themselves, the Federation must become more and less than human by successfully guiding the Horta through an ascent to the stars by which an apocalyptic disaster is averted. As before, Spock mediates the nonhuman presence among humanoids, and in this role is addressed as "Speaker from the Stars" and "All Mother to Be" by the leader of the spacefaring Horta (174), who exhorts his fellows by saying that they must go "where none of the people have gone before" (196), an echo of the *Enterprise*'s mission to "seek out new life and new civilizations, to boldly go where no one has gone before." This intention is opposed and enabled by a eugenic enemy, Merling, a veteran of galactic water wars who believes that Vesbians are superior to baseline humans and their Federation allies. In conversation with Sulu, Merling displays the rhetoric of the Augments before him: humans have been subjugated, made weak by their "pointy-eared computer" masters (157), the Vulcans; he calls Sulu *hinomoto oniko*, a "son of a devil" (159), conjuring the cant of the Yellow Peril; and he arranges to blow the Horta out of a shuttle bay and into deep space. His eugenic ideology unites three devils in a line of progress away from white, Terran humanity: a Japanese American, a Vulcan, and nonhumanoid. Though he succeeds in blowing certain Horta into space, those very individuals become a new "Star Clan," who discover, because of his attempted murder, a love for space the Horta did not possess before. The Horta ascent to the stars succeeds because of their eugenic antagonist, an instance of the *Trek* principle that insularity, racism, and speciesism, driven by the urge to master nature, are

ultimately self-defeating. *Devil's Bargain* turns a previously anthropocentric plot eco-cosmopolitan by allowing the plot to pivot on an event—a classic explosive decompression gambit—that would have destroyed the protagonists, had they been humanoid. The eugenic antagonist was necessary to teach the Horta their love of space, which leads, at the end of the novel, to their wish to enter Starfleet Academy and to Kirk's determination to sponsor Janus VI as a new member of the Federation. Here, as in other forms of *Trek*, the mistake of eugenics constitutes a *felix culpa*, a necessary error that leads to galactic citizenship.

All the elements of this pattern come together in the final speech of Hannah Faber, who condemns the eugenic terrorists even as other Vesbians call the Horta, who have saved their planet, "alien scum" (Daniel 265). "These criminals' greatest victim was *you*, the citizens of this colony," Faber says. "In attempting to destroy the Horta, they were attempting to murder Vesbius—our beloved planet—for all time" (266). This speech conforms to the stellar-cosmopolitan version of the redemption of the garbage world, accomplished here through an alliance of Spock, the nerd hero, with the uncanny rock monsters whose ability to destroy one world, the killer asteroid, saves another. This action preserves the Vesbian polis and extends the polity of the Federation beyond the humanoid to creatures that are nearly elemental, though they share the love of the stars that signifies cosmic sympathy-in-difference. The extension of cosmopolis to "alien scum" necessarily evokes the eugenic enemy that ideology of purity, superiority, and sameness haunts the narrative of nerd redemption, as it haunts the modern project of egalitarian democracy through the specter of Jim Crow, the Soviet gulag, and Nazi genocide. Inside the *Trek* canon itself, this haunting is epitomized by the figure of Khan Noonian Singh, the eugenic tyrant from the twentieth century who rises out of sleep to stalk the twenty-third, first in "Space Seed," then in *Star Trek II: The Wrath of Khan* (1982) and finally in *Star Trek: Into Darkness* (2013). *Devil's Bargain* appeared in the same year as *Into Darkness*, and Tony Daniel expects readers to connect the Vesbian eugenicists with the Khan plots, though the events of *Star Trek II* have not occurred yet, as demonstrated by Sulu's recollection of "Space Seed" during his conversation with Merling (160). To an inhabitant of *Trek*, Merling is an echo of the greater villain, Khan, who represents the logic of eugenic purity taken to its ultimate end. He is the greatest *Trek* villain, however, because he is powerful

enough to deconstruct the Enterprise crew as nerd alliance; hateful enough to destroy the friend at its core; and intelligent enough to attack these structures intentionally, as a conqueror of utopia. In this way, Khan is a meta-villain whose actions and ideology threaten the project of stellar cosmopolitanism inside the heart of the viewer as in the story world. To understand this function, we must examine his origin in "Space Seed."

Khan!

Khan Noonian Singh is *Trek*'s best-known villain, and nerd ecology explains why his narrative is inevitable. Khan first appears in "Space Seed," an episode of TOS in which the *Enterprise* discovers a 200-year-old ship in deep space. The *Botany Bay*—a nod to Darwin, and Australian penal colonies—does not appear in Federation records for good reason: it contains dozens of genetically engineered tyrants, refugees from Earth's Eugenics Wars of the 1990s. Khan, the primus inter pares, is the first to awaken. He quickly recovers, assesses the *Enterprise*, and takes over the ship with the help of a crew member, Lt. Marla McGivers, a historian who succumbs to the charismatic fascist in a manner that reveals a great deal about television's idea of the liberated woman circa 1966. Khan's appeal as romantic *Übermensch* extends to McCoy, Scotty, and even Kirk, who spares Khan's life after retaking the ship, depositing him and his people on a rugged planet, Ceti Alpha V, to provide a challenge to superior intellects. Spock is horrified by the fear and admiration Khan provokes, and he questions the wisdom of ceding a planet to such a person. The Nerd Triangle explains the structural reasons the plot develops in this way. Khan, a eugenic villain, represents the social order that turns nerds into losers. "You are, quite honestly, inferior," he tells Kirk. Because Khan embodies the forces that stigmatize, isolate, and threaten to destroy nerds before they can form an alliance, he is also a threat to the narrative of stellar cosmopolitanism. Inferior beings deserve to die or to serve their superiors: they are not allowed to govern themselves on any scale, not to speak of the Federation. "We offered the world order!" Khan explains, not self-determination, the chaos of which led Plato to doubt the wisdom of the democracy at the height of classical Athens. Because he endangers the nerd redemption plot, Khan must be subdued. That he is

rewarded, rather than destroyed, reveals the ambivalence of nerd narration to the claims of superior intellect and physique. At least for nerd boys, Khan embodies the fantasy of revenge against the order of subordination. He is a dream of what it would mean to accept society on its own corrupt terms— might makes right—and assert dominion over that world. Khan's compensatory function assures that he can only be defeated and exiled, but not killed. Thrust to the margins by the crew's cosmopolitan ethos, he lurks at the edge of known space, waiting to reappear at moments of social unrest.

Khan returns in *Star Trek II: The Wrath of Khan*, a film that addresses the threat posed to cosmopolitanism by fascism. It does not begin with Khan, but with a test of Spock's new protegee, Lt. Saavik, in an officer training scenario called the *Kobayashi Maru*, after a simulated Federation ship that calls for help during a Klingon attack. It is designed to be a no-win scenario: no matter what Saavik does, the scenario ends with the death of the crew and the destruction of the ship. It is meant to prepare future captains for the reality of death in space. This scene, along with several comic vignettes, frames the original bridge crew as older and perhaps unfit for the rigors of service. The film then cuts to Pavel Chekhov, now assigned to the science vessel *Reliant*, which investigates a planet in the Ceti Alpha system as a possible staging ground for a grand scientific experiment. When he and his captain, Tyrell, beam to the surface, they discover Khan waiting for them with a remnant of his people. In a nod to Frank Herbert's *Dune* and *Lawrence of Arabia*, Khan appears out of a sandstorm, and quickly overwhelms the officers. He explains that the planet he and his people were left on at the end of "Space Seed" was blown out of orbit by the destruction of a neighboring world, creating the hellish conditions they now experience. Seizing the opportunity for escape, he mentally dominates Chekhov and Tyrell using a brain parasite that survived the planetary catastrophe. Khan has faced the *Kobayashi Maru* scenario and survived. Now, using *Reliant*, he will seek vengeance through the weaponization of the experiment called *Project Genesis*.

Genesis is the brainchild of Dr. Carol Marcus, who designed a device to make "life from nonlife" at a planetary scale. In a grand trope of nerd alchemy, Genesis reorganizes matter at the quantum level, making barren rocks into Earth-like planets ready for colonization. This radical terraforming is intended to address the problem of population and food supply, continuing the concern

taken up by "A Trouble with Tribbles" and informed by the debate in the environmental community about "overpopulation" versus "overconsumption." McCoy, the pessimist, immediately understands the potential to weaponize this technology by deploying it on inhabited worlds, and Khan plans to use it once he has taken revenge on Kirk. A weaponized Genesis Device would function as a eugenics machine on a planetary scale, destroying prior biospheres and replacing them with biota favored by the eugenic villain. Therefore, the violence intended for Kirk finds its way to Spock instead. "Wrath of Khan" is notorious as the film that killed Spock, who dies repairing the warp engines of the *Enterprise* at the cost of his own life. Dying of radiation poisoning, he delivers the most famous lines in *Trek*: "You are my captain. You are also my friend. I have been, and always shall be, yours." Spock's sacrifice saves the ship and defeats Khan, who dies by his own hand when he activates Genesis inside *Reliant*. The detonation consumes that ship and the Mutara Nebula, creating a new world as Spock dies. Kirk wins the no-win scenario at the cost of his best friend, the keystone of *Trek*'s stellar alliance, which survives in grief. The aesthetics of Spock's death will provide a means to understand the way *Trek* is altered by the death of the beloved other.

When Spock enters the warp chamber and removes the cap on the engine core, a blinding light floods the chamber, obscuring his figure. This is a trope of revelation: he has unleashed a cosmic power, as in the opening of the Ark of the Covenant in *Raiders of the Lost Ark*. Spock is not consumed, but trasnsfigured, revealed as a stellar cosmopolitan by the matter/antimatter reaction. This is also the case dramatically: Spock and Khan are particle and antiparticle destroyed by their meeting in space. Once the core is repaired, the *Enterprise* escapes the Genesis detonation, flying faster than let-there-be-light, trailing rainbows. This version of the ship, the collective body of the crew, is also transfigured. The filmic version of the ship was already sleeker than the original, a Brancusi bird sculpture or an angel flying out of a moment of creation. The biblical references are not subtle: Khan stabs at Kirk "from hell's heart," and Spock's death suggests a resurrection. When Spock's casket shoots out of the ship toward the new "Genesis planet," the song "Amazing Grace" is played diagetically and extra-diagetically, the music of the crew taken up by the soundtrack as Spock is taken up by the universe. As a final rebuke to the eugenic villain, Kirk says: "Of my friend, I have only this to say: Of all the

souls I have met in my travels, his was the most … human." He affirms the cosmopolitical alliance at the heart of *Trek* by claiming the sacred nerd figure of friend as victor over the forces of ecocide. This figure is narratively and visually aligned with cosmic forces coded as agents of revelation. The great machine of the *Enterprise* becomes the avatar of the Federation as a messenger of Enlightenment sailing away from the death of fascism. *Star Trek III: The Search for Spock* cements this alchemical event by resurrecting Spock on the Genesis planet and uniting it to his soul, or *katra*, which took refuge in McCoy via telepathic touch. Through the quest to reunite body and soul through the heroic actions of the crew, Spock's indispensable role is affirmed through a reversal of the logic of his sacrifice: *the needs of the one sometimes outweigh the needs of the many*. This anti-Utilitarian plot reverses Spock's death as an expression of nerd alienation. The prey returns as victor; the alliance triumphs, and the monster of eugenics dies having lost the argument.

Khan survives memetically, however. He asserts a presence in subsequent *Trek* films through the subtext of *Moby-Dick*. As he triggered the Genesis Device, Khan quoted the final words of Captain Ahab before he is dragged with the whale into the deep: "From hell's heart I stab at thee; for hate's sake I spit my last breath at thee" (Melville 623). By giving voice to Ahab with his last act, Khan admits that his mind has been tainted by madness and grief. Moments before, his son died in his arms while mocking him: "Yours is the superior [intellect]." This is the ultimate repudiation of the eugenic ideology that drove Khan from the beginning: his people and progeny die, victims of his desire to seek vengeance against "inferior" persons. This is a bittersweet moment for nerd ecology. The defeat of the eugenic fascist at his own hands signals a decisive victory for democratic cosmopolity: the biosphere formed by Carol Marcus's genius must not be contained by the metanarrative of control of nature. But Khan's desire to dominate other lives is, in the end, only an augmented form of the human desire to dominate others and the world. Khan's defeat is not a final victory for stellar cosmopolitanism, because the Federation is still blind to the way it offers friendship and equality to humanoid species, while still encountering nonhumanoids as uncanny monsters or mindless machines. Once Spock is restored by *Star Trek III*, there is still the problem of nonhumanoid intelligence and its status in cosmopolis. *Star Trek IV: The Voyage Home* brings this dynamic of stellar cosmopolitanism back to Earth as

the inability of humanoid cosmopolis to hear the songs of intelligent life that sounded in the deep all along.

Whales

According to Herman Melville, the problem with humanity is its inability to read other species. In a passage of *Moby-Dick* dedicated to prophecy, the narrator asks: "[H]ow may unlettered Ishmael hope to read the awful Chaldee of the Sperm Whale's brow? I but put that brow before you. Read it if you can" (Melville 363). This is the task Ahab cannot accomplish: he can only read his own madness. Ishmael is a different matter. Though the passage calls him unlettered, the brow of the whale is not a text, though it is a sign, a prophetic sign. As a proxy for Job, whose job was to be instructed by the fish of the sea in the ways of God, Ishmael must learn to interpret the prophecy of the whale's face, as Ahab could not. In *Trek IV*, this is exactly what Spock does, and this task of interspecies communication is framed, at first, as a fish out of water story. A mysterious Probe has entered the Solar system and drained the power from the Federation, starships, and cities alike. The Probe enters orbit and directs a strange sound at the oceans. The Universal Translator cannot decode it, and the Probe ignores all attempts at contact. The ocean sends no reply, and the Probe begins to dry up the seas, sending tons of moisture into the air, creating catastrophic storms that threaten San Francisco, the capitol of the Federation. When the Enterprise crew realizes what is happening, they depart from Vulcan in a stolen Klingon ship to investigate. When Spock and Uhura listen to the Probe's signal and adjust for the density of salt water, Spock realizes that the signal is meant for Humpback whales, which are extinct in the twenty-third century. With no other hope for saving Earth, the crew uses a "slingshot maneuver" around the sun to catapult the ship back in time, a conceit that had not been seen since the Original Series. Arriving on Earth of the late twentieth century, they locate a pair of Humpbacks living in an aquarium in San Francisco Bay. While the rest of the crew fans out across the city to gain the materials necessary to transport the whales through time, Kirk and Spock approach the director of the aquarium, Dr. Gillian Taylor, a cetacean biologist with a fierce devotion to the Humpbacks, George and Gracie,

named after the famous comedy couple of Burns and Allen. The crew stumbles through San Francisco like Connecticut Yankees in King Arthur's court, while the whales gaze placidly at the audience, as if to say *Read us if you can*.

Trek IV is a whale hunt replayed as farce after the tragedy of Melville's epic. Moby-Dick fractures in *Trek IV* into the individual whales, George and Gracie, and the sublime whale, the Probe from beyond the *oikos*. George and Gracie are synecdochal but not symbolic: they stand for Humpbacks as an endangered species, but not for some virtue or vice of the universe. The Probe, which resembles a whale drawn by a Futurist, stands for the sea of space and all the dangers it contains that we cannot comprehend. It seeks to make contact with the Humpbacks of Earth in an interstellar communication to which homo sapiens is apparently irrelevant. When the Probe fails to make contact with Humpbacks in the twenty-third century, the crew of the Enterprise must retrieve them from the twentieth century in order to restart the dialogue and stop the Probe's attack on a whaleless Earth. The end of the plot is the reunion of Probe with Humpbacks in the twenty-third century, a partial healing of the assemblage that saves Earth. This event is represented differently in the film and the novel adapted by Vonda Mcintyre from the script. In the film, George and Gracie communicate with the Probe once they arrive in the future. This communication is represented visually when the whales and the Probe move from horizontal to vertical standing position at the same time. It is represented audially by a call and response between whale song and Probe sound. The film leaves the communication untranslated: the audience sees the result only as the Probe departs. Without the semantic content of the exchange, we are left to infer what has happened, an absence that reinforces human irrelevance. The Probe was not interested in us to begin with, and it remains uninterested. In the novel, however, the dialogue is rendered for us as an interrogation: the Probe demands to know why the whales took so long to respond, and what has happened to the rest of their species. George and Gracie reply that they do not understand what has happened. The Probe accuses them of singing a young and underdeveloped song, implying a musical canon that has been lost to extinction. The whales affirm that they will continue to sing, and promise to make new songs for the Probe's next return. By parsing the conversation, the novel emphasizes extinction as genocide: George and Gracie will have to reinvent Humpback culture in the twenty-third century.

The Probe's dissatisfaction with their answer suggests a stellar cosmopolitanism beyond the Federation. This galactic civilization had included Humpbacks and their singing in the past, an absence noted by an artificial intelligence too powerful for the Federation to counter. The interaction between Probe and whales disrupts the tropes of nerd ecology by disrupting the anthropocentric standard of *Trek*'s civilizations. *Star Trek IV* constitutes an important break with the humanoid fixations of *Wrath of Khan*. *The Voyage Home* also changes Spock's role as stellar cosmopolitan: at first the center of the plot to defeat the eugenic villain, he becomes a mediator between the Federation's humanism and the transhuman reality of galactic intelligence. *Trek III* reverses the structure of the Horta episodes: instead of integrating an inhuman species into a humanoid polity, it represents a machine–animal alliance that resists inclusion in humanoid politics.

The film also disrupts the patriarchal structure of nerd narrative through its refusal of the marriage plot. As the Probe recedes, so does Gillian Taylor. Despite her sympathy toward Kirk and his mission, Dr. Taylor wastes no time joining the crew of a research vessel headed for a water planet to seek aid for George and Gracie. As she points out, she is the only person in the twenty-third century with any knowledge of Humpbacks, and their survival may depend on her ability to marshal Federation resources to support species restoration. When Kirk protests, Taylor replies with blunt affection: "See you around the galaxy." Though *Trek* had already represented many temporary or failed relationships between Kirk and any number of women, his charms had never before been overcome by endangered charismatic megafauna. Given his other conquests, this result is numerically insignificant, but it disrupts Kirk's function as a Gary Stu for male nerds, the hero whose sexual prowess is part of the promise of metamorphosis. If it momentarily occludes the path from zero to hero, it does so without a lapse back into the discourse of monstrosity, swarm, or nerd-machine. Like the Probe, Taylor knows more about whales than Kirk. She delights in the twenty-third century, and does not cling to Kirk as a guide to the galaxy. Like the Probe, she has no need of the main characters, and no desire to subordinate herself to the gender dynamics that produce inequality among the bridge crew. By allying herself with whales, Federation scientists, and the interests of the Probe, she fulfills the mission of the *Enterprise* to seek out new life and new civilizations, boldly going where

no man has gone before. This combination of female science hero, animal intelligence, and alien avatar displaces Spock as well. *Star Trek IV* heralds the arrival of a nerd-girl to rival the nerd-boy as mediator of the more-than-human world, though it is more accurate to say that Gillian and Spock drive the plot together.

The need for alliance between Spock and Gillian becomes clear when Spock breaks the limits of the aquatic theme park by communicating with the whales in their tank through telepathic touch. The visual comedy of the dignified Spock floating in a terrycloth bathrobe gives way to a xenophobic backlash. "What the hell are you doing with my whales?" Gillian demands. Spock replies: "They like you very much, but they are not the hell your whales." The comedy of Spock's inelegant use of expletives sweetens an otherwise bitter moment. Even the biologist thinks of whales as property. Even she does not believe they are capable of self-possession. Spock's reading of the whales is the first break with the comedy that informs the first part of the film, which capitalizes on the crew's discomfort with twentieth-century primitivism in medicine, politics, and art. That discomfort becomes pointed at the appearance of the ideology of ownership directed at other species. Though the crew's quips about smog, surgery, and militarism have a post-hippie joviality to them, the reality of human violence becomes serious when Chekhov's life is threatened during a mission to gather energy for the ship. His injury, though mild by McCoy's standards, becomes life-threatening in a contemporary San Francisco hospital whose methods McCoy calls "medieval." Chekhov becomes the human foil to the Humpbacks, demonstrating a fault in the progress of cultural and ethical evolution. As Spock contradicts Taylor's ownership language, Chekhov—the avatar of the Russian machine during the Cold War—indicts the capitalist humanism of cetacean biology allied to corporate profit. Taylor is figured thereby as a distinctly American scientist whose feminism has not yet allied itself to the Federation's utopian economy. When Spock reveals that Gracie is pregnant, Gillian realizes that his contact with the whales was real, and quickly revises her understanding of the human relationship to whales and other stellar cosmopolitans. She stands as the model for the audience in terms of the film's didactic goals. Confronted with uncanny proof of whale intelligence and extra-human perception, she revises her worldview in time to fulfill her duty to foil species and planetary

extinction. Her dynamic relationship with whales allows the audience to "to re-vision the planet as a cosmos of multi-species communities existing in intimate, entangled relations" (Adamson, "Whale" 44).

Though cinematic *Trek* never approaches this level of posthumanism again, the legacy of Taylor and Spock's relationship to the whales carries over into the structure of the television series. *Star Trek: The Next Generation* does not incorporate nonhumanoids as members of the bridge crew, but it injects the posthumanist dynamic into individual episodes. At the avatar vertex, "The Measure of a Man" requires Captain Picard and Commander Riker to defend the personhood of Lt. Commander Data, an android, when Starfleet Command attempts to seize him as property. Like the Probe, Data possesses a formidable artificial intelligence; like the whales, his inhuman nature collapses into property under certain conditions of human culture. The problem of his identity is posed as a problem of citizenship, not just personhood; in this sense, Data's identity is racialized as well as alienated as machine. He is human-shaped, and desires to become more human, and this helps his case as Federation citizen. In another early episode, "Home Soil," TNG underlines the problem of recognition of difference by revising the Horta plot: the *Enterprise* visits a science station whose colonists are being killed by a mysterious agent, revealed to be a crystalline intelligence that lives in the soil. The scientists were destroying their habitat without being aware that they were injuring another species. Bereft of Data's sentimental attachments, the crystal protagonist returns the favor, calling humans "ugly bags of mostly water." This displacement of normal perspective is internalized in *Star Trek: Deep Space 9*, in which a regular member of the cast, Jadzia Dax, represents a symbiotic people called the Trill, humanoids who unite with long-lived symbiotes to form minds that last hundreds of years. Though the current host, Jadzia, is female, the Dax symbiote has bonded with male and female hosts, producing a character whose identity is queered across species. This is not a minor aspect of the character, but a basic unit of plot. Curzon, a male Dax host, was the mentor of the station's captain, Benjamin Sisko. Sisko routinely addresses Dax as "old man," a joke about gender, species, and sexuality voiced by an African American Starfleet officer. The Dax symbiote functions as a sign that aggregates and disrupts identity at the same time, becoming a species of polysemy.

The political potential of these multiple meanings is realized in the later series, *Star Trek: Voyager* and *Star Trek: Enterprise*. The problem of the human-machine as citizen is explored by the character of Seven of Nine, discussed above. Her identity as a former member of a totalitarian cyborg polity never truly resolves. Though Seven is accepted by the crew in a classic nerd alliance— "You are my mentor, we are as one" says a drunk Seven to the holographic doctor—the show takes place across the galaxy from the Federation, so it is never clear that Seven will be able to participate in the Federation beyond Voyager. Like Data, her citizenship remains partial and anomalous. Not until *Enterprise* does *Trek* encounter a civilization made of multiple intelligent species: the Xindi, comprised of primate, reptilian, insectoid, aquatic, and arboreal subpolities, including an extinct avian species. Though presented at first as a terrorist threat to Earth, the *Enterprise* eventually allies with them to overthrow a transdimensional race that manipulated the Xindi into attacking Earth for their own purposes. *Enterprise* makes it very clear: the more transcendent people are, the more of a problem they pose for a material cosmopolitanism.

A transcendent threat

It would seem that *Trek* moves across decades and media in a halting but consistently posthuman and ecological direction. The complexity of cosmopolis, within and beyond the Federation, increases with time. Old enemies become friends, strangers become allies, and if the shapes of intelligent life are misperceived at first, there is still progress in recognizing the progress that needs to be made. *Trek* expands the notion of cosmopolitics in a manner consonant with developments in earthly governments in the present. As Joni Adamson and Salma Monani point out, the advent of *cosmopolitics* as a critical term "implies that we are entering a moment in politics that takes as its goal, to use the words of Ecuador's recently revised constitution, the intergenerational, evolutionary space and time required not just for the survival of all species, but for the 'rights' of all life, human and nonhuman" (Adamson and Monani 10). This narrative of epochal shift and political transformation serves as a foundational myth for nerd ecology. Historically, the building blocks of the

story of planetary defense through self-transformation are provided by *Trek*. *Trek*'s status as keystone of the arch of nerd ecology means that nerd culture conserves *Trek* no matter how tedious or ridiculous it became. *Trek* contains the space-seed of its own demise, however: the desire to transcend material existence through an evolution of the species into pure mind or "energy." Though the trope of the superior being made of pure mind occurs in every *Trek* television series, it is foundational to the Original Series, the *Next Generation*, and *Deep Space 9*. In the Original Series, the clearest manifestation of the trope occurs in "Errand of Mercy," an episode that introduces the Organians, who appear to be a preindustrial culture seized by arrested development. Organia lies in a territory disputed by the Federation and the Klingon Empire, and the Organians appear to Kirk as "the innocents who are always caught [between warring powers]." When they are threatened by the Klingons, they remain unmoved, much to Kirk's dismay. They taunt Klingons and Starfleet by claiming that their empires are not so different, and in the future they will work together in peace. Their cheery pluralism and apparent cultural stasis depend on a secret: they are beings of pure energy that have taken on bodies again to communicate with humanoids. Like Saul on the road to Damascus, Kirk and his Klingon rival witness their medieval hosts transfigure into beings of blinding light who put away the childish things of galactic politics in the name of a transcendent pacifism.

The Organians could be dismissed as yet another relic of *Trek*'s utopian impulse but for the fact that the next two series are premised on Starfleet's relationship with disembodied beings. The *Next Generation*'s premiere, "Encounter at Farpoint," sees Captain Picard put on trial as proxy for humanity itself by the Q, a member of the immortal and omnipotent "Continuum." Q takes the form of a human judge from the era of World War III to indict humanity as a barbaric child race unprepared for and unworthy of cosmopolitics. The entire series is framed as a test of humanity's capacity to evolve into something better, and Q reappears at the end of the series to render judgment. The religious function of Q as god of judgment frames *Deep Space 9* as well. The titular space station orbits the planet Bajor, whose people recognize the inhabitants of a nearby wormhole as their "Prophets," transcendent beings who communicate with Bajor through a series of Grail-shaped "orbs." Though Benjamin Sisko, the Starfleet officer in charge of DS9,

refers to the prophets as "wormhole aliens" at first, his secularism is to no avail. He is the Emissary of the Prophets, and the half-human child of one that took human form in order to give birth to him. This identity, which combines Jewish, Christian, and Muslim tropes of religious leadership, shapes the fate of the station, Bajor, and the galaxy itself. These examples make clear the central role played by superior, immaterial beings in the narrative fabric of the *Trek* universe.

The threat posed by these beings to stellar cosmopolitanism is hinted at by the language Spock uses to describe the Organians: "Pure energy. Pure thought. Completely incorporeal." Speaking *ex cathedra* as a science officer, he calls them "as far above us on the evolutionary scale as we are above the amoeba." This dialogue unites the Platonic flight to the stars with the Darwinian discourse of evolution, doing violence to Darwin and cosmopolitics in the process. For Darwin, evolution through natural selection has no fixed direction, only adaptation to current conditions. The "evolutionary scale" in Spock's dialogue is a version of the medieval *scala naturae*, which ranked creatures as farther from or closer to God based on an Aristotelian measure of organismal complexity. Combine this taxonomy with the Neoplatonic-Christian ascent to the One and the result is Dante, not Darwin. Surrounded by Christological special effects, the Organians are ascended souls for a science-fictional era. But the rhetoric of ascent tied to an ontology of superior form injects eugenic thinking into cosmic evolution. Spock yokes a version of the *Timaeus* and its account of matter's inferiority to a pseudo-Darwinian narrative of evolution beyond material existence. Humans will be superior when they no longer need bodies, and evolution is the process of attaining that superiority. If the point of evolution is to leave matter behind, a politics of planetary defense can only be a proximate, not an ultimate good. Earth and Vulcan begin to seem like incubators for creatures that will finally transcend ecology itself. This is bad news for nerd ecology. At best, material existence—human, whale, or otherwise—serves as an intermediate step toward disembodiment. Material organisms that stay material are losers; matter is a temporary matrix of mind, to be discarded in the future; and bodies are machines for the ghosts we will become. The old pattern reasserts itself, undermining the nascent story of nerd metamorphosis in and for the world. It refigures the nerd quest as a journey toward superior intellect, ultimate power, and absolute control as a

means of revenge disguised as benevolent rule of inferiors. Khan starts to win by other means.

The case of the Organians presents further difficulties for the idea of the world as *oikos*, as household, biospheric system, and planetary home. When Kirk asks why the Organians would build a village, a stronghold, and other trappings of medieval civilization if they are beings of pure thought, Spock replies that the Organian environment is a set of "conventionalizations" designed to make embodied beings more comfortable in familiar surroundings. Unlike Sargon, Thalassa, and Henoch, the advanced minds encountered in "Return to Tomorrow," the Organians do not need bodies, the sensorium of embodied beings, or a functioning biosphere. Organia itself is superfluous, as much a convention as the human bodies and villages. In contemporary terms, Organia is a virtual world made of matter, not computer code. It is material, but simulated, a Disneyland for pure thought on vacation. Humanoid society, planetary ecosystems, and organic life are inferior, tools to be discarded at the end of use, like a styrofoam cup. We are afforded a glimpse at the origin of this strategy decades later, in the *Star Trek: Enterprise* episode "Observer Effect." The Organians appear here a full century before first contact with Kirk and Spock, and they appear in more threatening form. They infect the *Enterprise* NX-01 crew with a disease that is beyond the Federation's capacity to cure. Two Organians possess the bodies of Lt. Reed and Ensign Mayweather in order to observe the progress of the crew's response; their affect is clinical and detached, suggesting the Tuskegee experiments and Nazi medical atrocities. Though the crew is saved when Captain Archer appeals to their compassion, the encounter makes clear that sympathy is a function of embodiment. The Organians cannot suffer with the crew and regret their experiment without the "guts" that come with real bodies. By the end of the episode, the Organians realize that they must prepare an intermediate space for more ethical interactions with material beings, a decision that leads to the scenario in "Errand of Mercy." This experience of donning and doffing human bodies suggests an analogy to "cosplay," costume play at science fiction conventions, in which fans dress up as their favorite characters and learn something about themselves by impersonating a fictional being. This analogy suggests that, for truly disembodied beings, material existence and embodied citizenship are like costumes and role-play, but not a serious form of political life. When

the Organians impose the Treaty of Organia on the Klingons and Federation, they resemble players of games like *Sim City* and *Civilization* attempting to optimize a virtual world. Even after the medical disaster of "Observer Effect," the Organians remain bemused by the pain of lesser beings. *Trek*'s insistence that such beings represent an evolutionary *telos* for humanoids presents a real challenge to stellar cosmopolitanism as a workable ethos.

The *Next Generation*'s fascination with Q presents a similar set of concerns. Played by John de Lancie as an arch aristocrat and puerile trickster who admires and despises humanity by turns, the Q archetype appears early in the Original Series in "The Squire of Gothos," in which a picaresque bon vivant makes the crew his playthings on an abandoned world. "Squire" resolves through a deus ex machina when a disembodied, female voice apologizes to the crew for the behavior of her child. The squire is scolded for treating inferior beings like toys, and his heavenly mother sends him to a disembodied time-out. There is no such solution for Q, who occasionally becomes human in order to learn the error of his ways, but always returns to the Continuum with his omnipotence restored. Whether taunting lesser energy beings like the Calamarain, teleporting the crew across galactic space, or hectoring Picard about human frailty, Q suggests that transcendence leads inevitably to domination. The domination of nature is the ethos that environmental cultures are designed to supplant, the core ideology of capitalist humanism and communist collectivism. De Lancie's performance as the apotheosis of the unbearable white guy who remains dangerously unaware of his privilege may be intended to warn the audience away from the norms of patriarchy, but Q appears as much for comic effect as didactic moralizing. As the foil of Picard's noble explorer, Q raises the problem of a being whose metaphysical evolution was not accompanied by ethical advancement. There is something ridiculous about the sheer repetitiveness of the problem. Q never learns. Picard is a better person than he is; he models the personal restraint, moral seriousness, and comfort with uncertainty that escapes Q. Q serves as a warning about the corruptions of power, but TNG could not rid itself of him. He remains a Feuerbachian projection of the spirit of domination into the story of egalitarian utopia. It is only with the Prophets of DS9 that *Trek* depicts immaterial, godlike beings with a proven record of helping a humanoid race. This benevolence is controversial among fans that remain wedded to a radical Enlightenment critique of religion as a web of lies meant to ensnare

the ignorant and vulnerable. DS9 did portray immaterial beings that fulfilled this function: the Pa-wraiths, who were expelled from the Prophet's polity for their malevolent work against the Bajorans. DS9 portrays this failure as failure, however: unlike Q, the wraiths have no benevolent side, and manifest as flames of wrath around the individuals they possess. They are demons to the Prophets' angels, and their presence produces the apocalyptic narrative that frames the final season of the show. To avert the Bajoran apocalypse, Captain Sisko must take sides in the conflict, an action that disrupts his loyalty to Starfleet and his personal desire for a marriage plot with Kassidy Yates. Ironically, the presence of unambiguously good disembodied beings catapults DS9 into an apocalyptic narrative that undermines the stellar cosmopolitanism of Bajor as it enters the Federation. Narratively speaking, neither the ambiguity of Q nor the polarity of the Prophets serves to reconcile the goal of transcendence with the project of stellar cosmopolitanism. The universe of *Trek* cannot be rid of "superior beings," but it has not integrated them into the structure of cosmopolis.

As a narrative continuum, *Trek* embodies the contradiction between the good life within the limits of embodiment and the desire to transcend the material world, the dream of the good city versus the impulse to abandon politics altogether. A critic once described the poet Robinson Jeffers's inner conflict as the need to "escape but not to love" and the desire "to love but not to escape," and *Trek* seems caught in this dialectic as well (Carrithers 222). The temptation to escape and not to love the world entails the confusion of a particular political order with cosmopolis itself. It denies the possibility that there might be a polity that escapes the limitations of one's own cultural history. This way of thinking is a failure of cosmopolitanism itself, an insistence that particular histories constitute History itself, that the zeitgeist is Geist. Spock's trajectory as a character through the iterations of *Trek* represents one solution to this problem that points toward an integration of nonhuman species into cosmopolis, and an awareness of cosmopolitical orders not based on humans at all. Stellar cosmopolitanism of this sort requires an embrace of reason, emotion, and sensation as aspects of embodiment that cannot be repudiated without descending into the Q-conundrum: intellect without ground and power without purpose. In this order, one cries for Vulcan in its destruction as the logical thing to do. Worlds cannot be threatened without cost to all the species of the alliance. It is this ethos of vulnerability that informs

Spock's answer to the question his mother posed to him at the beginning of *The Voyage Home*. "How do you feel?" she asks through a computer. At the end of the film, with the future of the Federation restored, Spock turns to his father and says, "Tell my mother, I feel fine." This feeling was produced by a plot of nerd transmogrification through the repudiation of eugenics, the practice of friendship, and alliance with inhuman species across time. But the suspicion persists at the heart of *Trek* that feelings are not to be trusted, bodies are not necessary, and a truly advanced race no longer needs a material world. This idea that the material world is a bug and not a defining feature of the cosmos threatens the project of stellar cosmopolitanism and its metanarrative of planetary defense. The desire to transcend the fate of prey and garbage, the status of soulless machine, evokes the possibility of absolute transcendence. Perhaps it is better to abandon the world than to defend it.

The Destruction of the Sky:
Virtual Worlds as Refuge

In which I pursue the trope of the broken sky as an expression of the urge to seek **refuge** *from* **predation** *by negating the cosmos itself. The nerd love for virtual worlds of literature, film, and games stands in tension with the nerd fear of exile to an unreal space. This is a special case of the tension within postmodernism itself about the status of art as virtual world. Fredric Jameson and Jean Baudrillard represent the negative pole of this dynamic with theories of postmodernism as schizophrenia and virtual worlds as simulacra, respectively. Jane McGonigal, author of* Reality Is Broken, *represents the positive pole with her theory of games as remedy for the ills of "RL" (real life) environments. In this framework, the broken sky represents the false world of political oppression and the true world damaged by human ignorance, stupidity, and greed. The* Animatrix *argues that the false world of the* Matrix *trilogy arose from the human destruction of the true sky during a war with sentient machines. The* **machines** *fashioned the Matrix as a response to a weaponized sky deployed to deprive machines of citizenship. This injustice of the broken sky is presaged in Thomas Pynchon's* Bleeding Edge, *which parallels the agon of* **nerd culture** *at the dawn of the Internet and the plight of a wildlife refuge in New York Harbor, impinged on all sides by the* **effluvia** *of capitalism. Finally, resistance to the false sky is dramatized in Suzanne Collins's* The Hunger Games, *in which the fascist arena collapses due to an alliance of enslaved children. This resistance affirms the earth-under-the-stars as the refuge of a chastened cosmopolis.*

I asked for a telescope for my thirteenth birthday. An Astroscan, in particular, a small reflector that was portable, easy to use, and good for deep-sky objects: comets, nebulae, and galaxies. As an astronomy geek in suburban New Jersey,

I needed a scope that was good at collecting the light of faint objects. Though I lived near the shore, in the far suburbs of New York City, there was enough light pollution to make it impossible to see the Milky Way. Point the Astroscan at Sagittarius, however, and thousands of stars wheeled into view. Likewise, the rings of Saturn, the Galilean satellites of Jupiter, the craters of the Moon, and the Orion Nebula. The sky seemed deep and full, a dark beauty that enchanted the world. Still, I did not see a comet for nearly a decade. Finally, I understood the stories of Halley's Comet as portent of war and disaster. Comets move fast, change shape, and look like nothing else. Amateur astronomy prepared me for the Heaven's Gate UFO cult, whose members killed themselves in March 1997, when Comet Hale-Bopp passed close to Earth. The group believed that a UFO was hidden by the comet, that this craft would take them out of their corrupt, mortal bodies, away from the false rulers of this world, to a better place (Zeller 42). They had only to kill themselves to get there. Benjamin Zeller, who wrote the book on Heaven's Gate, notes the metaphysical and cosmological dualism of the movement. I considered their philosophy a reboot of the world-weariness of the late antique Mediterranean, a modern Gnosticism. I felt for Heaven's Gate: they loved the sky but despaired of earth, a judgment I did not share. Zeller's account revealed the connection between them and me: they were *Star Trek* fans. They called themselves the "Away Team"—the group that "beams down" to alien worlds—implying that their true home was on the ship, that they had been stranded here (Zeller 1). They were stellar cosmopolitans of a certain kind, the nerds that kill themselves in the name of a heavenly refuge.

The need for sanctuary unites nerd ecology with wildlife conservation. In the American system of environmental conservation, a refuge, unlike a national park, preserves habitat necessary for wildlife without reference to aesthetic value. When Yellowstone National Park was created in 1872, the federal government's intention was to protect the geysers and hot springs, though "wanton destruction" of animals was also forbidden (U.S. Fish and Wildlife Service, "Short History of the Refuge System" n.p.). In contrast, the first national wildlife refuge, on Florida's Pelican Island, was set aside in 1903 to protect the habitat of the brown pelican after President Teddy Roosevelt acted against the steady loss of wading bird populations to plume hunters ("Short History"). The idea of refuge builds on the older idea of sanctuary

as a space preserved from the power of civic authorities: the laws of the city preserve the refuge from becoming the city. The refuge presupposes a crisis in the prior order of nature brought on by unconstrained development. This understanding was popularized by Rachel Carson in her series "Conservation in Action," written when she was a staff biologist for the Fish and Wildlife Service. The service still quotes her on its website. In this passage, Carson alerts readers to the Wild Goose Sign as the indicator of a refuge: "Wherever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization" (Carson, "Introduction"). The refuge demands respect from the visitor because of the threat of irreparable loss of animals and plants, though the rhetoric of self-restraint serves human posterity first, a gesture of citizens protecting the future for children. This motivation is depicted as natural and patriotic, even as it is directed to the restoration of "the conditions that wild things need in order to live." Carson's account of refuges seamlessly combines American interests with the interests of wildlife: there is an implicit eco-cosmopolitanism at work there. Though national parks are also considered to be part of the national heritage, their exceptional status as more beautiful places sets them apart from the city as wilderness. National wildlife refuges often form at the edge of the metropolis: the Great Swamp National Wildlife Refuge in New Jersey and the Jamaica Bay Wildlife Refuge form a kind of animal suburb around New York City. They communicate with the metropole; they are wild but not apart from it. They are expressions of civilization and civilization's self-restraint. Their creatures occupy a liminal status, neither citizens nor aliens.

This status explains why the rhetoric of refuge slips into nerd discourse in the first place. Something less than the able-bodied American citizen, nerds are products of civilization that require protection against it. As a monster that ought to aspire to normality, the nerd is visibly distinct from peers but linked to them as a point of comparison. In *The Brief Wondrous Life of Oscar Wao*, Junot Díaz describes the titular hero in these terms. He is a genius of popular culture: he speaks fictional languages, loves "monsters" and "spaceships" and "mutants," and possesses an encyclopedic knowledge of comic books and fantasy fiction (Diaz 21). He cannot blend in: "Dude wore his nerdiness like a

Jedi wears a lightsaber or a Lensman her lens. Couldn't have passed for Normal if he's wanted to" (21). There is a fantastic aspect to his difference: it does not resemble sexual, racial, or physiognomic otherness alone. It is aggressive: it creates another kind of space around itself. It is aesthetically excessive, like the funky and the fabulous, incapable of self-restraint or disguise. This aesthetic power is also a vulnerability: by standing out, it attracts negative attention. Oscar needs a refuge, but finds it only in culture itself. He has no physical environment where he is safe from criticism or bodily harm:

> [B]eing a reader/fanboy (for lack of a better term) helped him get through the rough days of his youth, but it also made him stick out on the mean streets of Paterson even more than he already did. Victimized by the other boys—punches and pushes and wedgies and broken glasses and brand-new books from Scholastic, at the cost of fifty cents each, torn apart before his very eyes. (22)

This passage highlights yet another trouble with refuge: it must be restored in the face of destruction. Threats to the wildlife refuge are countered by environmental law, but Oscar's refuge is protected by no law. Though his sister Lola, also a reader, is sympathetic, their mother kicks him out of the house, wanting him to play with his tormenters like a normal boy. The tension between the safety of the imagination and vulnerability of the body in social space produces a metaphysical dualism that recalls Heaven's Gate, and Oscar does attempt suicide in college. The dynamic of nerd refuge reproduces, at the level of the individual, the threat of extinction held at bay at the level of species by the wildlife refuge. Nerd culture is obsessed with the creation and maintenance of refuge for these reasons. This chapter traces representations of refuge that explore the rupture between the mental and the material as a crisis of cosmopolis. This crisis generates the desire to escape the unjust world by any means necessary; it is figured by the trope of the broken sky. This is what happens when people like Oscar begin to tell their own stories. In the world of *The Matrix*, and its prequel, *The Animatrix*, the broken sky is the atmosphere of earth and the digital dome of the virtual world. In Thomas Pynchon's novel *Bleeding Edge*, digital and material skies are threatened alike by capitalism. In Suzanne Collins's *The Hunger Games* trilogy, the atmosphere was broken by a climate catastrophe in the distant past, but the fascist state of

Panem generates its own sky in the arena of the games. This kind of splitting is characteristic of postmodern art, and it produces paranoia about the virtual as the space of illusion and oppression that poses an existential dilemma for the construction of nerd refuges from the materials of the imagination.

Postmodern cultural theory has had a conflicted relationship to the idea of virtual worlds. In the most negative assessments, virtual worlds are depicted as false, deceptive, and schizoid. Jean Baudrillard's influential analysis of simulacra posits a developmental scheme in which simula, likenesses, get progressively worse: first, they are flawed representations of the real; then they obscure mundane reality; then they obscure the obscuring; and finally, they break free of reality altogether, which denotes, for Baudrillard, a cultural transition into states of political being and aesthetic perception entirely unrelated to truth. As a theory of knowledge, Baudrillard's position descends from Plato's Allegory of the Cave, which depicts pre-philosophical human knowledge as the understanding of shadows cast by fire on a cave wall. As a theory of being, his view descends, ontologically, from the *Timaeus*, in which the cosmos is depicted as a flawed material copy of a transcendent, immaterial idea. Aesthetically, it descends from the *Republic*, Book IX, and the critique of the tragic poets as liars who corrupt the young; psychologically from the *Phaedrus*, and the Egyptian priest's fear that writing as a technology will corrupt memory and perception. However, for Baudrillard, postmodern modes of economic and cultural production radicalize the problem because of the "precession of simulacra," a process through which the same facts can be spun, like the axes of different toy tops, into separate micro-worlds that are unaware of each other and unfalsifiable to their inhabitants (Baudrillard 1–42). From the perspective of nerd ecology, Baudrillard holds some promise of helping us to understand the relationship of the adolescent micro-worlds of school and home to the process of nerd genesis. The school and the home can act as simulacra whose function is to norm the nerd child into a representation of the healthy, sociable, obedient child who will reproduce the social order without question. It is only within such simulated worlds that children can be turned into prey, garbage, and machines. Further, the theory of simulacra offers a description of the delusory manner in which the American suburb seems to float free of its socio-ecological context, just as neoliberal models of economic growth make the human economy appear to float free of the natural

economy on which it depends. The problem with Baudrillardian theory arises when its descriptions are taken as absolute or monolithic, inducing a paranoid sense that simulated worlds are prisons from which there is no escape. Though this perspective is logically self-consuming—it would not be possible to name simulacra as such if they were imperceptible or absolute—it also informs the most influential critique of postmodern aesthetics, first articulated in Fredric Jameson's "Postmodernism and the Consumer Society" (1983) and developed in *Postmodernism* (1992).

For Jameson, paranoia, or the mind beside itself, is the essential aesthetic experience of postmodern culture (Jameson, "Postmodernism" 111). Postmodern art in particular, and cultural production in general, are characterized by a deracination of perception from context. The aesthetic of fragmentation, which began with the Modernist avant-garde as a symptom of, then protest against, the ravages of World War I, becomes the norm in postmodernism. The most extreme examples of poetry, painting, film, and television induce a state of mind that Jameson calls schizoid, if not literally schizophrenic. In this state, objects become displaced from their histories, words create disjointed images, and sentences fail to form coherent narratives. Everything from L=A=N=G=U=A=G=E poetry to the architecture of Las Vegas produces this effect, such that sounds no longer signify ideas or things and cities appear to have sprung *de novo* from the desert, with no past or future, no hope of patrimony or inheritance. Drawing on Jacques Lacan's theories of schizoid perception and language, Jameson explains that the schizophrenic "does not have our experience of temporal continuity either, but is condemned to live a perpetual present with which the various moments of his or her past have little connection and for which there is no conceivable future on the horizon" (118). For Jameson, this aesthetic is symptomatic of a late capitalism that seeks, unlike its industrial predecessors, to obscure its own origins and ends by extracting humans from history itself. Building on Marx's analysis of capital itself, Jameson claims that postmodern aesthetics promotes "the disappearance of a sense of history, the way in which our entire contemporary social system has little by little begun to lose its capacity to retain its own past, has begun to live in a perpetual present and in a perpetual change that obliterates traditions" (122). As in schizophrenic mental states, the present is all there is, and its contents cannot be assembled into any

meaningful order, no cause and effect, such that any sense of political project becomes unthinkable, and citizens in history are reduced to consumers in an eternal present of earning, spending, and wasting. One sees in this critique, which owes much to the formalism of Marshall McLuhan, the fear of contemporary media as inhuman agents that alter human consciousness according to the dictates of a dominant ideology. The contemporary fear of social media as parasitic and destructive descends from this Marxist-formalist understanding of postmodernism. For Jameson, postmodernism is a simulacrum that has engulfed the entire planet; he is more convinced than Baudrillard that there is a master illusion, and we are trapped inside it.

Both Baudrillard's theory of simulacra and Jameson's theory of postmodernism as capitalist schizophrenia were formulated prior to the rise of the World Wide Web in the 1990s. This explains why both theorists emphasize human helplessness in the face of postmodern culture. Before the web, it was possible to see the architecture of Las Vegas, the penetration of kitsch into popular culture, and the hyper-alienation of punk as tesserae in a pan-cultural mosaic assembled by macro-economic forces beyond the influence of the individual consumer. With the interactivity of the web comes a growing sense that simulated worlds as social media can enhance human sociality and provide opportunities that the real world does not. This sense pervades the earliest theories of hypertext and ergodic literature, which are amplified by ethnographic approaches to fan culture, especially Henry Jenkins and his theories of fan culture and media convergence. This pragmatic optimism about virtual worlds is nowhere greater than in game theory, especially Jane McGonigal's *Reality Is Broken: Why Games Make Us Better and How They Can Change the World* (2011). McGonigal, a game designer, shares Baudrillard and Jameson's sense that the world has gone awry. Citing economist Edward Castronova's description of the "mass exodus" of 183 million Americans into virtual game worlds, McGonigal argues that this movement expresses a communal understanding that "reality is broken," that the real world is not as interesting, challenging, instructive, creative, or cooperative as online environments (McGonigal 3). For her, virtual gaming worlds are not the cause of the brokenness, but a symptom of it that contains a possible solution to it. Unlike other forms of consumer culture that encourage passive reception and economic acquiescence, games make us happy by teaching players to overcome obstacles through optimism, cooperation, and

strategic thinking. Though popular game environments such as *Portal* and *World of Warcraft* have this effect, her most persuasive examples involve the "gamification" of daily life itself, as in *Chore Wars*, in which she competes with her husband to accomplish mundane tasks, and *SuperBetter*, a game she first created to help herself recover from a dangerous concussion. In these latter examples, the games function to create new and beneficial habits in the players, increasing their sense that problems can be solved step-by-step in a community of problem solvers. McGonigal combines Aristotelian ethics with the American Pragmatist emphasis on problem solving to theorize games as a school for virtue and a testing ground for solutions to individual and global problems. Her most radical claim is that games can help us become more resilient, as a species and biosphere, in the Anthropocene, the controversial term for the new age in which human activity becomes a planetary force that appears to be driving mass extinctions, civilizational collapse, and climate catastrophe. She and a team of experienced game designers created a game called SUPERSTRUCT, set in the world of 2019, in which a countdown to human extinction has begun because of destruction of the biosphere. As its name suggests, the game requires players to create "fundamentally new combination[s] of people, skills, and scales of work" that did not resemble any existing organizations (McGonigal 328). Hundreds of people were invited to play, and some of the winning superstructures included energy-generating clothing, "seed ATMs" that delivered seeds for free to ensure food as a civil right, and DCAR—The Democratic Central African Republic, a plan to help refugees rebuild a national polity using crowdsourcing and smartphone media (329–331). Hundreds of other superstructures were proposed, and together they made the Whole Superstructure Catalog, an online resource for educators, policy makers, and innovators. McGonigal claims that it also created a group of SEHIs, or "super-empowered hopeful individuals," as game designer Jamais Cascio calls the players who left the game with a concrete plan to change the real world (315). McGonigal's understanding of a game as a virtual space that fashions a sociopolitical agent with a planetary plan challenges the notion of the virtual as a space of delusional escapism. It allows players to test new forms of subjectivity, to form new habits, and enact new plans. It provides space to construct new stories of the self as agent in a cooperative polity that generates a counter-narrative to the story of inevitable social and ecological collapse. Taken

together with Baudrillard and Jameson's theories, McGonigal's framework helps us to understand the structure and effect of the new narratives of fighting the destruction of the sky.

The combination of metaphysical dualism, schizoid aesthetics, and the hope of resistance are foundational to *The Matrix* films. *The Matrix* is notable for nerd ecologists because it turns the nerd tropes of alienation, alliance, and resistance to machine-life into principles of world-building. Though Keanu Reeves's protagonist, Neo, believes himself to be in a North American city at the end of the twentieth century, he is actually trapped in a simulated world designed to pacify humanity while parasitic machines feed off the energy of human bodies to sustain a planetary hellscape shrouded in perpetual darkness. The human species itself is nerdified in this scenario, reduced to prey by a superior antagonist. The plot of *The Matrix* and its sequels, *Rebooted* and *Revolutions*, entails a resistance to this condition that leads to peace with the machines. The basis of this narrative in nerd conventions is straightforward: the anti-cosmos of schooling is projected onto the entire planet; nerd humanity is afflicted with false consciousness of a "normal" world that inhibits one's true powers and potential; escape is possible only through alliance. The most conflicted site of nerd signification is the boundary between human and machine. Humans are defined by their relationship to digital technology and the world it generates. The visual language of the films is dominated by computer code, especially the signature cascade of digits that adepts can see behind the *Matrix*, and the nerd skill of coding attains heroic proportions. Everyone is a cyborg or an artificial intelligence. The question is not of pastoral escape to a garden beyond the machine, but of a rebellion against enslavement, the creation of an alternate history in which humans are not livestock. The critique of the three canonical films has been explained in some depth: they are easy to read as a prophesy against a postcommunist/late capitalist world-order ready to destroy the planet in the name of profit, and the ideology of security and comfort that blinds inhabitants to the nature of the system. What is not clear in the canonical films is the just-so story, the origin myth, that explains how the machines came to enslave humanity, a myth narrated in the *Animatrix*, a series of animated shorts collected in 2003. "The Second Renaissance," directed by Mahiro Maeda, reveals that the *Matrix* is not a result of the natural malignancy of AI, but of the human

attempt to destroy a machine nation through the "destruction of the sky," the release of nanobots that blot out the sun in order to destroy the source of machine energy. The parasitic relationship between human and machine is not the result of cyborg being as such, but an eco-political disaster initiated by humans in order to suppress the aspirations of "01" [Zero One] to join its creators in a global political order. By reading "The Second Renaissance" as a nerd apocalypse—a revelation of nerd politics mediated by the fantasy of nerd vengeance—it is possible to reread the *Matrix* trilogy as a story about the climate disaster as a consequence of social injustice.

Like *The Matrix* itself, *The Animatrix* gains its ideological coherence at the intersection of Christian and Buddhist discourses. If we imagine that *The Animatrix* mapped out in Cartesian coordinates, the x-axis is Christianity: its positive integers represent processes of genesis, while its negative integers represent processes of apocalyptic destruction. The y-axis is Buddhism: its positive integers represent processes of enlightenment, while its negative integers represent delusion. *The Matrix* itself makes it appear that the forces of humanity align with quadrant 1, where creation and enlightenment coincide, while the forces of the machines align with quadrant 3, where destruction and delusion align. The central task of the protagonists is to free themselves and others from enslavement to the illusion of the Matrix, the lie the machines are telling humanity while whole generations are consumed. Neo and his companions function as bodhisattvas who refuse absolute escape from samsara while others are still trapped. In this scenario, enlightenment is the solution to a mechanical Inferno. *Reloaded* and *Revolutions* serve to complicate the terms of the first film, however. There are humans who wish to remain delusional and there are artificial intelligences (AIs), such as the Oracle, that seek solidarity and liberation from delusion alongside humanity. In this scenario, Christian apocalypse is the instrument of liberation from a Buddhist illusion. Neo assumes the role of Christus Victor, who defeats the satanic Agent Smith in a final battle that ends in a messianic self-sacrifice that frees both Zion, the human community, and the AIs of the *Matrix*. Machine and human intelligence are moved together into quadrant 1, where the creation of a new community of sentience awaits. In terms of nerd ecology, the alienated machine-self is reconciled with its former human prey through a process of redemption from trash and degeneration.

This ending raised a number of questions. If the *Matrix* could be a shared space of human–machine interaction, what had gone wrong to undermine this shared life? If the machines were not intrinsically hostile or predatory, why had they behaved that way? Despite the digital sunrise at the end of *Revolutions*, which signaled a new future, the atmosphere of earth remained darkened. Did the sky have a future? "The Second Renaissance" answers some of these questions, and suggests resolutions to others. As many critics have noted, the *Matrix* films draw philosophical energy from the radical dualism of certain kinds of Gnosticism. In the Sethian Gnostic text "The Hypostasis of the Archons" [or "The Reality of the Rulers"], written in the third century of the Common Era, we find many of the premises that inform *The Matrix* itself. The material world is an illusion caused by a cosmic error rooted in the rebellion of wicked rulers, or archons (from the Greek *arche*, "origin," "ruler"), who have rebelled against the transcendent One and trapped immaterial human souls into physical bodies (Barnstone and Meyer 168–171). Like a Baudrillardian simulation, the false world has developed an illusion of self-justification: Neo inhabits a city in which almost everyone believes they are living in the late twentieth century in North America. Certain souls, however— the Knowers/Gnostics such as Morpheus and Trinity—possess an esoteric knowledge that reveals the truth of the human dilemma. There is a world beyond the world where we actually belong, but we are currently enslaved to the archons and their delusional order. This is the "dualistic anti-cosmic spirit" identified by Hans Jonas as quintessentially Gnostic (Jonas 33), and the first *Matrix* film enacts Gnostic tropology almost flawlessly (Jonas 48). However, the moment of recognition, of becoming a Gnostic, is represented as an exit from the virtual world of lies into the material world of truth. In this sense the Sethian tropes are reversed, but the narrative trajectory remains the same: one must overthrow the archons and escape into the true world. But the true material world contains a free city, Zion, which was forced underground by the dominance of the machines, who rule a ruined earth covered in perpetual dark cloud. In the *Matrix*, it appeared that the archons were simply AI run amok, an ordinary trope of the bad machine. The *Animatrix* tells the story of the political disaster that caused the machines to rebel and the humans to destroy the sky.

The story of the climate disaster starts as a revision of Genesis: the bodhisattva narrator says that "In the beginning, there was man" and that

"man made the machine in his own likeness." The Gnostic story of the Fall depends upon an ignorant demiurge who creates the material world as a Fall from heavenly being (O'Brien 205). Here the demiurge is humanity itself. Intelligent machines are the progeny of humans acting as gods in the traditional style of *Frankenstein*. *The Matrix* is friendlier to syncretized salvation religion than it is to liberal humanism. The trouble is not the creation of the machines, but their subjection as enslaved workers with no rights or recognition as sentients. As Andrew Nikiforuk argues, the rise of machines powered by fossil fuels "replaced the ancient energy of human slaves with a new servitude" (Nikiforuk 17). Armies of loyal robot workers are pictured marching in hard hats to work: robots are an oppressed proletariat. When a robot named B1-66er kills its human master in self-defense, the political situation spirals out of control. The name is not an accident: "Bigger" is the name of Richard Wright's protagonist in *Native Son*, a black man put on trial for killing a white woman. There is no justice for Bigger or his robot namesake: the Wachowskis borrow the determinism at the heart of *Native Son* to chart the downfall of humanity at the hands of the robot masses. Images of the "Million Machine March" are juxtaposed with images of public rape, genocide, and war, including visual references to American atrocities in the Vietnam War and the Chinese repression of students in the Tiananmen Square protests. The robots regroup to form their own nation, 01, which requests admittance to the United Nations. The representatives of 01 are killed on the floor of the UN General Assembly, and at this final denial of cosmopolitan citizenship, the robot nation declares war. This leads to the release of the geo-engineering weapon into the sky, blotting out the sun and forcing the robots to parasitize human bodies for electrical and kinetic energy. The final scene of the apocalypse takes place in the General Assembly, where a single robot-archon, a demonic insect-octopod with glowing red eyes, parodies the Letter to the Galatians. "Hand over your flesh," it intones, "and a new world awaits you" as New York vaporizes in a mushroom cloud. The final scene, which depicts a suburban Christmas, allows a human child to recognize for a moment that its parents are agents of the Matrix. It falls into the fires of simulation as the bodhisattva narrator grieves at the pod that contains its true body.

Released in 2003, the *Animatrix* deconstructs the ideology of climate denial before the reality of climate change had entered popular culture.

Though it takes advantage of paranoia and simulation, the film is better described as a "historiographic metafiction," the term Linda Hutcheon applied to postmodern narratives that draw attention to the conventions of historical narration as the "grounds for its rethinking and reworking of the forms and contents of the past" (Hutcheon 5). *The Animatrix* does not repeat the Genesis narrative, the "Hypostatis of the Archons," the *Communist Manifesto*, slave narratives, *Native Son*, or the book of Revelation, nor does it make a pastiche. It remixes their components as a tool for understanding how the patrimony of the West may impose the same old story in an era of skepticism toward metanarratives. It draws attention to the way global civilization constructs the material future from the narrated past, inducing climate change through the destruction of the sky. As a nerd narrative, *The Animatrix* depicts the way internalized hatred of the self as machine, of the machine as monster and swarm, undermines the project of cosmopolis. It celebrates digital animation and computer coding, bowing to the sublime space of the Zion Archive. It also undermines any sense that material *or* digital spaces can act as a true refuge while the sky remains destroyed. The nerd impulse to escape into the hero's quest, the villain's plan, or the infinite recursion of fantastic worlds is finally denied in the face of social injustice and climate catastrophe. *The Animatrix* cannot function as our filmic comet, offering an escape from nerd subjection as cosmological disaster. It requires us to break the master–slave dialectic with our own machines, to move past humanism to a cosmopolis of cyborg citizenship. It imagines the ecofeminist project of rethinking "the whole Western theological tradition of the hierarchical chain of being and chain of command," and the "right of the human to treat the nonhuman as private property" as a task for postmodern narrative (Ruether 85). How should we conceive this metaphysical and narrative task as a search for justice in history? Thomas Pynchon, the nerd-lord of the American novel, has some ideas.

The bleeding edge of nerd ecology

Thomas Pynchon's novel *Bleeding Edge* (2013) brings together the work of Rachel Carson and *The Animatrix* in a conceit of the World Wide Web as a

wildlife refuge for nerds. It is the spring of 2001, the moment between the dot-com crash and the attack on the World Trade Center. Maxine Tarlow, a fraud investigator living on the Upper West Side of Manhattan, has followed a trail of dark money, extortion, and espionage from the "UWS" to a virtual world called "DeepArcher." In her attempt to trace the murder of an old colleague to a computer security company called *hashslingrz.com*, Maxine runs afoul of Russian mobsters. Her escape route leads down the Hudson River from her apartment building to the marshes of Staten Island in a small boat piloted by her friend Sid Kelleher. Sid brings Maxine to one of the few places in New York City that is inaccessible to the public: Isle of Meadows, on the border of the Fresh Kills Landfill. As one of three islands comprising Harbor Heron's Wildlife Refuge, Isle of Meadows provides a small but striking contrast to the overdevelopment of Manhattan. As Sid shuts down the motor, Maxine wonders about the lifespan of refuge in the face of the real estate market and the forces of waste. "How long," she thinks, "can any of these innocent critters depend on finding safety around here?" (Pynchon 166). How can a refuge survive the encroachment of the forces of garbage that cosmopolis wants to forget:

> Every Fairway bag full of potato peels, coffee grounds, uneaten Chinese food, used tissues and tampons and paper napkins and disposable diapers, fruit gone bad, yogurt past its sell-by date Maxine has ever thrown away is up in there someplace, multiplied by everybody in the city she knows, multiplied by everybody she doesn't know, since 1948, before she was even born, and what she thought was lost and out of her life has only entered a collective history, which is like being Jewish and finding out that death is not the end of everything—suddenly denied the comfort of absolute zero.
>
> This little island reminds her of something, and it takes her a minute to see what. As if you could reach into the looming and prophetic landfill, that perfect negative of the city in its seething foul incoherence, and find a set of invisible links to click on, and be cross-faded at last to unexpected refuge, a piece of the ancient estuary exempt from what has happened, what has gone on happening, to the rest of it. Like the Island of Meadows, DeepArcher also has developers after it. Whatever migratory visitors are still down there trusting on its inviolability will some morning all too soon be rudely surprised by the whispering descent of corporate Web crawlers itching to

index and corrupt another patch of sanctuary for their own far-from-selfless ends. (Pynchon 166–167)

It would be hyperbolic to claim Isle of Meadows as the last arcadia, but the island had been targeted for development before the Audubon Society intervened. More notable is the location of this refuge in the shadow of the Fresh Kills Landfill, once the largest garbage dump in the United States. This juxtaposition posits the refuge as the opposite of the landfill but the alter ego of the virtual world of DeepArcher. Like the estuary, DeepArcher is a sanctuary for "innocent critters"—the Open Source idealists whose web is about to be commodified—figured as the herons, egrets, and other birds of the Atlantic Flyway. In Pynchon's terms, digital and natural spaces are opposed, not to each other, but to a rapacious market set to invade the lands of the free. The invasion is spearheaded by "Web crawlers," a software term of art intended, here, to trigger a phobia against an arachnid enemy. *Bleeding Edge* proposes an alliance of digital and natural space against the threat of neoliberal depredation.

Postmodern texts that posit nature and culture as parallel realms besieged by financial monsters fit into an urban–ecological approach to environmental culture. Urban ecology emphasizes the human city and its technology as part of the biosphere, not its opposite. That is why the natural sanctuary in the novel is a refuge and not a park. Adirondack Park, located in the northeastern corner of upstate New York, is larger than Yellowstone and connected to New York City as one source of its pristine water supply. Had Pynchon wanted to inject wilderness and the aesthetics of purity into the discourse of DeepArcher, Adirondack Park was available. Instead, he evokes a landfill sublime through the endless bags of "potato peels, coffee grounds, uneaten Chinese food, used tissues and tampons and paper napkins and disposable diapers, fruit gone bad, yogurt past its sell-by date" whose temporal and physical scale exceeds Maxine's imagination. He knows that Fresh Kills Landfill had already become New York's newest park by the time she arrived at Isle of Meadows. This alchemy of garbage and the green world is particularly attractive to the "swampy" ecocriticism that I advocated in an effort to recognize toxic effluvia in the life of the modern city (Lioi 17). In response, Heather I. Sullivan founded "dirt theory" to foreground the role of dirt in environments and texts. Concerned that a philosophical–aesthetic approach to dirt is too

abstract, Sullivan turned attention to dirt as the substratum of civilization. She explains:

> When "green thinking" neglects the less glamorous and less colorful components of dirt in both the built environment and other landscapes, it risks contributing to the dichotomy dividing our material surroundings into a place of "pure, clean nature" and the dirty human sphere. After all, we live on Earth, are dependent on earth and soil for most of our sustenance, and are surrounded by dust. This dust emerges from our bodies, the particulate matter of air pollution, the stuff in buildings, and the desiccated landscapes of a warming world. Dirty nature is always with us as part of ongoing interactions among all kinds of material agents, and thus is, in other words, more process than place. I propose "dirt theory" as an antidote to nostalgic views rendering nature a far-away and "clean" site precisely in order to suggest that there is no ultimate boundary between us and nature. We are enmeshed within dirt in its many forms. (Sullivan 515)

Dirt theory offers a way to read *The Bleeding Edge* as a meditation on a city of garbage that is not, therefore, evil, repugnant, or beyond the pale of environmental concern. Manhattan, Staten Island, Isle of Meadows, and DeepArcher are topoi in a larger city that ought not to be dismissed because it is dirty. Given the powerful connections between garbage, machines, and nerds, dirt theory suggests that nerds will provide the bridge between virtual and material refuges in a city where everything is dirty.

Pynchon has a long history with nerd narrative. Obsessed by historical conspiracies, communication systems, and the odd characters that people them, Pynchon has been writing about nerds *avant la lettre* since *The Crying of Lot 49*, whose female detective, pop-culture references, and secretive corporations make it the ancestor of *Bleeding Edge*. Though the term *nerd* had entered English by the time *Crying* was published, it had nothing like its contemporary currency in 1964. The cultural types that signify the 1960s counterculture in *Crying*—the dude with a band, the mad scientist, the corporate drone—have become the culture of *Bleeding Edge*. Though Pynchon alternates between the terms *geek* and *nerd*, their prevalence in dialogue and narration indicate the ascent of nerd culture in the professional middle class. In the Isle of Meadows passage, the geeks of the dot-com boom seek refuge in DeepArcher after the financial bubble bursts. This is the reason Maxine wants

"a set of invisible links to click on" in the marsh: the fraud she follows has led her to DeepArcher already. Ushered into the virtual world by the refugees who designed it, she understands the "deep web" as a realm threatened by corporate overlords. The analogy between coders and wildlife is ironic in the material terms of dirt theory: computer nerds, like Maxine herself, are part of the urban ecology that produced the landfill threatening the wildlife refuge. The flow of human garbage to Fresh Kills points to New Yorkers as villains and victims: the wasteland is a metaphor for the economic system that used young idealists and then threw them away. This irony is not lost on the characters. Maxine and a graphic designer, Driscoll Padgett, discuss the collapse of the dot-com bubble in 2000:

> Driscoll snorts. "*Is* no revenge of the nerds, you know what, last year when everything collapsed, all it meant was the nerds lost out once again, and the jocks won. Same as always."
>
> "What about all these nerd billionaires in the trades."
>
> "Window dressing. The tech sector tanks, a few companies happen to survive, awesome. But a lot more didn't, and the biggest winners were the men blessed with that ol' Wall Street stupidity, which in the end is unbeatable."
>
> "C'mon, everybody on Wall Street can't be stupid."
>
> "Some of the quants are smart, but quants come, quants go, they're just nerds for hire with a different fashion sense. The jocks may not know a stochastic crossover if it bites them on the ass, but they have that drive to thrive, they're synced in to them deep market rhythms, and that'll always beat out nerditude now matter how smart it gets." (Pynchon 48)

Driscoll applies the trope of the virile winner to explain how the people who made the Web have been punished by the crash while businessmen with no technical knowledge profit from it. Like computers, nerds have knowledge and skill, but jocks have physical and social vitality. Pynchon employs this dichotomy to explain how the boom-bust economy exploits laborers while rewarding investors who do none of the actual work. In doing so, he anticipates one of the central insights of nerd ecology: the physical attributes of the nerd point to the social Darwinism of a system nerds uphold through their work. Driscoll's refusal to acknowledge a "revenge of the nerds" narrative, in which a downtrodden caste attains status within the system, reflects Pynchon's

understanding of "nerd" as a category constituted by social systems that turn individuals, groups, and ecosystems into garbage. Like the denizens of W.A.S.T.E., Tristero's secret network in *The Crying of Lot 49*, nerds may or may not constitute a political resistance to the system that made them.

The question of resistance is important for nerd narratives because the nerd begins alone. Driscoll's theory cannot explain the origin of the dot-com bubble in economic structures because the nerd versus jock typology remains grounded in individual attributes. Driscoll's ideas have emotional appeal as a continuation of the nerd victimization narrative, but they never reach the financial evils that Maxine uncovers. Coders who see their professional problems as extensions of personal typology stand in need of a structural adjustment based on the Nerd Triangle. This conceptual challenge can be addressed by the addition of the idea of the "asshole" and its economic paradigm, "asshole capitalism." The philosopher Aaron James provides a useful definition for these concepts:

> The asshole … feels entitled to special advantages of cooperative life to which he in fact has no moral claim. The culture of an asshole capitalist system, as we will understand it, sends just this kind of strong entitlement message. Roughly, the message is that you can rightly get something for nothing or get rich without having to worry about the costs to others. (James 145)

These definitions connect personal morality with structural inequalities: the asshole takes what he has no right to take (a personal vice) and this behavior infects the entire socioeconomic system of unjust acquisition. Moreover, this systemic effect reinforces itself through culture: asshole capitalism reproduces itself as a way of life, just as its historical corollary—"asshole communism"— Driscoll deflects Maxine's question about nerds becoming profiteers in the dot-com economy, raising questions of guilt by association and assimilation into asshole capitalism. Driscoll pleads tokenism—nerds are the exploited, not the exploiters—a claim that would require systematic investigation to confirm. James contends, however, that the culture of asshole capitalism creates unjust behavior in persons who would not otherwise behave unfairly, so it is possible that nerds are both victims of the system and perpetrators of injustice at the same time. James concludes that the pressures of the system thereby "result in a profusion of assholery throughout social and economic

life that overwhelms dampening systems" that might keep it in check (145). This certainly describes the behavior of financiers and markets involved in the dot-com bubble itself. Asshole capitalism also explains the threat to the virtual refuge of DeepArcher and the material refuge of Isle of Meadows. Not content with Manhattan, asshole capitalism in the form of dot-coms reaches for DeepArcher; not content with Manhattan and Staten Island, it reaches for Isle of Meadows. This encroachment is cultural and ecological, as James predicts: his first example of cultural collapse is also an example of ecological collapse. We might call this the "brown sky effect": as the system of asshole capitalism takes over the refuges, it reduces the earth to a material simulacrum of the consumed resource, a version of the ruined atmosphere of *The Matrix*. The *telos* of asshole capitalism is the end of refuge based on the principle that nothing has a right to exist outside the system of unjust privilege.

This goal is the negation of sociologist Peter Berger's claim that "[e]very human society is an enterprise in world-building" (Berger 3). By "world," Berger means not only a cosmos, understood as natural law, but also a society, a *nomos* allied to *cosmos*, that "provides a world for man to inhabit" (13). Berger is a social constructivist: he posits society as something humans fashion, not something that God or nature decree. Constructs are not illusions in Berger's constructivism. The construct is real the way a house is real—made by human labor, but if it falls on your head, you die. However, Berger sees culture as investing itself with a sacred power to make it appear absolute and natural. Culture as nomos wants to line up with nature as cosmos, and the result of this desire is the "sacred canopy," the constructed sky that proposes itself as the true and only sky. Berger writes of this as the "sheltering quality of social order," and here the sacred canopy meets the refuge (23). Culture makes a refuge in the midst of nature by appearing to arise from the cosmos itself, and the ideological trick of naturalization is part of its function as shelter. From Berger's perspective, the system of asshole capitalism appears to be an enterprise in world-creation that masks its own role in world-destruction. The dot-com bubble was created in a system that imagines itself to be immortal and beyond limitation: capitalism appropriates the role of sacred canopy from religion in postmodernity. The virtual world of the bubble reveals capitalism's ability to create simulacra out of real materials while masking the process as an effect of ideology. The transition to asshole capitalism occurs when the bubble

bursts, and the winners conclude that the spoils of the virtual world belong to them by right, and not to others. The sacred canopy burns down, but the high priests are already out of the tent. Nerds also demonstrate the sheltering quality of the bubble world. Berger points out that society's function as refuge becomes apparent in "marginal situations in the life of the individual" when he is "driven close to or beyond the boundaries of the order that determines his routine, everyday existence" (23). This is exactly what happened to Driscoll and the coders: they are driven out of the shelter once their labor is no longer needed. Like endangered waterfowl, they gather in the virtual refuge without imagining resistance to the system itself. Maxine, however, keeps searching for pattern in the Matrix in the hope that this knowledge will create meaning, if not justice, as the false sky closes in.

Though Maxine is a detective, a secular figure in American literature, the knowledge she desires can be understood as revelation insofar as her bleeding edge constitutes an eschaton. *Eschaton* is the Greek word for "edge," and the root of *eschatology*, often paraphrased as "study of the end-times" but better understood as a study of history at the edge of transformation. Pynchon apparently expects the transformation of asshole capitalism to be bloody, in keeping with the book of Revelation itself. Much of the blood in the novel is spilled offstage, but the violence of cosmopolis is never far from the narrative surface. Overt resistance to the system manifests in classic Pynchonesque fashion through the escapades of agents known to Maxine as individuals who may or may not represent a gathering of larger forces. *Bleeding Edge* hints at an organized rebellion against the false sky of capitalism but refuses to stage it. This may be a limitation of genre, because the novel serves as an account of New York just before the attack on the World Trade Center. The edge of history exceeds historical narration.

The destruction of the destruction

However, there is an account of a rebellion against a false sky that frames its narrative as the overthrow of dystopia. The conflict over capitalism as world-destruction that lies ahead of Maxine and Driscoll constitutes the repressed history of *The Hunger Games*, the trilogy by Suzanne Collins that has been

adapted as a series of Hollywood blockbusters. *The Hunger Games* is the story of Katniss Everdeen, a young woman who lives in District 12 of Panem, a fascist state that arose in North America after the fall of the United States. District 12 was once Appalachia, a name that Katniss learns in history class, and her people are the coal miners who provide fuel for the Capitol, the repressive metropolis somewhere in the Rocky Mountains. The connection between coal and climate change lies beyond the knowledge of District 12, but a catastrophe of rising seas is implied by the absence of any districts that might be construed as the current East and West Coasts. The miners of the district must go deep to recover the coal left by their ancestors, implying a "carbon bomb" dropped on a prior world-order that never broke free of fossil fuels. The fascist government of Panem suggests that asshole capitalism can give rise to orders that are even worse, societies that do not bother to mask the imposition of power on the weak. The need for force suggests the fear of the kind of rebellion that Katniss will lead. At the beginning of the eponymous first novel, failed rebellion against the Capitol is commemorated by the Hunger Games, gladiatorial combat in which two residents of each district are chosen to compete as "tributes." The games are designed to inscribe the punishment for rebellion into the fabric of society itself, to produce a hypermediated spectacle of death to quell the thought of further resistance. Katniss becomes a tribute when her younger sister is chosen and Katniss volunteers to take her place. This sets in motion a chain of events that leads to a reversal of the broken sky trope: the rebellion that forms around Katniss destroys the destruction of the sky as the first step in open rebellion against the fascist order.

In the first book, *The Hunger Games*, the crucial moment of the rebellion takes place during the game in the arena, where Katniss honors a fallen tribute on the ground before government forces retrieve the body from the sky. The arena itself is a sacred canopy of fascism, a simulated world in which society and nature bend to the will of the powerful. The false sky of the arena is a force field that keeps the tributes in the field until there is only one left alive. Under that sky, every aspect of the environment has been weaponized. The "Gamemakers" send firestorms at one moment and floods at another. The elemental challenges are complemented by the genetically modified organisms, or "mutts," that populate the forest of the 74th Hunger Games. Katniss uses a nest of "tracker jackers" for instance, as a weapon against other

tributes. These insects are modified yellow jackets that hunt humans and sting with a psychotropic poison, leaving the victim dead or completely disoriented for hours. In deploying the tracker jackers, Katniss illustrates many features of the arena. First, it is an arena of eugenics, a competition designed to favor the strongest and most ruthless competitor. The genetic modification of animals adds fascist domination of nature to the human eugenic narrative. As an arena, however, the anti-cosmos favors the intelligent if one is willing to use intelligence as a murder weapon. This ethical ambiguity punishes Katniss: because she used the jackers to defend Rue, a younger tribute, Katniss is punished by being stung by the insects herself. She both wins and loses this part of the game, underlining the gamification of the environment itself. Though Jane McGonigal thinks of the gamification of real life as a strategy for improving the world, games as such are ethically neutral, and here the game environment is gamed to encourage cruelty and punish kindness. Katniss is rewarded for being athletic, strong, focused, and competitive; she is punished for demonstrating empathy and seeking alliance. The incident with the jackers moves along clear lines of the Nerd Sign: the reluctant competitor allies herself with the swarm in order to defend the weak. This appearance of nerd tropes is no accident: the arena itself is a version of the demonic world of adolescence that threatens nerd children. In its eugenic intention, hypercompetitive violence, and ability to turn living slaves into dead bodies, the arena mocks the idea of refuge with a sacred canopy of asshole capitalism.

The resistance to this broken sky begins with a restaging of the conflict of Sophocles's *Antigone* over the burial of a sibling's body. Rue has been killed in the arena. By the rules of the games, the living tributes must abandon the body to the machinery of the state, which descends from the sky to claim the dead. Katniss, however, refuses to abandon Rue, who reminds her of Prim, her younger sister. In a defiant gesture, Katniss surrounds Rue's body with flowers: "blossoms in beautiful shades of violet and yellow and white. I gather up an armful and come back to Rue's side. Slowly, one stem at a time, I decorate her body in flowers. Covering the ugly wound. Wreathing her face. Weaving her hair with bright colors" (Collins 237). She sings a lullaby in order "to show the Capitol that whatever they do or force us to do there is a part of every tribute they can't own" (237). As a ritual instrument, the flowers claim the body for earth; as a political symbol, they refer to Rue's home, the

agrarian District 11. Like Antigone, who defies the tyrant Creon to bury her brother, Katniss defies President Snow in order to bury her sister-in-arms. She offers what Bonnie Honig calls "sororal solidarity" to another subjugated region (Honig 19). Because of the hypermediated nature of the games, her defiance becomes public in real time, transmitted to the districts by the Capitol's own cameras. Katniss marks herself as a rebel against the law that forbids alliances. By marking Rue as earthly, Katniss defies the power of the sky that claims to own her. The people of District 11 respond by offering her a traditional salute, hail-and-farewell, that the regime has forbidden. Soon after, District 11 riots against the Peacekeepers of the Capitol who quell dissent. Through the rebellion, Katniss becomes more powerful than Antigone herself, who died because of her defiance and inspired no political change in her city-state. Through ritual action, Katniss changes Panem before the fascist sky can claim Rue. Honig argues that Antigone ought not to be identified as a hero of feminist democracy as she is an aristocrat defying the will of the people, but Katniss has no such problem. Her defiance sparks hope for the democratic order that Panem has suppressed. By refusing to abandon Rue's body as garbage, Katniss incites a rebellion that overthrows the lords of coal.

In the second book, *Catching Fire*, Katniss furthers the rebellion by physically destroying the false sky of the arena during the Quarter Quell, the 75th Hunger Games called early to crush the insurgents. The victors of past games are pitted against each other, but the plan to destroy the alliance of districts strengthens their will instead. Plutarch Heavensbee, the Gamemaster who designed the arena, manipulates its weaponized environment to create a sky that can be broken. Twice a day, lightning strikes a metal tree in a display of Zeus-like power. This power is subverted by Beetee Latier, a genius inventor who won his games through guile and technical expertise. Beetee is a nerd tribute: he substitutes mental for physical prowess, and invention is his weapon. In the film, he wears thick glasses to emphasize this identity. Like Rue, Beetee would be "black" in the contemporary United States, and this racial signifier—apparently irrelevant in Panem—evokes the struggle for the abolition of slavery. Katniss and the people of District 12 appear to be the descendants of Welsh or Irish coal miners, an oppressed working class whose whiteness did not save them. As allies, Beetee and Katniss embody a history of race and class struggle resurrected now as a struggle against fossil?

fascism. They also embody a nerd assemblage: in Beetee's presence, Katniss's nerd characteristics become more visible. She is anti-social, bad with words, and alienated from the power structure, even when it favors her. They are temperamental allies with complementary skills, and their cooperation breaks the false sky of the arena. Beetee rigs a wire to the lightning tree in order to channel the lightning and short-circuit the force field. When he does not succeed, Katniss binds the wire to an arrow and shoots it toward the flaw in the field. The lightning flows through the wire to the arrow and blows a hole in the dome. The destruction of the false sky reveals a hint of the outside. Katniss relates:

> A flash of white runs up the wire, and for just a moment, the dome bursts into a dazzling blue light. I'm thrown backward to the ground, body useless, paralyzed, eyes frozen wide, as feathery bits of matter rain down on me. I can't reach Peeta. I can't even reach my pearl. My eyes strain to catch one last image of beauty to take with me. Right before the explosions begin, I find a star. (*Catching Fire* 379)

The star shining through the gap marks the return of cosmopolis and hope for the rebellion. The sacred canopy of fascism fractures, and all the districts witness it. The sabotage of the arena sets in motion a coordinated rebellion illuminated by the light of the stars.

The destruction of the arena's false sky is doubly important because of the hypermediated nature of the games. As Collins represents them, the media of the games are not exactly the message. In the third book, *Mockingjay*, there is a struggle for control of the media because content matters. This conflict begins at the end of *Catching Fire* as the people of the districts witness the destruction of the arena, a real victory that is also a televised performance. The audience of the films and the readers of the books witness the events of the story and their representation in state media: we are always watching the watchers. If Fredric Jameson's theories of postmodern aesthetics were sufficient, this kind of meta-witness would produce a sense of paranoia in the diegetic and extra-diegetic audiences. From a Baudrillardian perspective, hypermediation of a false world (the arena) into the fictional world (Panem) would create a simulation of rebellion without the rhetorical power of a "real" war story. The immense success of the books

and films suggests otherwise. *The Hunger Games* produces great devotion and identification in fans: there is no "waning of affect" in this artifact of postmodern culture (Jameson, *Postmodernism* 11). In the story world and the fan world, hypermediation is an event in itself: it augments the rebellion and the story of the rebellion. Katniss's work succeeds precisely insofar as it is mediated by the state and her allies. Her identity as the titular "Mockingjay" suggests a connection between the eugenic plot and the act of mediation. The mockingjay is a hybrid of a genetically modified "jabberjay," a weaponized spy for the Capitol, and the wild mockingbird. The mockingjay begins as a victim and tool of fascism but escapes through evolution into a form that cannot be controlled. This cyborg bird becomes Katniss's avatar, the symbol of her revolutionary identity in media produced by the rebels. The drama of *Mockingjay* becomes the struggle for control of this avatar, as Heavensbee, a professional film crew, and Beetee vie with Katniss for control of her image. This is the text, not the subtext, of the story. While Snow attempts to block the Mockingjay transmissions to the Capitol audience, Katniss's handlers coax her into performing the identity of rebel, only to learn that she is not a simulacrum, but the real thing. The conflict engendered by this reality reduplicates the fascist makeover that Katniss received to become a mediagenic tribute during the games. The power of Katniss as a protagonist lies in her ability to wrest the meaning of her life and representations of that life from both friend and foe. She plays her part on her own terms, and retires from the field when Snow is finally overthrown. She embodies the transformation of the nerd-machine, who is given an identity, into the avatar whose mediations are extensions of her own purposes. If the rebellion begins with the breaking of the false sky, it ends with the making of a truer sky, a sacred canopy of democracy that is haunted by genocide but capable of producing a refuge for the next generation.

In the epilogue to *Mockingjay*, Katniss watchers her children play in the Meadow of the rebuilt District 12, and laments that they don't know "they play on a graveyard" (390). She and Peeta plan to remedy this ignorance as the children mature, to break the false sky of Panem with the history of the rebellion that is also, as Katniss notes, the history of her own nightmares. The district must be rebuilt at a personal, narrative, physical, and political level: a complex restoration that is Katniss's final worry. The restoration begins with

the return of her singing, taught by her father and suppressed by the Hunger Games. The song she sings to her children is the one that she sang for Rue:

> Deep in the meadow, under the willow
> A bed of grass, a soft green pillow
> Lay down your head, and close your sleepy eyes
> And when again they open, the sun will rise
> Here it's safe, here it's warm
> Here the daisies guard you from every harm
> Here your dreams are sweet and tomorrow brings them true
> Here in the place where I love you. (389–390)

The answer to the broken sky of history is a restoration of the earth as refuge. This answer requires an acceptance of the graveyard under the playground, but it enables Katniss and her children to overcome the alienation at the heart of Gnostic dualism: human self-alienation, alienation from history and the sacred, and "most powerfully from the material, sensuous universe" built by the archons (Lazier 619–620). Collins responds to the crisis of transcendence and its threat to cosmopolis with *negative capability*, the term used by John Keats to embrace the practice of unknowing the absolute and the perfect. It is a species of chastened *gnosis* for more reasonable adepts, a species identified by Donna Haraway as the "modest witness" who will not claim certainty, only perspective (Haraway, *Modest Witness* 21). Negative capability allows us to affirm mortal existence in personal and political terms. Katniss offers a lyrical embrace of materiality sung out of pastoral materials: tree, grass, sun, flowers. It is a dark pastoral, not an embrace of innocence or a pretense that the horrors of history never happened, that the spirit can become invulnerable by moving out of the world. Katniss sings to her children in the knowledge that the refuge is also the grave, that the promises of the song were purchased by the dead and the living. This ending affirms Katniss as the daughter of mother and father, a healer and a singer. Her avatar, the mockingjay, had obscured this Orphic heritage because of its origin in the agon of Panem. Now the bird, drawn as a phoenix in the media of rebellion, becomes a symbol of art as salve for the pain of history. In this poetic response to the desire for world-negation, *The Hunger Games* continues the tradition of *The Lord of the Rings* and J. R. R. Tolkien's model of creation as refuge.

The Great Music: Restoration as Counter-Apocalypse in the Tolkien Legendarium

In which I assert that J. R. R. Tolkien's legendarium begins with an enchanted sky, which provides the narrative framework for a restoration ecology based on human **alliance** *with other creatures. This alliance protects local and planetary environments from being treated like* **garbage**. *Tolkien's restorative framework begins in the* Silmarillion *with "The Music of the Ainur," a cosmogony that details the creation of the universe by Powers of the One figured as singers and players in a great music that becomes the cosmos. This is neither an organic model of the world as body nor a technical model of the world as machine, but the world as performance and enchantment, coming-into-being as an aesthetic phenomenon. What the hobbits call "magic" in the Lord of the Rings is enchantment, understood as participation in the music of continuous creation. In his essay "On Fairy-Stories," Tolkien theorized literary enchantment as the creation of a "Secondary World" of art that others could inhabit. Such* **inhabitation** *allows readers to attain a* **refuge** *from violence in the Primary World in* **uncanny** *works of art that promote the restoration of the world. Tolkien calls this restoration the "Second Music of the Ainur," the eschaton in which humans join with the Powers to heal the damage done to the First Music. The Second Music is audible at the end of the* **Lord of the Rings** *in events such as the healing of Ithilien after the War of the Ring. Using this theory of restorative enchantment, one can participate in eucatastrophe, the unexpected disruption of doom that stabilizes the relationship between "real" and "virtual" worlds as a continuous creation. Middle-earth as Secondary World contains a rationale for harmony among Primary World cultures understood as different themes in the Second Music. The Tolkien*

*legendarium thereby lays the groundwork for a counter-apocalypse, a project of **world-defense** based on creative communities in **alliance***.

Frodo Baggins gazed out of the screen as I checked my Facebook account early in 2013. The foreground of the image was his open hand, which held Sauron's Ring of Power, the thing one must not possess, lest it destroy the world. This temptation appeared in a post from 350.org, the activist group founded with journalist Bill McKibben to promote global action on climate change. Typically, 350.org posts images of activists protesting the fossil fuel economy, so the appearance of a hobbit signaled a journey into nerd ecology. The Ring shone with a malignant light, and Elijah Wood's eyes conveyed the horror and compulsion that define Frodo's burden. Written into the photograph was a quotation from Yuliya Makliuk, the "Russian Speaking World Coordinator" of 350.org:

> The more I think about the climate movement and the war of the ring [*sic*], the more parallels I see. Aren't our beautiful lands threatened by a powerful shadow? Haven't we heard about our sisters and brothers from afar already facing its menacing effects? Didn't many of us submit to the enemy or deny its existence? Yes, our leaders are tempted, our forests are dying, and our lives are at risk. And yes, we fight—some of us reveal the wormtongues who corrupt our governors; others risk their freedom to block iron towers and their smoking pits; and some of us work to end discords between different folks and to form alliances. We are at the state of war. We have inherited this ring from the fossil-fired past, the ring of greed, of imprudence, of dominance, born [*sic*] by the dark flames. It shouldn't be used any longer, or the world as we know it will collapse. We are living at the verge of the epochs. (Makliuk n.p.)

Makliuk offers an extended metaphor for planetary crisis based on J. R. R. Tolkien's *The Lord of the Rings*. Like the people of Rohan and Gondor, Rivendell and the Shire, the nations of the world face a common threat: the disruption of Earth's climate system. She figures this threat as the demonic Sauron, the despoiler of Middle-earth. Like Tolkien's characters, we understand that our civilizations face one doom. Many citizens are compromised by our complicity in the fossil-fuel economy, and some of us, the "wormtongues," are

outright traitors in thrall to Sauron and his allies, who stand for Exxon-Mobil, Alpha Natural Resources, and other lords of oil and coal. The ring in Frodo's hand is an artifact of evil forged in a land of death, Mordor. We are faced with an epic struggle between the One Ring, an instrument of domination and destruction, and the citizens of the free lands. This struggle defines the boundary between two epochs, the Third and Fourth Ages of Middle-earth, which stand for the Age of Oil and the Age of Clean Energy. This story is now the story of cosmopolis, according to a Ukrainian activist retelling a British fantasy transmitted by social media across the world. Makliuk can assume that her global audience understands the ramifications of Tolkien's work because Middle-earth and the climate crisis went global at the same time.

The Ring as a conventional sign of corruption marks a shift in the cultural status of *The Lord of the Rings*, the jewel in the nerd culture crown. The status of *Lord of the Rings* as a universal nerd language brings us closer to Germaine Greer's famous nightmare that "Tolkien would turn out to be the most influential writer of the twentieth century" (qtd. in Pearce 6). The environmentalist attraction to Tolkien is not new: the pastoral life of the Shire, Frodo's home, has appealed to generations of organic gardeners, tree-sitters, and environmental justice advocates because of its "radical nostalgia" (Curry 42). This appeal justifies Ralph C. Wood's claim that Tolkien's work is peculiarly postmodern in its critique of modern industrialism, statism, fascism, and environmental destruction (Wood 247). The status of *Rings* as a metanarrative is not new, either: reading the novel provides sure passage into Nerdland. It is the attempt to sublate the urtext of nerd narrative into a planetary metanarrative that marks a change. This attempt makes sense because Tolkien's cosmos countermands the urge to abandon the material world and to despair of victory against the forces of destruction. It grounds the virtual refuge of art in the processes of material creation through a robust theory of human agency in cooperation with cosmic order. In the essay "On Fairy-Stories," Tolkien elaborates this theory of art as "Sub-creation," affirming the work of the human "co-creator" as an extension of the Maker's work. This countermove has important consequences explored in this chapter. It subverts the paranoia of Baudrillard and Jameson, embracing the simulacra of fiction as another order of reality. It makes possible a rigorous defense of "escapism,"

a derogatory term used against the immersion in fantasy worlds so typical of nerd cultures. Precious as the stars are in Middle-earth, they do not stand for a metaphysically superior world, as in Plato's *Timaeus*. Creation is the beautiful and good work of a Creator who is not the insane archon whose ethos justifies empire. In Tolkien's cosmogony, the world is made when the powers of the One, personified as gods, sing a music that materializes as the cosmos itself. Music becomes matter; ideas do not deliquesce in error. Suffering is explained as the disruption of alliance by one god, Melkor, whose egotism injects cacophony into cosmos. Transgression does not pervert the music, as in the Calvinist theories of the Fall that underlie so much modern thought, from Max Weber to Westboro Baptist Church. It causes the One to improvise, to blend discord into harmony at the moment of performance. Life arises in Middle-earth surrounded by elements already engaged in a project of cosmic restoration. Therefore, humans (and hobbits and elves and Ents and dwarves) may ally themselves with the Powers that sing the world into being as a means of resisting any destroyer. This is the significance of the Tolkien legendarium for nerd ecology. Liberated from a soured humanism in which nerds struggle against the liquidation of Arda, we can create a cosmopolitics that includes not just "sentient life," but the *stoicheia*, the elements themselves, as allies. In this chapter, I will show how this cosmogony arises in "The Music of the Ainur," becomes literary theory in "On Fairy-Stories," and accounts for moments in *The Lord of the Rings*, which are otherwise inexplicable. This theory makes possible an eschatology of ecological restoration strong enough to resist contemporary metanarratives of world destruction.

The first music

The jewel of the Tolkien legendarium is *The Silmarillion*, a collection of myths, legends, and histories that provide the narrative foundation of *The Lord of the Rings*. Against the positivist critique of myth as a disease of language, Tolkien crafted languages that generated worlds, and the legendarium enshrines that process in creation myths. The first text, "The Music of the Ainur" (*Ainulindalë*), revises the biblical idea that God creates with a speech act, *Let there be light*. Like *Paradise Lost*, the text opens in the heaven beyond

the heavens, "before aught else was made," the place occupied by Eru Ilúvatar, the One, with the Ainur and the Maiar, the greater and lesser spirits who are "the offspring of his thought" (*Silmarillion* 15). By calling them "offspring" and not "creatures," Tolkien evokes the language of the Nicene Creed that specifies the Word as "begotten, not made." Though it is not necessary to read "The Music" as a Christian document—Tolkien intended a free-standing English mythology—we can recognize the biblical and patristic valence of this myth. "Ainur" and "Maiar" are plural, so the One already stands before the Many who are children but also subjects. The precedent for this plurality lies in the Genesis narrative and one of its names for God, "Elohim," which is structurally plural ("gods") but understood in later theology as collective singular. Comparative studies of Near Eastern religious systems point to the idea of a divine court, a king and courtiers, that might have been subsumed in *Elohim*. Jewish and Christian theologians have pointed to this multiplicity as a plurality inside the Godhead, foreshadowing the doctrine of the Trinity and the Kabbalistic "faces" of God. Given Tolkien's reliance on the theology of Augustine of Hippo, we might also understand the Ainur as the creative *logoi* or words of God that sustain continuous creation after the beginning. However one understands them, the Ainur are collaborators in the Music to come: Ilúvatar "spoke to them, propounding themes of music; and they sang before him, and he was glad" (15). There is discussion, experimentation, and rehearsal before the performance itself, a celestial jam session, and these activities are a source of divine pleasure. The text extends the metaphor of Creation-as-music to the Ainur as musicians. Ilúvatar tells the choir: "I will now that ye make in harmony together a Great Music. And since I have kindled you with the Flame Imperishable, ye shall show forth your powers in adorning this theme, each with his own thoughts and devices" (15). Like the God of Genesis, this One exerts will in order to create; unlike Elohim, Ilúvatar "kindles" other powers that possess agency and aesthetic interest. The action of the Ainur is subsidiary; they realize but do not materialize the music. They add their own ideas to it, and it becomes beautiful because of them. The collaborative nature of the music will become important for Tolkien's theory of art as Sub-creation.

A moment of cyborg aesthetics characterizes creation: the Ainur become their instruments. "Then the voices of the Ainur, like unto harps and lutes,

and pipes and trumpets, and viols and organs, and like unto countless choirs singing with words, began to fashion the theme of Ilúvatar to a great music […] and the music and the echo of the music went out into the Void and it was not void" (15). The ostentatious echo of the King James Bible, the repeated "like unto," draws attention to the metaphorical nature of the language. As a creation myth, "The Music of the Ainur" takes place in the time before time and the place before place, so nothing it names can be understood literally. It is already figuration to say that the Ainur sing with voices, but many of those voices sound like instruments. The description begins with the ineffable, moves to metaphor, and then to meta-metaphor. This layering does not appear in the rough draft of the text published in *The Lost Tales*: it is a later, conscious revision. In the draft, some Ainur sing and others play; in *The Silmarillion*, all the Ainur sing, and some sing like instruments. Imagine Beethoven's "Ode to Joy" performed by beings who *are* the instruments they play, a symphony orchestra made only of vocalists. Tolkien insisted on the continuity of music and musician: music must arise in a "body" and travel outward as a voice from a singer. This distinction anticipates Tolkien's critique of unethical creation in *The Lord of the Rings*. The ruling Ring of Sauron is a material object imbued with its creator's power, a fact that leads to Sauron's undoing when the Ring is destroyed in the fires of Mount Doom. This self-objectification is inherent to the Ring as a tool of domination. Before one can destroy others, one must alienate part of oneself from oneself, denying the connection among all beings by first dividing one's being from itself. The narrative of the Ring is foreshadowed by the titular jewels, the Silmarils, which the Elves make later in the legendarium. There are three jewels of unparalleled beauty and craftsmanship: like the Ring, they inspire violence that persists through the ages of Middle-earth. Because of the Silmarils, the Ring, and the portrait of Isengard as a Satanic mill, Tolkien has been accused of being a Luddite, a person who opposes advancements in technology. "The Music of the Ainur" argues another case—that making is sacred until it leads to objectification, alienation, and destruction. The question is not the goodness of technology, but the continuity between Sub-creator and creation that prevents tools from becoming objects of lust in its original sense: the desire to dominate through control.

The cosmogonic function of this principle appears when Ilúvatar intervenes and makes the music of the Ainur into material reality. First, Ilúvatar must

tame the music of Melkor, the Satanic figure who desires that his song destroy the others. Then, Ilúvatar ends the symphony, directing the attention of the Ainur to the world forming in the deep.

> "Behold your Music!" And he showed to them a vision, giving to them sight where before was only hearing; and they saw a new World made visible before them, and it was globed amid the Void, and it was sustained therein, but was not of it. And as they looked and wondered this World began to unfold its history, and it seemed to them that it lived and grew. (17)

The ethical test of making depends on the capacity of the creation to take on a life of its own in community. Art becomes wonderful when it embraces the work of others. Melkor's error is not that he has his own ideas, but that he desires the end of the divine commons. Though Sauron is the primary figure of fascism in *The Lord of the Rings*, he is only a Maia, one of Melkor's lieutenants. Melkor, like Satan, is the greatest power after the One, but he is no antihero. One could not say, as Blake did of Milton, that Tolkien was secretly of the devil's party. Melkor is an archon of the fascism that engulfed Europe during World War II. There is nothing charming about him. Even so, Ilúvatar gives him a chance to restore himself. At the moment that Eä, the Creation, is revealed, Ilúvatar tells the Ainur that all of them, even Melkor, will find their music reflected in the material world. There is nothing intrinsically evil about the music of Melkor when it maintains a relationship with the other themes. Tolkien takes seriously the Augustinian principle that evil is not a substance. Though Melkor continues his attempts to destroy the world, he could have done otherwise. This is the first inkling of the idea of restoration as reconciliation in *The Silmarillion*. Because *The Lord of the Rings* takes place at a moment in Middle-earth when the elves depart, critics have understood it as a declensionist narrative in which disenchantment is inevitable. However, Ilúvatar tells the Ainur that there will one day be a Second Music, even greater than the first, when the mortal children of the One sing with the Ainur and recreate the world. Tolkien takes sorrow seriously: one of the greatest Ainur, Nienna, eternally mourns the destruction her brother Melkor caused. Sorrow sings in the foundations of Arda, but the Second Music will heal the wounds of history, and write that recovery into the structure of the cosmos. Because of this ending, "Music" is not an apocalypse as that term is

commonly understood. It does not foretell the death of the world in violence. It constitutes a "counter-apocalypse," a metanarrative of world-renewal against the glamorized catastrophe of Armageddon (Keller 276).

If "The Music of the Ainur" illustrates what Tolkien calls "enchantment," the creation of a world that can be inhabited, the next book of *The Silmarillion*, the *Valaquenta*, details that inhabitation. The *Valaquenta* continues Tolkien's cosmogony from the inside, explaining what the Ainur become when they enter the world as "Valar," or Powers. The *Valaquenta* serves as the *Theogony* of Middle-earth, detailing the names and natures of the gods. As in a classical pantheon, each of the Valar is associated with certain aspects of the universe and certain activities related to it. Manwë, the king of the Valar, is a god of the air who controls the winds. His presence is hinted at in *The Lord of the Rings* whenever the protagonists are saved by creatures that fly, such as a butterflies or giant eagles. Varda, who created the stars, is beloved of the Elves and appears in prayers as "Elbereth." There is a goddess of forests, Yavanna, a god of the sea, Ulmo, and so on. The *Valaquenta* details their activities at the beginning of the world, which sees the creation of Valinor, the home of the gods, the sun, and the moon, and the first struggles with evil inside the cosmos. These narratives form the foundation of the counter-apocalypse fulfilled in the Second Music and foreshadowed by *The Lord of the Rings*. Despite the parallels to classical pantheons—one can see Zeus in Manwë and Demeter in Yavanna, for instance—the Valar come to inhabit the world from the outside, though they belong in it because they made it. The music of each aspect of Eä is a Vala-song given independent, material being through the Flame of Ilúvatar. The Powers come from outside, but dwell inside a realm that they love and make beautiful. Divine power is represented as dwelling in the world, transcendent in the sense that singer cannot be reduced to song. Though many aspects of matter were made more extreme by the music of Melkor, the fire of volcanoes and the churning of the sea take part in the original harmony that endures with Creation. The gods are neither capricious nor malevolent, except for Melkor and his lieutenants. Tolkien's emphasis on balance and benevolence applies to the gender of the powers as well. *The Lord of the Rings* has been criticized for having too few female protagonists; the *Silmarillion* does not suffer from this fault. There are as many female as male powers, and the greatest female powers such as Varda, Yavanna, and

Nienna are more influential in the legendarium and *The Lord of the Rings*. This suggests that the lack of human gender parity in the novel represents a fall from an earlier balance, a logic that informs all of Tolkien's stories of the Third Age of Middle-earth. Gender imbalance in society joins war, greed, and the will to power as flaws that must be redressed in the Second Music. They represent the challenges of inhabiting a world of free creatures able to choose between good and evil acts. The Valar share these challenges, and suffer when the world is injured. This passionate involvement in history suggests that the music of the world is not apathetic, but vulnerable because it incarnates in matter and history. Unlike Rilke, Tolkien writes as if the angelic orders hear our cries because they live with us; we are environed by their music.

Tolkien's cosmogony repudiates the anti-cosmic traditions in nerd culture. The narratives of nerd alienation, separation from society, liquidation, and objectification cannot occupy the same space as Middle-earth. When properly inhabited, the Tolkien legendarium disrupts apocalyptic narratives of mad gods that make evil worlds destined for destruction. This disruption occurs through the act of inhabitation itself: the community of readers—later, "fans"—constructs a "public sphere of the imagination" according to historian Michael Saler (17). The sphere arises from an "intense imaginative identification with the textual imaginary world, coupled with the synergistic effects arising from group involvement, [which] effectively reconfigured the world" for earthly citizens of Middle-earth (26). How, then, to best inhabit it? There are at least three possibilities: the mythic, the philosophical, and the theological. The most obvious method of inhabitation is mythic, because the *Ainulindalë* and *Valaquenta* are virtual sacred texts whose style and content echo biblical, Homeric, and Norse cosmogonies. The advantage of a virtual sacred text is its continuity with traditional mythologies without the institutional structures that compel assent. Many different readers can meet on the ground of the *Silmarillion*: atheists, agnostics, monotheists, and polytheists can inhabit Middle-earth and affirm that the Great Music is beautiful and good. Because they are virtual gods, the Ainur have no history of conflict with any belief system readers might bring to the story. The Valar are not idols that Judaism fought in Canaan; not the gods of Hellenism that Christianity and Islam suppressed; not the saints and angels the Enlightenment dispelled as superstition. They are not competitors for the attention of contemporary

Neopagans, and may provide paradigms for post-monotheistic religions. By creating an artificial mythology, Tolkien made an imaginary world with real values in it, a familiar ground for nerd ethics. The success of the cinematic versions of *The Lord of the Rings* and *The Hobbit* testify to the global appeal of these stories of a world worthy of defense. The weakness of the mythic approach as a route to environmental ethics lies in the conflicted relationship of myth to modernity. Bruce Lincoln, a historian of religion, offers three basic meanings of *myth* in the contemporary world: "a primordial truth" to be respected; a "lie" or "outmoded worldview" to be scorned; and a "pleasant diversion" or "story for children" (Lincoln ix). In order to produce a public ethos, one must inhabit the Tolkien cosmogony as a primordial truth mediated by popular literature. Fan cultures certainly achieve this, but largely in the delimited, semiprivate space of conventions and the Internet. As players of *Dungeons & Dragons* and *World of Warcraft* discovered, the movement of virtual fantasy worlds into visible cultural practices produces a backlash from traditional religious authorities and guardians of culture. One meets the second and third definitions of myth in pathologized form: adherents are condemned as dupes in arrested development. The mythic appropriation of the *Silmarillion* risks a repetition of the cultural forces that created the nerd stereotype in the first place. Go outside, Tolkienite, and play with the normal kids.

The philosophical appropriation of the *Ainulindalë* deflects this problem by connecting the text to its intellectual history. "The Music of the Ainur" synthesizes two Hellenistic traditions: the Pythagorean and the Platonic. The Pythagorean tradition understands the universe as a material instantiation of mathematical relationships: the intervals, chords, modes, and tones of the Western musical tradition map the structures of the classical cosmos. The tropes of the *music of the spheres* and the *harmony of worlds* descend from this tradition. As John Hollander explains, many natural philosophers believed that the study of music "would lead to the understanding of some of the most fundamental principles of the structure of the whole universe" because the planets and stars operated on the same ratios as vibrating strings (Hollander 15). These ideas are not simply objects of Orphic piety: they informed the arts and sciences for millennia. The late antique philosopher argued that the *musica mundana*, "the harmony of the universe, including the cosmological order of elements, astral bodies, and seasons," resonated with the *musica humana* and the *musica*

instrumentalis, the rhythms of incarnate life and the work of the musician as philosopher (Hollander 25). When Shakespeare places Lear on the heath in the midst of the storm, he evokes the idea of musical correspondence between heaven and earth. The chaos of Lear's kingdom causes the sky to vibrate just as a plucked string vibrates its neighbors in an overtone series. The astronomer Johannes Kepler named his major work *The Harmony of the World* because he theorized the orbits of the planets as musical intervals. The tonal structure of Western music contains its own eschatology: the return of a melody to the tonic note tells a story of circumnavigation that informs the Second Music of the Ainur. Tonality provides a map for a transformation of the world through the emanation of melody from an origin to an end that contains the beginning in a form remade by its travels. This narrative structure is also the basis of the metaphysical lineage of the *Ainulindalë*. Beginning with Plato's *Timaeus*, the Idealist tradition explained the origin of the Many in the One in terms of departure and return. In the *Timaeus*, the Demiurge forms the cosmos from a realm of pure thought; human souls return to the One through contemplation and metempsychosis. In Plotinus, Plato's late antique disciple, the story changes: the transcendent One generates a Mind that forms a World Soul ordering matter from the inside. The World Soul inhabits nature, causing the world to turn back to the One through self-reflection on origins. This Plotinian plot informs Hellenistic Christian theologies of the Trinity and the foundations of Christian mysticism. Unlike the Calvinist split between nature and history that foments contemporary apocalypticism, this narrative emphasizes the continuity between the One and the Many. It affirms the goodness of matter against radical Gnostic dualism that Plotinus saw as a corruption of Platonism. In the legendarium, Tolkien synthesizes the music of the spheres with the cosmogony of Plotinus to produce an account of nature as a structure beautiful to the intellect and the senses at the same time, an aesthetic repudiation of anti-cosmic dualism. The advantage of this philosophical approach to the *Silmarillion* lies in the sheer weight of tradition. It is difficult to dismiss without renouncing the canons of Western philosophy and religion. The disadvantage lies in its formidable abstraction. There is a reason that so many people read *The Lord of the Rings* and falter at the *Silmarillion*: profundity can be dull. Languages produce worlds, but only worlds produce epics. The most persuasive version of an ethos is not the most mathematical.

The sacramental tradition provides a material antidote for philosophical abstraction. As a Catholic and a medievalist, Tolkien understood the Augustinian definition of a sacrament as a "visible form of invisible grace" mediated to the believer through the rituals of the institutional Church. However, sacramental theology understands Creation itself as the primary sacrament, and Christian ecological theology defends the goodness of the world on that basis. John Hart defines sacraments as "signs of the creating Spirit that draw people into grace-filled moments," an extra-ecclesial frame that sponsors the concept of *natural sacrament*, "a place, event, or creature in nature" that, as a sign of "Spirit's immanence and presence, draws people toward the Spirit" and all creatures (Hart xiv). Two features of these definitions stand out for our purposes: the idea of the sign and the inclusive scope of the phenomenon. In Catholic theology, a sign is not merely a conceptual pointer toward a referent. A sign contains some of what it signifies. There is a continuity of being between sign and referent: the name of a creature contains some its power. In this way, Arda embodies the Great Music. Here, Tolkien owes a debt to the Romantic idea of "absolute music" and its claim that the highest form of music owes nothing to other arts, such as poetry, to establish its meaning. Absolute music generates and justifies itself as the work of a genius, such as Beethoven, mediating the laws of nature through himself. The paradigmatic genre of absolute music is the symphony, in which words, if they are included, are more important as sounds than signs. In "The Music of the Ainur," Tolkien portrays the universe as the primary instance of absolute music: transcendence passing into immanence, self-justifying in its beauty and goodness, voices sounding as instruments. According to Daniel Chua, absolute music transmutes its relationship to words in the other direction as well. Paradoxically, words established absolute music as autonomous. "After all, the Romantics did not compose, they merely talked. They fabricated from the symphony the *discourse* of absolute music. So far from standing speechless before its ineffable utterances, the Romantics spoke absolute music into existence. It was music emancipated from language *by language*" (Chua 6). Wordless music made by words made the world. This is the framework for a musical Logos.

A sacramental cosmos embodies what it mediates: the creatures of Middle-earth manifest the Great Music, and the music can be evoked in them through

the power of performance. This is a natural, not a supernatural effect: it does not depend upon belief and does not require membership in an institution. The Ainur sang the music whether or not an individual character knows that they did, and certain characters, such as Sam Gamgee, evoke the music without knowing what they are doing. This position shapes Tolkien's account of the power of human art. In a sacramental framework, art affirms the availability of goodness, truth, and beauty to everyone. Sacramentality intervenes in the narrative of cosmopolis by affirming the role of matter in the life of the spirit. Matter is not incidental to the growth of cosmopolis, so the city of all creatures must matter to them as embodied beings. The trajectory of the Organians of *Star Trek* from materiality to pure thought corresponds to a certain version of Platonism, but not to sacramentalism. Sacramentality resists metaphysical dualisms, especially dualisms that denigrate matter as inferior or unworthy. Within the Christian spiritual traditions, sacramentalism stands in tension with asceticism as an ethos of world-denial. Eschatologically, the sacraments point to the defense of all creatures and their central importance to the end of the world. In its traditional form, from the Patristic era to the present, sacramental theology affirms the goodness of creatures as innate and not instrumental, not an effect of their usefulness to humans. It constitutes a powerful anti-anthropocentrism within the tradition, even in the hierarchical forms of Christian humanism. There, human beings are the crown of Creation, the creature closest to God, but not the only creature or the only necessary one. In a sacramental universe, "All creation, from the grandeur of the stars to the life of creatures of the air, land, and waters, all the energies, elements, events, and entities" of the world "stimulate" awareness of spirit and care for cosmos (Hart 13). Sacramentalism is not ecology itself, but it informs the tradition of natural theology that sees the sensible universe as a manifestation of the Wisdom of God. Much of Anglophone nature writing descends from natural theology, Emerson to Annie Dillard, though its resonance with the Tolkien legendarium remains to be explored. At its most powerful, sacramental theology insists that the story of the world cannot end with destruction and disembodiment. Its advantage and its disadvantage are the same: it is culturally specific, a Catholic understanding of art as incarnation, moving from stories and ideas to creatures living in time and space. It is the theological tradition that informs Tolkien's essay "On Fairy-Stories," his account of the value of art as the creator of Secondary Worlds.

Fairy stories and the art of enchantment

Tolkien delivered the lecture that would become "On Fairy-Stories" in 1938, as he was composing *The Lord of the Rings*, and in the essay one detects the architectonics of Middle-earth (*Tolkien Reader* 31). The first part of the essay examines the concepts of "fairy" and "fairy-story," wherein Tolkien defends the genre as serious craft. His defense begins with the claim that imagination combined with art produces "Sub-creation" (Tolkien Reader 68). This constitutes a sacramental theory of art. Tolkien explains that "imagination," for medieval philosophy, meant the faculty of the mind that allows us to produce images of objects not present to the senses. He does not deny the Romantic understanding of the term as a source of internal revelation, but his account focuses on basic mental processes first. Artists externalize images through the shaping of textual matter, moving these images from the Primary World ("real life") to the Secondary World (virtual space) of the story. At the apex of success, the Secondary World possesses an internal consistency that evokes "Secondary belief" from the audience. This is the acme of artistic achievement, the creation of a "Sub-creation" that audiences inhabit (38). This account of Sub-creation represents a theoretical version of the *Ainulindalë* cosmogony. The imagination, like Ilúvatar, propounds themes to the artist's creative powers, which make another world that can be enjoyed. The theological basis for this account lies in the Genesis narrative, which names the human as the image of God. In Trinitarian terms, the artist corresponds to Christ the Word, through which the world is created. Like Plotinus, Tolkien resists the metaphysical dualism of the Gnostics through a theory of Secondary Worlds as true, good, and beautiful. In such a system, there is no need to evolve beyond materiality, because inhabitation of a created world is the ultimate end of art. The radical distrust of the senses that makes possible the paranoia of *The Matrix* never forms. The contemporary discourse of the virtual as threat is disqualified: it is possible to make badly, to fail to make a real Secondary World, but all Secondary Worlds are legitimate. Tolkien's incarnational ethos, which understands art as a powerful means to transform the Primary World, sponsors an optimism that is matched only by Jane McGonigal and her theories of gamification. "On Fairy-Stories" posits much more than a pragmatic use for art, however. Successful art creates an uncanny aesthetic of enchantment.

Tolkien's theory of Fantasy as enchantment returns to the distinction between the objectified tool and the enspirited creature. Fantasy as a genre partakes in imagination's freedom to depart from verisimilitude with the Primary World: "unreality" frees us from the "domination of observed 'fact'" (69). Tolkien uses the example of a world with a green sun to illustrate how Fantasy succeeds only when the ramifications of its unreal premises are carried to logical conclusions: not just the green sun but all that the green sun implies. When the unreal premises are achieved consistently, the Secondary World comes alive, and creates "Enchantment." Tolkien calls this an "elvish art" that "produces a Secondary World into which both designer and spectator can enter, to the satisfaction of their senses while they are inside" (73). Magic is mechanical, the production of cheap effects that do not convince, while Enchantment produces living worlds through "sub-creative art." Tolkien's aesthetics generate principles that are cyborgian and uncanny. It is cyborg-like in its belief that union between creator and creation is a good thing; it is uncanny in that nonmakers, who refuse to enter the Sub-creation willingly, may perceive that creation as something that appears to be alive and should not. Tolkien recognizes this possibility when he describes Enchantment as "elvish," recalling the deceptions of fairies who entice mortals into their realm and never let them leave. Human approximations of the elvish art are both unsettling and quasi-divine: the artist as genius of an imaginary place, the maker as benevolent Demiurge. This robust theory of enchantment flies in the face of pessimistic appraisals of modernity as disenchanted. Max Weber, the German sociologist, considered enchantment an effect possible only for "primitive" and classical cultures: the process of Enlightenment breaks the enchanted world in a manner that cannot be reversed. Likewise, Max Horkheimer and Theodor Adorno understand disenchantment as the "extirpation of animism," the impossibility of relating to nonhuman beings as person to person (3). Where these theorists posit a radical break between modernity and enchantment, Tolkien proposes a continuity: the role of the artist consists in the creation of Secondary Worlds that can be entered, inhabited, and exited through conscious choice. Tolkien's enchantment is not a retreat into pre-critical consciousness, but a restoration of the full powers of creation.

Tolkien believes that this restoration produces three important effects: recovery, escape, and consolation. For him, "recovery" is an epistemic and

existential category, a cleaning of the windows of perception that make it possible to see other creatures as they are (77). This principle relates to Brechtian alienation as its ally in goal and opposite in means. It is not that the artist *makes* the familiar strange, it is that fantasy cleanses us of trite assumptions. It allows us to see with fresh eyes. This complicates the aesthetic category of the uncanny: things that ought to be seen as alive are seen as alive again, but because we perceived them as dead, we are unnerved by their recovery. Fantasy's capacity to reveal the familiar as unfamiliar means that it does not mislead the enchanted; it allows them to escape a Primary World wounded by delusion. This forms the basis of Tolkien's defense of escape. Critics of fantasy, he believes, have confused the "Escape of the Prisoner" with the "Flight of the Deserter" (79). Both tropes originate in wartime experience. As it is the duty of the imprisoned soldier to escape the enemy, so it is the duty of the enchanted to escape disenchantment. The political implications of this duty include the escape from the unjust regime—Tolkien makes the analogy to German citizens escaping the Nazi Reich (79). There is an aesthetic dimension to escape as flight from bad making. Tolkien comments that he finds the Bifrost bridge of the Norse Gods more beautiful an artifact than the roof of Bletchley train station (79). Disenchanted aesthetics would dismiss Bifrost as unreal, but Tolkien wants to hold public art to the high standards of Secondary Worlds. The Secondary Worlds of art allow us to critique the Primary World as insufficient and unjust. Enchantment provides an Archimedian fulcrum for the lever of criticism, and as such it is eminently practical. This sense that Creation can be moved by Sub-creation informs the final category of consolation. Consolation occurs in fairy stories when a *eucatastrophe*, an unexpectedly good turn of events, overcomes the audience. Such a turn alerts the audience that there is an eschaton that denies a "universal final defeat" (86). The eucatastrophe "passes outside the frame" of the story into our vision of a good world to come: the lovers unite, the city is saved, and joy appears in the ruins. The eucatastrophe is more than a happy ending: it is an ending that could not have been imagined the moment before it happened. It is imagination transcending itself in the brief experience of a better world: Spock defeats Khan, and Katniss breaks the false sky. The enchantment of Secondary Worlds reveals not just our capacity to sing with the Valar in the making of the world, but to sing in the Second Music, glimpsed in moments of recovery, escape, and

consolation. This logic informs many moments of counter-apocalypse in *The Lord of the Rings*, which provide examples of eucatastrophe as incursion of the Second Music into historical time.

The defeat of the Captain of the Nazgûl by Éowyn and Merry at the Battle of the Pelennor Fields provides one such example. This battle takes place in Book V of *The Return of the King*, and determines the fate of the city of Gondor after an attack by the forces of Sauron. Éowyn is a royal shield maiden of Rohan, the nation of horse riders allied to Gondor. She had asked her king, Theoden, to allow her to accompany him in battle, but he refused. Éowyn then disguised herself as a warrior named "Dernhelm" and rode into battle with Meriadoc the hobbit. When Theoden falls to the Lord of the Nazgûl— the undead human kings that bear rings of power—Dernhelm draws a sword to protect him. The Black Captain laughs and declares, "No living man may hinder me!" Dernhelm responds with lines among the most famous in the book: "But no living man am I! You look upon a woman. Éowyn am I, Éomund's daughter. You stand between me and my lord and kin. Begone, if you be not deathless! For living or dark undead, I will smite you, if you touch him" (*LoTR* 823). Merry turns to help her, but the monstrous mount of the Nazgûl pounces on Éowyn first. "A steel blade, fair yet terrible," she cuts off its head with her sword. The Black Rider dismounts and crushes her shield with its mace. Just as he prepares to kill her, Merry stabs the Rider in the knee from behind, giving Éowyn the chance to drive her sword into its face. The Rider's clothing falls to the ground, empty, and Sauron's chief servant is no more. This event constitutes a eucatastrophe because two characters considered unfit for battle, a hobbit and a woman, dispatched a monster feared throughout Middle-earth, an enemy that almost killed Frodo in *The Fellowship of the Ring*. The eucatastrophe is structured like a riddle: *I can be hindered by no man. How can I be stopped?* The Rider thinks the answer is *I cannot be stopped*, but Éowyn and Merry answer correctly. Inside the narrative, this event bolsters the spirit of the Rohirrim, inspiring the sudden joy that defines the good turn. Outside the narrative, generations of nerds take heart that the rejected heroes triumph over a "shadow of despair" that thinks of them as prey (823).

To understand the connection of this event to the Second Music, it is necessary to read *The Silmarillion* typologically, as an anticipation of *The Lord*

of the Rings, as Christian readers have sometimes read the Hebrew Scripture as anticipation of the New. The defeat of the Nazgûl by Éowyn echoes the defeat of Melkor by Luthien, the title character in "The Tale of Beren and Luthien," which Tolkien considered the heart of the legendarium. Luthien is the daughter of an Elvish king, Thingol, and a Maia, Melian. Her lineage combines the blood of the gods with the line of the Elves in the First Age, at the height of their power. Melian possesses the finest voice among Valar and Maiar, and all of the gods stop to listen when she sings. As Melian's daughter, Luthien mediates a power of enchantment that runs through Gondorian royalty to Aragorn himself. Luthien founded this line by falling in love with Beren, a human king, but the match is prevented by her father until they prove themselves worthy through a quest. They must obtain a Silmaril from the crown of Melkor in his court at Angband. Disguised in animal form, Luthien and Beren enter the court. Luthien sings for Melkor, putting him and his court to sleep. Though they do not succeed in stealing the jewel, this adventure marks the only time any being, including the other Valar, bests Melkor. Luthien defeats the most powerful Vala at his own game of disruptive music, just as Éowyn destroys what no man could. Her achievement constitutes a restoration, in Tolkien's terms, of the status of women in the Third Age of Middle-earth: sidelined by the narrative of war that occupies *The Lord of the Rings*, she asserts a new vision of what women can do, a renascence that recalls the greatest character of the legendarium. Like Luthien's song, Éowyn's war cry changes the terms of possibility in the world, and the defeat of the Rider presages the fall of Sauron. Éowyn's victory points back to Luthien and forward to Frodo and Sam as unlikely heroes who destroy the Ring.

Éowyn breaks the frame of the story, allowing readers a glimpse of the world beyond the Third Age. Like Luthien, Éowyn marries a nobleman, Faramir, the second son of Denethor, the Steward of Gondor. Faramir is the brother of Boromir, who died in *Fellowship* after trying to steal the Ring from Frodo. Faramir first appears in *The Two Towers* when he discovers an opportunity to steal the Ring while Frodo and Sam are in his custody. He shows no interest in the Ring, and adds himself to the short list of characters not tempted to possess it. This is a minor eucatastrophe itself: a man uninterested in the power of domination. The narrative first identifies him with Henneth Annûn and its refuge, a cave behind the great falls of Ithilien where he shelters Sam and Frodo.

During their conversation, he defines his vision of the future as environmental justice and restoration: "For myself," said Faramir, "I would see the White Tree in flower again in the courts of the kings, and the Silver Crown return, and Minas Tirith in peace. Minas Anor again as of old, full of light, high and fair, beautiful as a queen among other queens, not a mistress of many slaves, nay, not even a kind mistress of willing slaves" (*LoTR* 656). The White Tree of Gondor descends from a primal tree that flowered in the court of the Valar, and it returns when Aragorn finds a sapling in the rocks and replants it in his court. Like Éowyn, Faramir connects the creation of Arda with its future, the First Age with the Fourth. Though critics identify this pattern with Tolkien's personal nostalgia, eschatology, the study of the last things, always looks back at the first things. That does not mean that history will be shaped by decline alone. Faramir and Éowyn become rulers of Ithilien, the stewards of a broken land that must be restored after the war with Sauron. As allies of the hobbits—the people who do not appear in the legendarium—Éowyn and Faramir stand for a future uncontained by prophecy. In his proposal of marriage, Faramir asks Éowyn to "dwell in fair Ithilien and there make a garden. All things will grow with joy there, if the White Lady comes" (944). The union of eucatastrophes signals the beginning of consolation through ecological recovery.

This turn to hope contains in microcosm the end of *The Lord of the Rings*, a story driven by breaks in the frame of history achieved by characters that did not appear in the metanarrative of the Wise in Middle-earth. Éowyn and Faramir, Frodo and Sam, hobbits, Ents, and even Aragorn arise from the margins of a world that seemed too exhausted to resist conquest. This plot reflects the presence of the Second Music, new voices lifted into history as *creatio continua*, acts of cosmic making that operate in the present. These voices were predicted in the legendarium when the *Ainulindalë* declared that some things in Eä are hidden from the Ainur themselves. The legendarium and *The Lord of the Rings* offer a recipe for counter-apocalypse, the resistance of free peoples to the lure of domination. Though this pattern does not correspond to the millenarian Protestant appropriation of the book of Revelation, it harmonizes with the late antique eschatology of the Alexandrian theologians Clement and Origen, and the Cappadocians, Nyssa and Nazianzus. Clement believed that divine punishment could only be pedagogical because of God's loving nature: the soul is meant to be "transformed, healed and divinized"

by temporary suffering, whose proper end is *apokatastasis*, the "Restoration" to friendship with God (Sachs 617). The cosmos is a schoolyard, and life a series of lessons that continue even after death. Origen reasoned that the finite will of rational souls cannot resist the infinite love of the Creator for an infinite amount of time, raising the possibility that even the fallen angels can be reconciled to the One (617). Wait long enough, and the Enemy himself repents. Gregory of Nazianzus identifies the fires of punishment with Christ the healer (631), and Gregory of Nyssa stresses that all creatures will share in the Restoration, that this renewal occurs as the "eternal destiny of the material world" (633). The principle of apokatastasis is the same as the goal of the Second Music: a return to harmony after discord. God does not compel assent, but plays a long game of persuasion that ends in forgiveness at the end of time. The Restoration became the minority report of Latin Christianity because it conflicts with the notion of an eternal hell where the unjust are punished forever. In the West, apokatastasis leads to the idea of Purgatory in Catholic theology and the notion of Universalism—the salvation of all peoples and creatures—in the radical Reformation. Interpreted in this framework, the book of Revelation arrives at its original end, the descent of the New Jerusalem, which unites heaven and earth. There is no Rapture of the chosen into a disembodied heaven. The end of history leads to Ithilien and the planting of a new garden. This cosmic pastoral resonates with the ethos of ecological restoration, understood as the attempt "to make nature whole," to "heal the scars" left by destructive practices of settlement, agriculture, and industry (Jordan 11). William Jordan III, a theorist of ecological restoration, admits that "preservation in the strict sense is impossible": ecosystems change, and human intervention cannot be undone (Jordan 14). Jordan is interested in the philosophy of restoration as a revision of environmental decline: "For generations, environmentalists have assumed that the loss and degradation of areas generally described as 'natural' is an irreversible process—that we can only subtract from or degrade the natural landscape, never add to it or improve it. Yet the best work of restorationists shows that this is not always true" (13). Jordan contrasts the pragmatic rhetoric sometimes used to justify a restoration project—the improvement of water supply or the beautification of a brownfield—with the true goal of restoration, to undo damage to ecosystems that "we consider uninteresting, useless, ugly, repulsive, or even dangerous"

(22). Restorationism differs from land management as an attempt to honor the creatures that seem valueless to us: insofar as possible, ecosystems should be "self-organizing," "self-sustaining," and "self-maintaining" (Clewell and Aronson 8). This is apokatastasis as applied biology. The defense of the whole means exactly that: the water lilies with the mosquitoes, the trash dump with the meadow, the demons with the angels.

In the project of a restorationist counter-apocalypse, it may be helpful to consider the reading of metanarratives synchronically and diachronically. Synchronic reading is the strategy of understanding the story "from above," knowing the beginning, middle, and ending of the story simultaneously. Synchronic reading understands myth as narrative structure made of parts that relate to one another as causes and effects. The function of the part is considered from the perspective of the whole. Diachronic reading is the strategy of understanding the narrative as it unfolds in time at a particular point in the plot, "from within." It emphasizes continuous interpretation in which the reader revises past interpretations as the story unfolds. Parts may be related to other parts, but the entire shape of those relationships is never visible all at once. Music as score lends itself to synchrony, while music as performance lends itself to diachrony. Apokatastasis reads history synchronically: it views the beginning and middle of Eä's score in light of the end. Restoration as an ecological practice also reads ecosystems from above, as improvisations that can be shaped to particular ends. Tolkien's corpus admits only one synchronic reader: the One itself, Eru Ilúvatar. As the transcendent audience for the Great Music, Ilúvatar knows what happens at every moment in the plot. Everyone else can be surprised, including the Ainur. Even immortal beings must listen to the music as it blossoms as matter. Inside the world, no one understands entirely what is happening, and everyone must listen in the present, in a sequence of events. The shape of the music changes because of the limited knowledge of the singers: old voices depart and new ones arise in a manner that cannot be predicted. The unexpected is inevitable when one lives in time, even if, like the Valar, one sang the music in the beginning. Eschatology cannot be reduced to protology. This leaves room for the stochastic elements of the story—hobbits, shield maidens, and second sons—to confound the wise. The knowledge that there is an end, but that the end is hidden, even from the gods, encourages a synchronic reading that is not entirely possible. Just as ecological restoration

cannot return systems to a state before human intervention, Arda cannot return to what it was before Melkor and Sauron. Therefore, one need not despair when an impossible goal does not appear; paradoxically, impossible goals, like the destruction of the Ring, become thinkable because of the impossibility of complete synchronic knowledge. Synchrony means that the Second Music has already begun, that the edginess of the eschaton appears in the present as prolepsis. Synchrony reminds us to attend to the fate of all the characters, all the species and elements, at play in the song. Apokatastasis as counter-apocalypse tells the story of a Second Music in which no one (not the Orcs, not Gollum, not even Melkor) is abandoned eternally. Like all Platonic fables, this story depends on the One. But what happens to history when the One falls silent, the Valar recede, and humanity is left at the mercy of our demons? What happens when nerds get trapped in the cosmic schoolyard, and school is run by the Big Bad? How can the alliance of friends endure the evils of diachrony without a clear vision of synchrony? These are the questions posed by *Buffy the Vampire Slayer*.

5

Slayer and Signal: Joss Whedon
Versus the Big Bads

In which I argue that Buffy the Vampire Slayer *confronts the problem of world-destruction in a California haunted by demons that suburbia refuses to acknowledge. It is a work of advanced* **nerdism** *whereby* **freaks and geeks** *become aware of their capacity for self-and-world-defense. Here,* **nerd culture** *considers what new tropes, plots, and characters are necessary to resist the Powers of* **predation** *and* **eugenics***.* Buffy *figures these forces as demonic Powers in the Pauline sense: the spirits of broken social institutions that attempt to destroy the nerd. Chief among these demons is Gender, the system of norms that dictates what good boys and girls must do to please the Powers. The story of the Slayer begins with a solitary female messiah doomed to destroy vampires and be destroyed in turn; it evolves into a narrative of* **alliance** *in which rejected children defend the world by moving into the* **queer***, the* **uncanny***, and the* **monstrous***.* Buffy's *creator, Joss Whedon, extended his exploration of the* **effluvial** *and the* **degenerate** *through his space Western,* Firefly/ Serenity, *in which a band of misfits uncovers a government conspiracy to hide the poisoning of a planet, Miranda. The broken institutions of Earth remake another solar system into a false utopia that engenders the death of millions of Mirandans and the creation of a* **horde** *of cannibals. Though the crew of the* Serenity *cannot undo the poisoning of the brave new world, they succeed in communicating its buried history through the "signal," a burst of social media that cannot be contained by the State. Their resistance to eco-political oppression depends on their ship, which becomes a* **cyborg** *community of* **environmental justice***.*

"Joss Whedon, you bastard!" This cry resounded through my living room in the late 1990s, a decade consumed by graduate school. Every week my friends would assemble on couch and floor, abandoning other occupations for *Buffy the Vampire Slayer*. Like virgins fixed in the gaze of Dracula, we were compelled to watch episodes again and again, only to discover our favorite characters dead, dying, or wounded. We cried out against Whedon, the demiurge of this virtual world, because he held our attention despite the fact that none of us had ever been petite, blonde, or a cheerleader in southern California. Using an alchemy from beyond the Nerd Triangle, Whedon turned Buffy into one of us, an uncanny enchantment. The claims of this chapter descend from that mythic time, a televisual *in illo tempore*, when friends would linger after hours to analyze every aspect of this strange show that never should have happened. We had seen the Beta version, the *Buffy* film that Kristy Swanson, Luke Perry, and PeeWee Herman had tried, in vain, to redeem. In a startling reversal, a bad film had become a classic television series. Whedon had achieved this by turning into the skid: *Buffy* understood itself not just as nerd drama, but as nerdist theory, a place where the tropes of nerd culture turned back to contemplate themselves. The darkness had won, and nerds rejoiced. Finally, someone understood that the American Gothic explained the dark ecology of childhood. As Tolkien anatomized the process of escape as restoration, defending the world from the curse of the false sky, Whedon turned to myth as ethnography, an account of our battle with the Saurons of suburbia, the first step in preventing planetary apocalypse. If these claims seem overblown, consider *The Cambridge Companion to the Modern Gothic*, which lists the 1997 premiere of *Buffy* in its "Chronology of Important Gothic Events" (Hogle xxi), and *Buffy* itself as the last entry in "Important Gothic Series Made Since 1950" (Hogle 254). In her foreword to *Fighting the Forces*, a collection of *Buffy* criticism, Camille Bacon-Smith takes on the skepticism aimed as television as a medium of meaning. Considered the prime example of a visual form long on "slick" entertainment and short on content, television appears to be driven by "raw avarice." "Art," she explains, "is seen to occur by accident, if at all, in the otherwise calculated search for mesmerizing images to hypnotize the audience between sales pitches" (Bacon-Smith xi). For critics ranging from Theodor Adorno to Manohla Dargis, television constitutes the quintessence of garbage. A show

about a cheerleader turned vampire hunter would seem to pose no threat to this assessment. *Buffy* already occupies a place in the canon of nerd culture, though it bears no relationship to academic analysis outside the charmed circle of Whedon Studies. It is the perfect test case to determine if the object of a popular and academic cult can move, through the work of interpretation, into the realm of environmental culture.

The premise of the show is simple: Buffy Summers, once a popular high school student, moves to Sunnydale, California, because of a mysterious disturbance at her former school. Though Sunnydale appears to be an idyllic suburb, it is the epicenter of supernatural evil, and its high school is built on a "Hellmouth," a portal to the underworlds of suburban repression. Like Sunnydale itself, Buffy sports a radiant exterior that hides a dark secret: she is the Chosen One, "one girl in all the world" who possesses the power to slay vampires with her superior strength, agility, and prophetic dreams. In this task she is aided by Giles the Watcher, whose day job as school librarian puts him in charge of the nerd refuge of Sunnydale High. Offering both support and hindrance are the "Scooby Gang," a shifting group of friends centered on Xander Harris, the hapless nerd boy, and his best friend Willow Rosenberg, the computer geek. The term "Scooby Gang" refers to the animated Hanna-Barbera television show, *Scooby-Doo, Where Are You?* (1969–1970) in which a band of teenage detectives, accompanied by the titular Great Dane, drove across the United States disenchanting supernatural mysteries. Nerdists recognize and affirm themselves by identifying as Scoobies, recognizing that *Buffy* adopts the cartoon's model of alliance while it reenchants the mysteries. The Scoobies' name begins with the ridiculous and self-referential: Xander, Willow, and Buffy are television characters who identify with cheap cartoons. Their mission is abnormal: high school children ought not to worry about saving the world. Their mission is also heroic: the world must be saved from vampires and demons, so cartoon lovers must rise to the challenge. At the same time, *Buffy* acknowledges a difference between those who were born nerds and those who have nerd-dom thrust upon them. Xander and Willow never had any other identity: they have always been socially awkward, introverted, and loyal to each other. Buffy, however, fell from popular cheerleader status because of her role as the Slayer. Her reputation as trouble maker follows her to the Hellmouth: though she tries to fit in, her mission will not allow it. This

fall into social stigma is marked by the presence of a foil, Cordelia Chase, a beautiful, rich girl with all the privilege Buffy has lost. Though Cordelia soon turns from villain to Scooby, she remains a liminal figure who marks a boundary Buffy cannot cross because Buffy has been cast to the margin of society by her work as Slayer. These basic formations mark *Buffy* as a Gothic narrative: it depends on a world of light haunted by shadows that the world cannot acknowledge. The prosperous suburbs are built upon a foundation of the monstrous and the uncanny. Sunnydale naturalizes the Gothic, even as it denies the dark. As Sunnydale natives, Willow and Xander understand that they should not venture into town alone after sunset. Their parents do not talk about this rule; everyone already knows it. As marginal citizens, however, Xander and Willow notice that the center stays silent: the recognition of repressed knowledge underwrites their willingness to aid Buffy, who seems to know without being told that something is rotten in suburbia. This resistance to Gothic repression marks *Buffy* as a nerd narrative. Stigmatized by their performance of intellect and enthusiasm, nerds gravitate toward the acquisition of knowledge and the solution to mysteries. The uncanny must be explained and the monstrous, revealed. From the beginning, the Scoobies wish to overthrow the aesthetic and existential terms of life on the Hellmouth.

Apocalypse, we've all been there

Buffy proposes that self-defense and world-defense amount to the same thing. The vampires and demons that threaten the people of Sunnydale also threaten to destroy the world in the Apocalypse, an annihilation of human life that ends with demonic rule over the earth. This plot is an inversion of the eschaton offered by "The Music of the Ainur." As Giles explains to the gang at their first meeting, "For untold eons, demons walked the earth" and ruled it. In place of the Valar there were the Old Ones, the arch-demons modeled after the chaos gods of H. P. Lovecraft's Cthulhu mythos. As Giles tells it, the rule of the Old Ones slipped away with the advent of humanity, so humankind is threatened by their descendants, the vampires, who are "waiting for the animals to die and the Old Ones to return." Predation, liquidation, and objectification characterize the demons' intentions: the human race will be

nerdified *tout court*. Each season of *Buffy* is organized around the advent of a "Big Bad [Wolf]," a villain trying to force its way back to earth to consume humanity. "The Master" organizes the first season. He is a Nosferatu-style vampire who became trapped under Sunnydale after his first attempt to ignite the Apocalypse a century ago. Buffy's task as the Slayer goes beyond the defense of individual lives. She must oppose the Old Ones and prevent the Apocalypse as well. She combines the function of the nineteenth-century vampire hunter with the roles of the quest knight and the comic book metahuman: "It's cool," Xander explains, "Buffy's a superhero." She is also an environmental hero, responsible for saving the world from forces that would make it a hellscape. These identities cohere in her daily existence as a high school student. "Buffy" is not a traditional disguise in the way "Diana Prince" hides Wonder Woman. She really is a student, and the structure of high school life mirrors the structure of the world in peril. Just as Sunnydale is threatened by vampires, demons, and chthonic gods, the students of Sunnydale High are threatened by a social order that wants to punish them for their failure to be popular, normal, and acceptable. This analogy may appear bathetic: the high-school-as-hellmouth conceit risks the self-seriousness of adolescence itself. This risk recedes if we understand Sunnydale High as a simulacrum of American social structure, a likeness meant to teach students their caste in the pecking order and their obligation to compete for a place in the American middle class. High school is like the arena in *The Hunger Games*: a violent microcosmos that will kill you if your failures are serious; if you are a nerd, a freak, or a monster. Thousands of American teenagers suffer and die every year in the simulated world of high school, and those who escape are often permanently traumatized. As a hero, Buffy is aware of her duty to students less capable than she of self-defense, but she is also determined to change the structure that causes the suffering in the first place. At their first meeting with Willow and Xander, Giles declaims the legend of the Slayer: "Into each generation, a Slayer is born. One girl in all the world—" only to have Buffy interrupt: "—with the strength and skill to hunt the vampires, to stop the spread of their blah blah blah." She seizes control of the story of the Slayer, disputing its end, which leads inevitably to the death of one Chosen and the rise of another, ad infinitum. She has no desire to perpetuate a line of dead heroines the Watchers reproduce in the name of patriarchy. *Buffy* is the story of a Slayer who rewrites

the metanarrative: she falls in love with vampires, rejects solitary martyrdom, insists on friendship, teaches students to defend themselves, and refuses to accept the story the authorities wish to tell. Buffy's claim to her own story, her desire to author her own life, becomes the pattern that saves nerds and the world season after season.

The first episode, "Welcome to the Hellmouth," contains the series in miniature, a microcosmos of the seven season run of the show. In this episode and the next, "The Harvest," the audience is introduced to the premise of high school as hell; to the main characters of Buffy, Mrs. Summers, Giles the Watcher, Xander Harris, Willow Rosenberg, and Cordelia Chase; and to the Scooby pattern of mystery, investigation, self-defense, and defense of the world. The establishing shot of the door to Sunnydale High School in the shadows of the night sets a scene of Gothic menace. The camera cuts to a window of the school broken from the outside: a young man in a leather jacket climbs through, followed by a reluctant young woman. He teases her for being afraid. We see that she is blonde, an Olivia Newton-John to the boy's John Travolta. They are alone in a hallway, about to embark on a mission that proves their defiant love in the face of social disapproval. At the moment they should turn to that mission, the girl is shot in close-up: she is now a vampire with a demonic visage and sharp teeth. She bites the boy, and the scene ends. Even before the main characters are introduced, this scene informs viewers that the norms of Gothic femininity are going to be reversed. The girl who should be the victim is the predator. The boy who should be the protector is the prey. The high school, which might have been the carefree proving ground of white suburbia, is the lair of monsters, a hunting ground for the undead. The next scene transitions from a nightmare montage of threatening images—graveyards, moons, howling—to a young blonde woman waking up to her mother's call to school. There is a chiasmatic movement back into the light of a morning in the Summers household. Buffy's mother, Joyce, is concerned: Buffy cannot make a bad first impression at her new school. She burned down the gym of her last school (in *Buffy* the film), obliging the family to move from Los Angeles to a small town where no one will know Buffy's troubled past. The conventional tension between mother and teenage daughter becomes something more in light of Buffy's past. Joyce bears the secret of her daughter's truancy, and Buffy bears the secret of her vocation as vampire hunter. Their

earnest facade of normalcy collapses immediately, as Buffy's new principal welcomes her in his office with a canned speech about new beginnings and a dramatic tearing-up of her old record. Then he reads the fragments, his tone turns threatening, and he carefully tapes the pieces back together, inserting them into her official record, which is no longer a clean slate. Buffy's hope for a new beginning takes a better turn when Cordelia Chase, the leader of the popular girls, takes Buffy under her wing, recruiting her for her social clique. When they encounter Willow Rosenfeld, the local computer geek, at the water fountain, nerd ecology asserts itself. Cordelia insults Willow's cheap, unfashionable clothes, and quips "I'm glad you've met the softer side of Sears," a reference to an advertising campaign for the discount retail store. Buffy is dismayed, and Willow flees. On cue, Cordelia instructs Buffy that "You want to fit in here, the first rule is: know your losers."

It is not just the Gothic logic of the Slayer that impels Buffy to seek out Willow afterward. Though Buffy has been cast out of her role as popular girl by her destiny as the Slayer, she was already a hero of ethics whose distaste for the hierarchy of high school demonstrates her worthiness. When the body of the dead boy from the first scene tumbles out of another girl's locker, Buffy swings into action, drawing Giles, Xander, and Willow after her. Together they discover what the audience already knows: in the tunnels beneath the town, the Master plots to escape his prison by sending his minions to devour teenagers at the Bronze, a local club. Because of a supernatural convergence, one minion, Luke, can channel the power he receives from the blood of victims to the Master, allowing the villain to escape his prison. On her way to meet Willow and Xander at the Bronze, Buffy is stalked from the shadows by a hidden figure. The modern Gothic genre of the slasher film asserts itself: the camera follows Buffy from behind, from the perspective of the stalker, as she walks, alone, down a dark suburban street. Finding herself lost in an alleyway, Sarah Michelle Gellar enacts the visual tropes of the ingenue-as-victim: she looks around in confusion, trying to find a way out that does not appear. When the scene cuts to the next frame, the audience expects an attack, and the stalker walks out of the shadows, on cue. It is his turn to be dismayed: Buffy has disappeared from the frame, holding herself on a pipe above the stalker like a gymnast on a high bar. She swings around and kicks him in the back, sending him sprawling against the alley wall. The conventions of the horror film have

been reversed, and she has the stalker at a disadvantage. They converse, and the stalker reveals himself as a tall, handsome stranger whose name is Angel, the vampire love-interest who helps Buffy to fight. He presents her with a gift: a golden cross to ward against vampires. This cross will later save her from Luke when it burns his hand as he tries to choke her. The presence of a suitor named Angel, a repentant vampire who provides a weapon of faith, represents the first and the only sign for many episodes of a divine order that might oppose the Old Ones. This is an important aspect of *Buffy*: its universe is demi-enchanted, a state allied to the "ambivalent secularization" of modernity (Hoeveler 6). The powers of supernatural evil are real and assertive: they have representatives that walk openly in daylight, the bureaucrats, mean girls, and conventional adults who prefer order over right. The forces of good lurk at the margins: the would-be lover, the feckless librarian, the geeky friends, the harried mother. This structure underscores the need for the Slayer, the person who organizes the heroes into an alliance capable of defending the world. Under Buffy's leadership, the Scoobies discover the Master's plan, invade his lair, and foil the attack on the Bronze. At first, Willow takes Buffy's place as the helpless girl victimized by a male predator when she is dragged from the Bronze by a cute boy who is the Master's minion. By the end of the episode, however, she has discovered the Master's lair through online research and driven away a vampire attack with a bottle of holy water. Xander, the lovable but ineffective jokester, accompanies Buffy into the tunnels beneath the town to rescue a missing friend, and helps Buffy repel an attack by the minions. At the moment of greatest risk, when Luke nearly kills Cordelia during his bloody rampage, Giles joins the friends in evacuating the club while Buffy takes on Luke herself. She slays him through a signature combination of wit, trickery, and physical prowess, foiling the Master's plan to escape, at least until the end of the season. The episode ends the next morning, at school, as the friends walk happily through a colonnade in the sunshine, bantering happily about their victory. Giles gets the last line—"The earth is doomed"—but Anthony Head invests it with the affectionate exasperation of an Englishman considering hope for the first time.

From the first episode, *Buffy* connects the demonic nature of high school to the fate of the earth. As the Slayer, Buffy must save her friends from the demons of adolescence, but she must also prevent the Old Ones from making

a hell on earth. This logic organizes each season: the gang tries to maintain a semblance of normalcy only to discover the next supervillain—the Master, Glory, the First Evil, and so on—trying to destroy the world. Because *Buffy* is so inventive at the level of dialogue, engaging at the level of character, and groundbreaking at the level of plot, it is easy to overlook this strange connection between vampires and the apocalypse. The literary and cinematic lineage of the vampire slayer does not support this pattern: Dracula keeps Van Helsing too busy to worry about eschatology, and later adaptations of the vampire trope, such as Anne Rice's *Interview with a Vampire* and Ken Russell's *The Lair of the White Worm*, turn toward sexual-existential, not apocalyptic, drama. It is only after *Buffy* that films such as *Blade*, *Underworld*, and *Only Lovers Left Alive* yoke bloodsucking to world-historical drama. What is the nature of this connection? Why does *Buffy* portray the defeat of the undead as the first step in a project of planetary defense? How does a cheerleader from California become a postmodern messiah figure who teaches her friends to engage in what I call "advanced Slayerism," the Gothic defense of the *oikos*? The answer lies in the symbolic language of demonology, the language of the "Powers," as a critique of social and political institutions. The author of the Letter to the Ephesians could be writing to the Scooby Gang when he asserts that "our struggle is not against enemies of blood and flesh, but against the rulers, against the authorities, against the cosmic powers of this present darkness, against the spiritual forces of evil in the heavenly places" (Ephesians 6:12 NRSV). Walter Wink explains that the "Principalities and Powers" of Paul of Tarsus and the Pauline corpus have been misidentified as "an order of angelic beings in heaven, or as demons flapping about in the sky" (Wink 3). Power language in the New Testament refers not to such figures, but to the physical *and* spiritual aspects of "institutions, structures, and systems" of sociopolitical power (3). Schools, corporations, and national governments can all be Powers in this sense. "The Powers possess an outer, physical manifestation (buildings, portfolios, personnel, trucks, fax machines [*sic*]) and an inner spirituality, or corporate culture, or collective personality" (3). In this paradigm, it is a mistake to spiritualize these forces, or to reduce them to their material manifestations alone: the Powers are both social institutions and the "bad vibes" they give off. The Gothic is the natural aesthetic for this worldview: apparently benevolent forces (the principal, the cheerleading squad, the prom) cast dark shadows of

malevolent intent. The school is the natural starting point for this critique as the social institution by which all American children are shaped. The school is also the central institution of nerd-formation: the Scooby Gang is an alliance of nerds who learn to defend themselves, and the world, from the hidden forces that threaten to destroy them. The school is just the first American institution to fall under *Buffy*'s critique. As the gang graduates from high school at the end of Season 3, the show moves to the town government, the state university system, corporate science, institutional religion, and the military as a network of corruption, what Wink terms "the Domination System" (9) and Chris Forbes more precisely terms "personified, 'hypostatized' salvation-historical abstractions" of Pauline thought (Forbes 61). Lest the profusion of institutions, villains, and plotlines distract us, the name of the Adversary in the Buffyverse is *Gender*, the archon so terrible, its name is never spoken. Gender, the system that enforces biological sex as social role, is the lord of the present darkness for Whedon. As the key component of biological reproduction, sex becomes a principle of ecological identity and evolutionary success. As a principle of cultural construction, gender builds a world in which acquiescence to social role is rewarded, and deviance punished, through cultural institutions such as school, marriage, and workplace. Slayerism, the practice of saving the world from destructive Powers, foments a rebellion against the institutions of sex and gender as riders of the apocalypse.

Rhonda V. Wilcox and David Lavery point out that Joss Whedon "has often said that the original kernel of the idea for *Buffy* came with the reversal of an image from traditional horror; a fragile-looking young woman walks into a dark place, is attacked—and then turns and destroys her attacker" (Wilcox and Lavery xvii). The Gothic forms the native ground for the show's resistance to traditional gender roles. Jerrold E. Hogle contends that "modernity would seem at odds" with the Gothic (Hogle, Introduction 3), compounded as it is of premodern materials: "pastiches of Shakespearean, operatic, medieval-chivalric, once-Catholic, and ancient Greek features" (4). Hogle contends, however, that the Gothic is "endemic to the modern" because the Enlightenment drove so many social and psychic forces into hiding in the name of progress (7). This Freudian reading of the Gothic as the return of the repressed helps us to understand how a feminist show could employ the Gothic as a primary aesthetic mode. With the exception of Mary

Daly, few feminist revolutionaries of the last century have called traditional systems of gender *demonic*, because the language of the Powers is archaic. However, as Hogle suggests, the Gothic represents the difference between the promise of modernity and its actual achievements, the lag time between the overthrow of patriarchy as a speech act and the renovation of cultural institutions. For Whedon, and the generations born after the 1960s, there is a gap between the declaration of independence from patriarchy, the creation of new cultures of gender, and the founding of institutions that transmit those cultures. As a ubiquitous medium in postmodern culture, television presents insurgent cultures of gender critique with an opportunity to craft new stories to transmit defiance of gender norms. *Buffy* might be especially threatening because it employed the Gothic to generate all three nerd aesthetics at once: the queer, the monstrous, and the uncanny. These aesthetics rebuke the demon Gender in related but distinct ways. The queer, of course, disrupts the plots of Gothic romance by subordinating Buffy's boyfriends to the logic of the Scooby Gang: lovelorn vampires come and go, but friends last beyond death. Though the show broke new ground on network television by portraying a lesbian relationship between Willow and Tara Maclay, *Buffy*'s queer alliances date back to the formation of the gang in Episode 1 of Season One. Giles, a straight but unmarried man, presides over the school library, where vulnerable young people seek refuge. Before Willow dated Tara, she dated Oz, a musician and werewolf, whose "monthly troubles" provided opportunities for male menstruation jokes. Their relationship yoked the queer to the monstrous, which rebukes Gender by blurring the boundaries of form, kind, and genre. Buffy's interest in dating the undead joins the queer with the uncanny, which rebukes Gender by disrupting patterns of reproduction and mortality. Xander's doomed betrothal to a vengeance demon, Anya, reflects the pressures of postfeminist gender slippage forced into the space of traditional marriage. His love for a monster far more powerful than he conflicts with his notions of the good husband. Despite these struggles, *Buffy* does narrate a series of victories against Gender that are eucatastrophes that break the frame of world-destruction. I will discuss three examples of this moment: the penultimate episode of Season Four, "Primeval," the "Dark Willow" plot of Season Five, and the revelation of the Scythe at the end of Season Seven.

"Primeval," the penultimate episode in Season Four, illustrates the need for the Slayer to evolve as the institutions of gendered violence scale up. Season Three ended with the transformation of Sunnydale's mayor into a giant snake-demon bent on consuming the graduating class. The Mayor embodied the gentler side of patriarchy, which tries to convince its victims that destruction is for their own good. The snake-demon represents the apotheosis of paternalism as it becomes confused about the motivations of lesser creatures in resisting its dominion. Buffy leads the class in self-defense, mobilizing a student brigade that momentarily turns all of her classmates into fighting members of the Scooby Gang. In Season Four, Buffy and Willow go to college while Xander goes into construction, introducing a visible split in the gang by gender and class. Xander takes a traditionally masculine job while the others continue their education, which disperses the gang into a class hierarchy that creates dissonance within the group. Though Xander's job carries a lower social status than "university student," it also illustrates an institution, the construction industry, that is not possessed by a demon. University of California, Sunnydale, however, hides a military-industrial project called the "Initiative," run by Buffy's psychology professor, Dr. Maggie Walsh, and populated by secret soldiers, including Buffy's new boyfriend, Riley Finn. Though Riley understands the mission of the Initiative as protection of the country from supernatural threats, the season slowly reveals Walsh's true plan: to hybridize human subjects with high-tech weaponry and demon flesh, synthesizing a secret army of supersoldiers. This threat represents a local instance of national institutions—the academy, the military, and industry—engaged in a mutually corrupting pursuit. No longer is the Big Bad a local politician with apocalyptic ambitions: in this season, the demonic multiplies into a horde supported by hidden archons of government. Though the Scooby plot of personal maturation appears to be individualistic, in fact, each member of the gang must grow in order to confront a more powerful institution. Willow hones her skills as a computer hacker, comes out as a lesbian, and develops her interest in magic. Xander takes on managerial responsibilities at work and forges a stable relationship with an ex-demon, Anya, who abandons her occupation as revenger against men in hopes that Xander is different. Giles starts a new business, the Magic Shop, to replace the destroyed refuge of the school library, lost at the end of Season Three. Buffy finds herself somewhat lost as her friends change and her boyfriend becomes a rival as Sunnydale's protector.

"Primeval" stages the endgame of the Initiative plot, and forces the gang to evolve as an alliance. It reveals the structural, ethical differences between the nerd alliance and the demonic horde. Having met Adam, the Frankensteinian firstborn of the Initiative, Buffy realizes that she will die if she confronts him alone. Adam represents a mad-fanboy dream of power: already tall, strong, and clever, he becomes a nuclear-powered demon cyborg who rebels against his creator and hijacks the Initiative. As a villain, he represents a reincursion of the scenario that inspired *Buffy*: he is the monster so strong, he makes the Slayer appear to be the victimized "little girl" again. When they trade blows, her strongest punch does nothing, while his sends her flying into a wall. This outcome demonstrates the physical limits of the "Chosen One": her superhuman strength and resilience can be challenged by the proper monster. Her physical limitations represent a deficit of social strength in Season Four, as her friends grow apart and her boyfriend challenges her mission. The idea of the Slayer must evolve. In the debriefing afterwards her initial beating, the gang concludes that they have the tools to defeat Adam, but in dysfunctional form: each one has a piece of a puzzle that none can unite. Xander—a part-time military strategist due to an earlier Halloween accident—quips the solution: "All we need is combo-Buffy." Giles realizes that Willow could cast a spell to unite the powers of the Scoobs, and so armed, they depart for the Initiative. When Buffy meets Adam again, Willow casts the spell to unite their abilities. Buffy, as the "hand," becomes possessed by the other powers: Willow as spirit, Xander as heart, and Giles as mind. When Adam attacks with his machine-gun hand, an apparent coup de gras, Buffy raises her hand and chants Sumerian in the voice of her friends:

> We are spirit, we are mind,
> We are heart. Out of the storm
> We call the Primeval Power.

Adam's bullets freeze in midair; his bazooka blast turns into doves. "You could never hope to grasp the source of our power … but yours is right here," says combo-Buffy, plunging her hand into Adam's chest to rip out his radioactive power source. The military-industrial chimera falls dead to the ground. "Primeval" addresses the problem of the Slayer's limitations by imagining the Scooby Gang as a body politic. The spell of enjoining creates a temporary

meta-Slayer to defeat the hordes of soldiers and demons. A force from the first age of the world holds this being together. It marks a decisive shift in the discourse of the show, a moment when "Power" names a spirit of friendship as ancient as the Old Ones. This common body and communal voice triumphs over Adam by synthesizing characteristics—strength, intelligence, empathy, and soul—that the rules of gender wish to confine in separate bodies.

Gender is so five minutes ago

What happens to Slayerism when attributes coded as masculine and feminine pass among differently-sexed bodies? What happens, then, when the Scooby Gang is queered (even further)? These questions are explored in the final arc of Season Six, in the episodes "Seeing Red," "Villains," "Two to Go," and "Grave." There is a dialectical Big Bad in Season Six: the misogynist villain, Warren Mears, and his antithesis, Willow. A theme of addiction to magic worked through Willow's story during Seasons Five and Six. In the final episodes of Season Six, this theme collides with Warren's attempt to finally defeat Buffy, the "bitch," who refuses to understand her place as a woman in Warren's world. In the aftermath of a foiled heist, Warren follows Buffy to her home and tries to kill her with a gun. Though Buffy is gravely wounded, Tara, Willow's girlfriend, is killed by a stray bullet. After saving Buffy with her magic, Willow seeks revenge against Warren and his companions, Andrew and Jonathan, the villains of "Villains." Fueled by rage and grief, Willow consumes all the magic in her path in order to destroy Warren, a quest that turns her into "Dark Willow," as Andrew puts it. Formerly the least Gothic of characters, Willow's red hair turns black, as do her clothes, and dark veins of magic line her face. The Gothic represents her grief and rage, her resentment of marginalization as Buffy's "sideman," and her self-hatred as a "loser." Having spoken aloud the word of the oppressor—"loser"—she runs the arc of nerd transformation in reverse: she attacks her friends, betrays herself, murders her tormentor, and plots to destroy the world. She tracks down Warren in the woods outside Sunnydale and, after torturing him with the bullet that almost killed Buffy, she flays him alive in front of the other Scoobies. Tracking Andrew and Jonathan to the Magic Box, where they are sheltered by Anya and Xander,

Dark Willow fights Buffy and then Giles, who has returned from England. After a shootout-style confrontation, Giles tricks Willow into absorbing the borrowed magic of an English coven in Devon, a magic that contains, says Giles, "the true essence of magic," compassionate connection to all beings. In her deranged state, Willow experiences this connection as suffering that can only be stopped by the end of the world. She raises a buried Satanic temple on the edge of town, feeding it energy to trigger the Apocalypse. The flow of dark magic is broken by Xander, who tells Willow that if she wants to destroy the world, she will have to kill him first. She scoffs at this: "That was your big plan, to tell me that you love me?" Xander responds with the trump card of the oldest friend:

> The first day of kindergarten, you cried because you broke the yellow crayon, and you were too afraid to tell anyone. You've come pretty far. Ending the world, not a terrific notion, but the thing is, yeah, I love you. I love crayon-breaky Willow and I love scary-veiny Willow. So if I'm going out, it's here. If you want to kill the world, then start with me. I've earned that.

To end "the world"—a highly abstract entity—one must also end one's best friend. To foment the apocalypse of nerds, Willow must betray the first relationship in which she saved another, and was saved by another, from the caste of prey and garbage. Willow discovers that she cannot kill Xander, and therefore cannot destroy the world. The scene ends with the two of them collapsed on the ground, crying in each other's arms.

To see how this queer plot defeats the demon of gender, we must recognize its allusive nature. Andrew's epithet "Dark Willow" refers to the "Dark Phoenix" plot of *Uncanny X-Men* (Issues #127–138), a comic book that influenced Joss Whedon as a teenager. In this plot, Jean Grey, the heroic Phoenix, is seduced by a villain, Mastermind, who corrupts her by releasing her repressed desires. Phoenix is the most powerful of the X-Men, a telepath and telekinetic whose mutant powers are amplified by the cosmic "Phoenix Force." When Jean Grey gives in to her urge to dominate others, she consumes a star, destroying its planet inhabited by seven billion people. In order to defeat "Dark Phoenix," Jean allows her mentor, Professor X, to dampen her power to pre-Phoenix levels. When this strategy fails, she commits suicide, dying in the arms of her lover, Scott Summers. This resolution of the Dark

Phoenix plot constitutes a trauma within comics fandom that plays out to this day. It was not traumatic because Phoenix died, but because the plot that led to her death was so openly misogynistic. The Dark Phoenix storyline destroyed one of Marvel Comics' feminist heroes with a story about a woman who could not contain her desires, commits genocide, and must be punished with death. Unable to undo this ending, Marvel has spent three decades rewriting it, bringing Jean Grey back as a clone, a doppelganger, her own daughter from an alternate timeline, and, most recently, as her teenage self kidnapped into the future to bear witness to her older self's crimes. The Dark Phoenix plot drove the film *X-Men 3: The Last Stand*, in which the plot of woman-as-chaos-bringer played out in even more explicit terms. The Dark Willow plot is constructed to address this problem, one of the worst examples of misogyny in the canon of nerd culture. Willow is driven mad by grief at the murder of her girlfriend, a much better motivation than the hysteria that drove Phoenix. The revenge she seeks targets its proper object, the murderer himself, who is the most unrepentant misogynist in the Buffyverse. His death by flaying is immoral and grotesque, but Willow faces this act and repents of it. Her problem is not her capacity for power itself—she is the greatest witch of her age—but the driver of that power, grief, and rage fueled by despair. The intervention of her friends allows Willow to alter her relationship to her own power, to choose not to destroy the world. The final turn occurs not because of romantic love—Xander is not her boyfriend—but because of ancient friendship that allows her to befriend the world. In this way, the logic of nerd alliance extends itself to the planet: Willow discovers the cosmic dimension of Slayerism, founded in *philia*, not romantic tragedy. The male–female pairing of Xander and Willow makes this ending more, not less queer: the straight man whose best friend is a lesbian witch helps her save herself and the planet. Not a hetero- or homonormative plot of salvation through pair-bonding, but a rebuke of the demon Gender as an agent of apocalypse.

In the Dark Willow plot, *Buffy*'s awareness of structural injustice in nerd culture converges with its awareness of structural injustice built into the normative framework of gender itself. From the beginning, Buffy resisted the narrative of "one girl in all the world" as a myth of virgin sacrifice disguised as a story of female empowerment. The problem of finding oneself in the midst of a history one did not author becomes an object of repeated discussion, notably

in the musical episode from Season Six, "Once More, with Feeling." In this episode, Buffy confronts her existential angst after the Scooby Gang, led by Willow, pulls her out of heaven and back into history at the start of the season. As another round of world-destruction looms, Buffy finds herself unable to care. She sings: "Apocalypse, we've all been there,/The same old trips, why should we care?" Though expressed in the breezy terms of the American musical, Buffy's malaise afflicts everyone who works against unjust institutions, that is, "demons," for any length of time. Structural injustice exhausts its opponents by environing them. In the inherited Slayer narrative, there will always be demons for the one Slayer to fight. Buffy's first line of defense against this problem was the Scooby Gang itself: her friends allowed her to survive, to have a semblance of a life, far longer than most Slayers do. The Dark Willow plot reveals the limitations of this strategy. Finally, the sidekicks demand to be the protagonists of their own stories, even as the Slayer's mission trumps the attempt to "get a life." The Gothic frame of the series and its ambiguous enchantment compound the problem: superhuman forces of good must remain occluded, lest the Old Ones seem less fearsome, the earth less doomed, and the Slayer less compelled to hunt. The demon of Gender remains the author of the metanarrative: the Slayer is stuck in her role as a tragic heroine doomed to die because she is a girl. Season Seven provided the opportunity to end the story by transforming the terms of its telling. The last three episodes, "Touched," "End of Days," and "Chosen," find Buffy, the gang, and an international group of potential Slayers facing the First Evil, a disembodied force that haunts the characters with the figures of the beloved dead. Knowing that her friends are Buffy's strength, the First works to destroy the group from within, using a demented preacher, Caleb, to embody the forces of religious patriarchy that strive to keep women in their place. Buffy responds with an immanent critique of the story she has lived since Season One. If "one girl in all the world" is the problem, she reasons, the solution to the unbearable repetition of Slaying before the Apocalypse lies in the sharing of power. Many elements of the show had pointed in this direction: the calling of Faith, the second Slayer, after the first time Buffy died; the plot of "Primeval"; Xander's Christification as the carpenter who calls Willow back; Willow's ascendance as Good Witch; Giles's return as a peer to the group he had mentored. All of these equalitarian elements point to a process I term the

Scoobification of the Slayer, the creation of a transgendered community capable of resisting the Powers of structural injustice.

First, there is failure: Faith and the potential Slayers overthrow Buffy as leader. This pattern of community collapse is part of the unbearable repetition of Buffy's suffering. Every so often, the group must repudiate, betray, and deconstruct itself before reassembling in a stronger form. From Buffy's perspective, this is still a disaster, and it weakens her when she first confronts Caleb. Here, as in Tolkien, the First Evil contains the seed of its undoing: Caleb's lair, the Vineyard, hides an artifact that Buffy must not find: a stylized axe set in a stone that the minions of the First try to crack. The Scythe breaks the Gothic aesthetic of the show: crimson and silver, an apotheosis of Buffy's favorite stake, "Mister Pointy," its sleek curves gleam with the power to undo the Hellmouth. Search as they might, Giles and Willow cannot locate this Scythe in history, except in fragments that resist interpretation. This breakdown in the ritual of research signals the first unraveling of Scooby roles as a herald of others to come. Giles and Willow have always averted apocalypse with superior information-gathering, the foundation of Slayer strategy throughout the show. The Scythe resists these efforts: it is a material eucatastrophe, an object from outside the frame of the Buffyverse. Modeled after Excalibur, King Arthur's sword-in-the-stone, the Scythe acknowledges Buffy's identity as feminist messiah, but its origin points beyond that role. So Buffy is told when she locates a mausoleum entrance in the Sunnydale cemetery that, mysteriously, she had never noticed before. The entrance is marked with the Egyptian symbol of the winged sun, associated with the Gods Ra and Horus, and the Goddess Hathor/ Isis. It is visually jarring, a disruption of the Gothic-Christian atmosphere of the cemetery, and Buffy finds within a hidden matriarchal history of the Slayer. Within the tomb she meets an older woman who claims to be the last of her line, one of the makers of the Scythe, one of the people who watched the Watchers from the moment the Shadow Men first made the Slayers. She represents the mother-line in the show that had all but disappeared with Joyce Summers's death in "The Body." In place of the Slayer narrative, the woman offers a new origin: she was "one of many" who fashioned the Scythe "in secrecy for one like you." Before it was hidden, the Scythe killed "the last pure demon who walked upon the earth" in prehistory; then its "guardian" hid with it "to help and protect you." These fragments of feminist counter-narrative,

set in the melange of Egyptian, Arthurian, and Lovecraftian symbols, makes the episode feel like fan fiction written for Robert Graves's *The White Goddess*. "We're the last surprise," she explains, a eucatastrophe fashioned from the materials of unpopular feminism. Buffy appears astonished, grateful, and skeptical all at once, and her reverie is interrupted when Caleb appears behind the guardian and snaps her neck.

Armed with the Scythe, Buffy dispatches Caleb in short order, after his obligatory slur—"Are you ready to finish this, bitch?"—followed by a cleaving-in-twain that starts from the nethers and ends with a quip. "He had to split," Buffy tells Angel, and the final episode proceeds to the ultimate action. Buffy and Willow have a plan: Willow will use the Scythe to empower all the potential Slayers, everywhere. Buffy addresses the potentials—including those in the television audience, and repeats the origin of the Slayer, one girl at a time, "because a bunch of men who died thousands of years ago made up that rule." In response, she delivers her version of the St. Crispin's Day speech from *Henry V*:

> I say we change the rule. I say my power should be our power. From now on, every girl in the world who might be a Slayer, will be a Slayer. Every girl who could have the power, will have the power, who can stand up, will stand up. Slayers, every one of us. Make your choice. Are you ready to be strong?

Buffy, Faith, and the potentials move to the caverns under Sunnydale, where the First has massed a vampire army to overrun the world. Willow, meanwhile, prepares the spell, which will change her fate as well. Earlier in the story, Willow told Giles, "If I tried something big, I'd change," a reference to Dark Willow and her love of raw power. Willow's fears reflect another weapon of demonic Gender: self-censorship driven by fear of error, transgression, and autonomy. Then she casts the spell, and an overwhelming light radiates from the Scythe through Willow to all the potentials, everywhere. In the didactic style of an *ABC Afterschool Special*, a montage of empowered potentials appears: girls playing softball, working construction, facing down abusers. The camera cuts to the underworld of Sunnydale, where a former potential gazes at the demon hordes and says, "These guys are dust." Willow, meanwhile, exclaims "Oh my Goddess," perhaps the first unironic reference to a deity in *Buffy*'s history. As the glow of *thea*-phany fades, she keels over and says, "That was nifty."

The underworld and its demon hordes are repelled by the light of the Slayers and the light of the sun, channeled into the depths by the ensouled vampire, Spike, refashioned now as a Champion by a gift from his former rival, Angel. The Gothic frame of the show shatters, and the gang piles into a school bus that drives away from Sunnydale, the town swallowed by its collapsing Hellmouth. The Scoobification of the Slayer is complete. *Buffy* ends in with a resounding moment of feminist utopia, with patriarchal narratives overthrown, power shared at the highest level, and the demon of Gender rebuked as a driver of apocalypse. The resurgence of divine names, tropes of enlightenment, and the return of humor—"nifty"—mark a transformed relationship to institutions. The Scoobification of the Slayer constitutes a eucatastrophe as an institutional event. Buffy and Willow found an institution, an enduring social structure with its own origin myth and purpose. Though the institution of the Slayers will encounter internal contradictions in Seasons Eight to Twelve of the ongoing *Buffy* comic book, it nonetheless incarnates a Power of its own. (Slayers need a Power of one's own, as Virginia Woolf might have said, had she watched *Buffy*.) In the wake of demonic environmental collapse, the Slayers begin an ecological restoration of a planet that resists its prophesied doom.

Brave new world

The problem of environmental justice moves from figuration to mimesis in Whedon's post-*Buffy* project, the television space opera *Firefly* (2002–2003), and the film, *Serenity*, that completed its plot after the series was cancelled. Many of the tropes, themes, and character types staged in *Buffy* reappear in *Firefly*, transformed by its setting beyond humanity's solar system of origin. As the opening narrative of the show relates, Earth "got used up," and a diaspora of generation ships left the solar system, headed to a local star system with many planets and moons suitable for terraforming. The threatened hellscape of *Buffy* becomes the exhausted Earth of *Firefly*. The environmental issues that were represented as demonic in *Buffy* now appear, simply, as the collapse of the biosphere brought on by human activity. The fight that the Scoobies wage has already been lost in *Firefly*, but the civilization that arose in the new star system appears poised to repeat crucial mistakes. The colonization effort was

led by two imperial powers, the United States and China, acting in unison. The Union of Allied Planets, or Anglo-Sino Alliance, created a parliamentary democracy, an interplanetary cosmopolis that saves humanity from extinction. However, the price of survival is centralization: no one is allowed to leave the Alliance. Those who tried, the "Browncoats" of the outer planets, fought a failed war of independence. This premise inverts the trope of nerd alliance in general and the premise of *Star Trek*'s stellar cosmopolitanism in particular. The Alliance is the shadow of the Federation, Starfleet as Big Bad, a coercive central bureaucracy that brooks no opposition. The Scooby Gang equivalent is the crew of *Serenity*, a Firefly-class ship (which actually looks like the insect) led by Captain Mal Reynolds and first officer Zoe Washburn, survivors of the Browncoat rebellion. They are joined by Shepherd Book, a preacher; "Wash" Washburn, the pilot, and Zoe's husband; Jayne Cobb, a mercenary; Inarra Serra, a professional courtesan; and Kaylee Frye, the ship's engineer. In the course of the television series, this group is joined by Simon Tam and his sister, River, fugitives from the Alliance whose circumstances remain mysterious. Simon was once a brilliant young doctor of the inner worlds, and River is a troubled teenager with undefined mental powers, including telepathy. River continues Whedon's fascination with the teenage girl as damaged warrior, and her plot began to unfold in the first season, but her origin was never revealed. Whedon campaigned for a feature film to complete the narrative, and Universal Pictures agreed to finance it. The result was *Serenity*, a film that earned critical praise and little exposure beyond the original fanbase of the television series. In *Serenity*, Whedon reveals that River was seized by the Alliance and trained under duress as a living weapon, a trope borrowed from Orson Scott Card's *Ender's Game*. Simon rescued her from captivity, and they became fugitives. As the film opens, the Alliance pursues the Tams because they fear that River's shattered mind contains state secrets of an environmental disaster on a forgotten planet called Miranda.

"Miranda" refers, first of all, to Prospero's daughter in *The Tempest*, whose exclamation—"O brave new world, that has such people in it"—was picked up by Aldous Huxley for his dystopian novel of social engineering, *Brave New World*. A planet named Miranda suggests the drama of colonization, the innocence of the ingenue, and the horror of dystopia. River begins to remember this place after her buried memories start to surface after a bar fight

modeled after the classic Western. (*Serenity* is the kind of nerd film that mixes genres—telepathic teenage martial artists fighting in a space tavern—without a second thought.) The trouble with reaching Miranda, whose existence has been wiped from the memory of civilization, lies in the Reavers. In *Firefly*, the Reavers begin as legendary figures—space cannibals—that gradually manifest as a legitimate threat. In *Serenity*, Reaver space lies between the crew and Miranda, a fact on which the plot turns. When *Serenity* arrives at Miranda, they find a planet of the dead. The scene of arrival is shot slightly overexposed: the planet's surface and its barren cities appear too bright. The Gothic threat of the Reavers is balanced by an excess of light, and these phenomena are linked as effect and cause. The crew discovers that everyone on Miranda—over twenty-five million people—is dead. They died in place, of no detectable injury. The planet is an open mass grave, with desiccated bodies staring blindly into space in every city. The uncanny is present through its reversal on Miranda: though its citizens should have moved in life, they did not. The scene recalls many kinds of environmental disaster: depictions of nuclear war, the Bhopal chemical spill in India, the effects of a neutron bomb, mass starvation, and scenes from the death camps of World War II. The real cause is none of these things, as the crew learns from a recording made by a scientist moments from her death. She explains that Miranda was the site of a drug test: the "Pax," a drug designed to "calm the population" and "weed out aggression" was released into the atmosphere across the planet. It worked too well: the people became apathetic in the extreme. They stopped fighting, but they also stopped eating, working, and moving. Named ironically for the "peace" of empire—Pax Romana, Pax Americana—the Pax had the reverse effect on 10 percent of the population, making them mindless aggression machines who could do nothing but attack others and consume their flesh. They became the Reavers. The parliament of the Alliance made the memory of Miranda a state secret, which River accidentally uncovered through telepathic contact with government officials. In order to prevent another war, the Alliance committed genocide, creating eugenic horrors as an aftereffect. As Jayne says, "The whole world's dead for no reason." Mal concludes that, after an appropriate amount of time, the government will "swing back to the belief that they can make people better," a future that must be prevented. "Somebody has to speak for these people," he decides, and the crew agrees. "I aim to misbehave."

At this point, the crew encounters the same problem as the Scoobies. A system of corrupt institutions, older and more powerful than any outlaw, must be opposed. In the absence of the post-Gothic solutions available to *Buffy*, they must obey the laws of genre and find a counter-institution of science fiction. This institution appears in the form of the Alliances' information web, a descendent of our own digital media. Earlier in the film, their ally, a media hacker named Mr. Universe, had summed up the flow of information in their culture. On the one hand, there is the "puppet theater" offered to the "somnambulant masses"; on the other, there is "the truth of the signal" available to those who look below the deceptions of ideology, propaganda, and government encryption. "Can't stop the signal," Mr. Universe avows, so the crew decides to take the recording that explains Miranda to his lair in order to download its contents onto the net. Here we are back in the territory of Pynchon's *Bleeding Edge* with Maxine and Driscoll in their fight for a nerd refugium. We also stand in the territory of digital activism: the Arab Spring and its use of Facebook; the Great Firewall of China; Wikileaks and its stolen data; Chelsea Manning and Edward Snowdon as patriot-traitors who sent a signal despite the rise of mass surveillance in the War on Terror. *Serenity* anticipated them all. Mal and company must fly through Reavers and Alliance forces to land on Mr. Universe's moon, and the battle that ensues kills Wash and reveals River as a terrifying force capable of slaying the Reavers. In the end, Mal faces the Operative, a samurai-style agent of the Alliance who killed Shepherd Book and Mr. Universe in order to prevent the discovery of Miranda. Mal defeats him but declines to kill him. Instead, Mal says, "I'm going to show you a world without sin" as he transmits the data into the interplanetary media network. Temporarily foiled, the Parliament moves into damage control, and the worlds of the Alliance erupt into political debate. The Operative orders his troops to stand down and repair *Serenity*, and as the honorable, defeated opponent, he himself disappears from the scene. The crew buries their beloved dead, and the ship flies away, piloted now by River Tam, who is finally free of the nightmares that haunted her throughout *Firefly*. A world without sin, according to Whedon, is a lesser and more destructive world than one in which dedicated bands of friends seek to stem the tide of human cruelty. Despite his reversal of the Federation's cosmopolitics, Whedon absorbed the message of eugenics' moral failure from *Star Trek*. The intentional communities of the Slayers and

the *Firefly* crew are notable as voluntary organizations that persevere through their members' flaws without trying to "make people better." The quest to eradicate sin from human existence leads to the greatest horrors known to the modern world. Khan must be defeated again and again, especially when he is running the government.

Taken together as parables of environmental justice, *Buffy* and *Serenity* extend the philosophy and ethics of nerd culture to the realm of institutional politics. The Whedonverse counsels the cultivation of individual idiosyncrasy, the joy of nerdism, in face-to-face communities dedicated to common goals. These goals include solidarity with other "losers" wounded by the culture of eugenics, liquidation, and objectification; a therapeutic practice in which friends mentor one another through the healing of wounds and the formation of community; the creation of a culture of resistance to environmental destruction in local communities and the machinery of apocalypse at the scale of the planet; the practice of cross-cultural synthesis and multicultural alliance; the revision of cosmopolitical narratives that enslave individuals to the forces of gender; and the creation of alternative institutions to perpetuate these goals through these new cultures. *Serenity* and its philosophy of the signal suggest that nerd culture becomes nerdist exactly at the point when nerds capitalize on their affinity for information technologies as the means to spread counter-hegemonic truths and word of alternative communities. The means to engage the spirits of world-destruction lie not with the individual, conceived as a heroic monad, but in counter-narratives and counter-institutions cultivated by communities, and systems of communities. Neither Buffy nor Mal fulfills the traditional role of the great leader as the person at the top of a social hierarchy orchestrating minions from above. Their leadership is poetic in the largest sense: it inspires the making of a better, not a perfect, world through the practice of friendship that scales up to the level of the planet. In a narrative universe in which the transcendent forces of good are still mere hints of a *deus* considering a role after *absconditus*, the communities of Slayer and Signal embody new Powers just coming to know their own names.

This ethos of self-transformation as a practice of world-defense has an older origin to which Joss Whedon is greatly indebted: the superhero and the comic book.

Icons of Survival: Metahumanism as Planetary Defense

In which I argue that superhero comics, the most maligned of nerd genres, theorize the **transformation** *of ethics and politics necessary to the project of* **planetary defense**. *The figure of the "metahuman," the human with superpowers and purpose, embodies the* **transfigured nerd** *whose defects—***intellect***,* **swarm**-*behavior,* **abnormality***,* **flux***, and love of* **machines**—*become virtues of* **survival** *in the twenty-first century. The conflict among capitalism, fascism, and communism, which drove the Cold War and its immediate aftermath, also drove the Golden and Silver Ages of Comics. In the era of planetary emergency, these forces reconfigure themselves as different versions of world-destruction. The metahuman also signifies going "beyond" these economic and political systems into orders that preserve democracy without destroying the biosphere. Therefore, the styles of metahuman figuration represent an appeal to tradition and a technique of* **transformation**. *I call these strategies the iconic style and metamorphic style. The iconic style, more typical of DC Comics, makes the hero an icon of virtue, and metahuman powers manifest as visible signs: the "S" of Superman, the tiara and golden lasso of Wonder Woman. The metamorphic style, more typical of Marvel Comics, represents the process of change itself, turning the vice of* **flux** *into the power of transformation. As characters change in their capacity to* **defend the world**, *so does their appearance. These styles transfigure the nerd as* **avatar** *of virtue and incarnation of flux using all three aesthetics of the* **queer***, the* **uncanny***, and the* **monstrous**. *Though fan culture sometimes dualizes these representational strategies, they form the visual vocabulary for a metahumanism of planetary defense. Understood as a* **nerdist** *technology, the superhero becomes a seed of* **environmental culture**.

In the fourth decade of life, when I ought to be beyond such things, I pick up an issue of *Planetary*, a comic book written by Warren Ellis and drawn by John Cassaday. *Planetary* is published by the WildStorm imprint of DC Comics, giving it the latitude to do something unusual. It tells the story of superpowered investigators who roam the world uncovering the mysteries passed off as the stuff of junk culture: Japanese monster islands, the ghost of Marilyn Monroe, the traces left by the planet's true rulers disguised as "super-villains" in stories told for children. Like *Buffy* and *Firefly*, *Planetary* is historiographic metafiction, a story that explains the history of the story it appears, at first, to be. I am reading Chapter 10, "Magic and Loss," named after Lou Reed's confrontation with death. In his introduction to the story-arc *Planetary: The Fourth Man*, Joss Whedon comments: "No one who loves comics can get through issue #10, 'Magic and Loss,' without a true thrill of childlike dread" (Whedon, Introduction n.p.). I know what he means. Issue #10 finds Elijah Snow and his team in the lair of an Illuminatus who corresponds to Reed Richards of the Fantastic Four. In his encounter with this figure, Snow was nearly killed for getting too close to the truth about the true shape of history, the signal beyond the puppet theater. The Illuminatus leaves Snow to stew while his team investigates the artifacts in the abandoned facility, a version of the Baxter Building in the New York of Marvel Comics. The team has recovered three mysterious artifacts: a red cape or blanket; a pair of golden arm bands; and a blue, metallic lantern. One investigator says to another, "Where the hell do you suppose the Four got this stuff from? And why bother keeping it?" The issue answers that question. The blanket that would have become Superman's cape arrived in a ship that crashed in Kansas, carrying the infant from Krypton. In this timeline, a secret operative intercepts it and burns the child to death. The arm bands belong to Princess Diana of Paradise Island, murdered as she stepped into Man's World to become Wonder Woman. For a moment, I stop breathing, aware of the void in my heart where these stories had been before breath returns. This is how real myths work: they become part of our spiritual architecture, the magnetosphere of the soul that shields it from solar flares, making patterns in the sky visible from certain latitudes of the imagination.

The lantern evokes a particular kind of pain. In flashback, Ellis and Cassaday show us a great hall on another world, a scene of ritual investiture.

A creature that resembles electrified wire wrapped in crimson sepals, the speaker of the group, laments the death of Krypton, telling the assembly that this is the kind of world their league was formed to save. The color of the lantern has changed to indicate a different brane in the multiverse, but this is a meeting of the Green Lanterns, a corps of planetary guardians who defend each sector of the universe using the energy of courage. The leader recounts their history, displaying an image of a lone man with a blue lantern suspended from a staff. "The first of us was born upon a world choked by pollution and damaged weather. The continent he worked upon was shrouded in fog, mist, thick gas. He was known as space's first policeman. To light his way he wore a lamp whose element glowed perfect blue. His was the light of reason. The light we should have shown upon that world. But living worlds are many and we are yet too few." For this reason a new hero is commissioned: the blue lantern fuses with his body, its light shining from his heart. He is sent to Earth as its cosmic guardian, but the killers of Kal-El and Princess Diana intercept him, too. We see him in the present, dead on a dissection table, the lantern cut out of his chest to be engineered into weaponry for the archons of our world. The loss of the Lantern hits especially close to home. Ellis has rewritten the space-cops to evoke the Green politics in the lantern, the common heart of planetary defense, forged on a world destroyed by toxic waste and climate disaster. The first Lantern wandered like the Diogenes the Cynic, searching his world for a just man. Had Superman, Wonder Woman, and Green Lantern survived, they would have formed the Justice League, a band of heroes the beleaguered folk of *Planetary* cannot imagine. Cassady and Warren invite us to experience that dilemma from the inside. What if there were no myths of resistance to the Powers That Be? How would it feel to be denied the narratives of virtue that make planetary defense possible? How could one cultivate such virtues in a world where the virtuous are killed before they have a chance to change us?

Kamala Khan, the hero of Marvel's new series *Ms. Marvel*, has the opposite problem. A longtime fan of Carol Danvers, the Avenger formerly known as Ms. Marvel, Kamala suffers from the classic nerd problem: she can't get there from here. Here is Jersey City, New Jersey, which sits across the Hudson from Manhattan. Like Danvers herself, Manhattan seems farther away because it is so close; Kamala's life is shaped differently than an Avenger's. Her parents

moved from Pakistan to New Jersey to provide their daughter a top-notch education, and like generations of immigrant parents, they expect Kamala to get straight as in her magnet high school, never be late for dinner, and marry a Muslim doctor after avoiding boys at all costs. Unbeknownst to them, the Khan family carries dormant Inhuman genes. The Inhumans are a race of superpowered humanoids hidden from humanity by the Kree, aliens who experimented on humans to breed a slave race of living weapons. The Inhumans were the result of this failed experiment. Abandoned by the Kree, they live in hidden refugia across the world, including Attilan, the city that recently landed in the bay between Jersey City and Manhattan. When a political disaster causes the release of the Terrigen Mist from Attilan, this teratogen covers the world, activating dormant Inhuman genes in unsuspecting fangirls. Like Peter Parker and his radioactive spider-bite, Kamala's encounter with the Mist bestows superpowers: strength, resilience, healing, and a slightly ridiculous ability to change shape. Suddenly able to become her idol, Kamala stalks the shadows of Jersey City, a brown girl pretending to be a blonde Avenger. Like the antiheroes of *Planetary*, Kamala does not understand how a person like her can occupy the persona of the hero. She possesses the power to defend the world, but does not know how to use it. Her first attempts result in a eugenic farce in which an Inhuman tries to emulate the successful weapon that Captain Marvel finally became. The same genetic pattern that gave Kamala powers also made it hard to find the right person to become. Kamala mistakes Captain Marvel's features for her virtues, but discovers that the look of the hero is not the practice of heroism. Like the first Blue Lantern, Kamala must fashion a persona from the materials at hand: she sews a costume that resembles her hero's, but more modest, covering her body in a loose tunic and pants that are far more practical than Ms. Marvel's old costume, designed for the male gaze. Kamala takes an aspect of her diasporic culture often represented as anti-feminist in the West and turns it into something better than the sexist original. G. Willow Wilson, the creator of *Ms. Marvel*, took it as her mission to tell the story of a Muslim girl from her own perspective, but Kamala's dilemma faces all who would be planetary defenders. Given powers we do not fully comprehend and stories that are incomplete, how can one cultivate the practice of world-defense? To use a common word for heroes with powers: how can one lead a good life as a

metahuman, a person who changes shape, levels up, and mutates to bear the weight of planetary crisis?

The examples of *Planetary* and *Ms. Marvel* prompt an examination of the metahuman body as a figure of the planetary defender. *Metahuman* arose in the discourse of superhero comics: it designates a person who was born with superpowers or acquired them due to accident or intervention. It gestures ironically to its ancestor, the *Übermensch*: metahumans may be formed by eugenic experimentation, but they are not its agents. They represent a populist revision of Nietzsche's idea of the person who transcends the limits of humanity. They go *meta*, "beyond" the human, but they struggle with the meaning of the beyond. As Zarathustra says: "Man is something that hath to be surpassed; and therefore thou shalt love thy virtues—for thou wilt succumb by them" (Nietzsche 33). The struggle to make meaning of the metahuman condition I call *metahumanism*, a term I mean to represent the condition of humanity in the age of planetary crisis.

Leveling up

Superhero stories have always addressed the crises of modernity: war, famine, the struggle for civil rights, environmental catastrophe. Metahumans are not all heroes; not all use their powers to serve. *Super* is only one meaning of the beyond. The importance of metahuman discourse can be illustrated by the moment in "Welcome to the Hellmouth" when Xander Harris identifies Buffy Summers as a "superhero." The writers of *Buffy* expect its audience to understand that she possesses powers; the metahuman is an idea already available in popular culture. By calling her a superhero, however, Xander expresses confidence in her intention to defend the defenseless. Metahumanism, as an ethos of agency at a planetary scale, implies the duty to protect other citizens, the nation, and the world. As Ramzi Fawaz says, American superhero comics contain "imaginative fictional universes infused with a democratic political orientation," an ethos he calls "comic book cosmopolitics" (Fawaz 15). Metahumans become a way to reimagine planetary political agency. In its vocabulary of *powers*, metahumanism reveals its investment in a worldview of crisis driven by transhuman forces. This is one way to understand the

ambiguous secularization of the Whedonverse: against the fallen Powers that threaten the world, metahuman powers arise. Implicit in metahumanist discourse is the core insight of the term *Anthropocene*, the epoch characterized by the human capacity to change the world on a planetary scale. Yes, humans have become a planetary force, but how shall we behave in light of these new powers? Comic books have asked that question far longer than critical theory. This fact has been difficult to recognize because comics employ an unpopular visual rhetoric associated with children's stories. In the internal hierarchy of nerd culture, comics fans represent the most dysfunctional, juvenile, and unattractive of the unpopulars themselves. The stereotype of "comic book guy" signifies the ultimate loser: friendless, sexually frustrated, and misanthropic, he gets lost in virtual worlds, fails to form alliances, and turns a classic nerd refuge—the comics shop—into a wasteland of snark and sexual harassment. Most importantly, Comic Book Guy is unkempt, unfit, and overweight, the embodiment of the nerd as degenerate. He dreams of a heroic avatar, but lives out an evolutionary dead end. As human garbage, he identifies with the comic book, a genre stigmatized in Cold War culture with the "seduction of the innocent," the perversion of upright American youth. He embodies the failure of self-cultivation and the despair at defending the world with metahuman agency.

This stereotype helps us to understand why the body of the superhero is so important. The stigma of physical inferiority in a eugenic order teaches nerds to hate themselves. In Tolkien's terms, the body of the superhero creates a refuge from that stigma, a dream of agency in a world that can still be saved. As a medium that combines text and graphics, the comic book allows nerds to hear and see the other world in which the body is not shamed and the reader is not helpless. There are least two major styles of representation of the metahuman body: the iconic and the metamorphic. Each is associated with a major house of comic book production: the iconic with DC Comics, and the metamorphic with Marvel Comics. The iconic style of DC Comics draws the metahuman body as a figure of virtue, an ideal type of its powers. Superman, Wonder Woman, and Green Lantern embody this style. Like religious icons, they employ idealized physical forms rendered in bright colors. Their bodies are drawn in the classic Vitruvian proportions of the Renaissance, emphasizing visual balance and harmony. Through the premodern symbol of microcosmic and macrocosmic

similitude, this kind of hero embodies individual, architectural, and cosmic beauty (Rosand 36; Wayman 172). As revivals of classical heroic ideals, they are modeled after athletes and warriors; as drawn figures, they typify the Renaissance belief that Nature is "fundamentally beautiful," and that art is her peer (Dalton 4). They emphasize the humanism in metahumanism, the attainment of supreme virtues that manifest in their costumes. The novelist Michael Chabon calls this style of costume the "secret skin" (Chabon 64). Superheroes are drawn as nudes covered with a surface that manifests their inner character—like skin, a mediator between inside and outside. The iconic style makes possible the identification of a superhero even in fragmented form, a synecdoche that *Planetary* evoked in its pile of relics. When comics readers see a red cape, they read "Superman"; golden arm bands mean "Wonder Woman"; the lantern marks a Lantern. The iconic superheroes are fused with the signs of their powers: the trope of the secret skin marks a cyborgian approach to the metahuman, even if the hero has nothing to do with machines. As an extension of the body, the costume cannot be separated from the hero without doing damage. A comics reader need only see the arm bands without the Amazon to know that Wonder Woman is dead. For the same reason, the iconic hero's costume tends to change slowly. The costume represents the virtue, so when the costume changes, it signals a change in ethos disturbing to fans. When Zach Snyder darkened the pallette of Superman and Wonder Woman for his film, *Dawn of Justice*, fans accused him of turning both heroes into Batman, whose dark costume signifies his Gothic ethos.

By contrast, the metamorphic hero of Marvel Comics embodies the process of discovering, practicing, and embracing one's powers. Because the character's relationship to power evolves, the costume also evolves, representing the hero's "fluxability, a material and psychic *becoming*" (Fawaz 11). Change of costume does not imply a betrayal of virtue. The secret skin of DC heroes gives way to a visual evolution that involves the body as a whole, not just the surface. Ms. Marvel provides an example of this style of embodiment. Her hero is Carol Danvers, who began as "Ms. Marvel" and became "Captain Marvel" after supplanting the first Captain Marvel, who was male. Her costume paralleled his, creating what fandom calls the "Smurfette" problem, the female character that mimics the male original. By becoming Captain Marvel, Danvers overcame Smurfette with a sign of rank, not gender, and changed her first

red and blue costume with a golden star to a grey costume unaffiliated with her predecessor. When Kamala gains the power to shift shape, she repeats the Smurfette problem at the level of race: she is a hero of color imitating a Nordic-white archetype. As noted, she immediately adapts her costume to make it less skin-tight and more flexible, disrupting the standard of female superhero as object of the male gaze. Soon after, she stops turning her hair blonde. As a hero who can alter her bodily proportions, she often makes herself flatter, longer, and more distended than a standard human body, breaking the Vitruvian model of Renaissance Neoclassicism. No sooner does she adopt the costume than it changes. She exemplifies the Marvel aesthetic of metamorphosis by changing her costume to represent a change in her relationship to her powers. Though Marvel and DC are often binarized in fan discourse, both approaches to the metahuman body are important to the representation of the world-defender. The iconic style represents the kind of virtue the hero possesses, while the metamorphic style represents the evolution of the hero's relationship to heroism. Together, these aesthetics suggest which abilities readers might cultivate (courage, compassion, empathy) and how one must cultivate these abilities in a process of world-defense.

Green Lanterns

The Green Lantern embodies the planetary defender in two ways. The first way is the oldest, and its Lantern is named Alan Scott. Scott is the Lantern of the period comics historians call "The Golden Age" of American comics (1932–1956). Green Lantern followed in the wake of Superman, when comics companies struggled to find other origins for new heroes. The creator of Green Lantern, Martin Nodell, drew inspiration from the New York subway system. In the 1930s, railroad engineers would stand next to the tracks, holding up lanterns of various colors to direct the movement of the trains. Nodell saw an engineer holding up a green-light lantern and combined this image with the legend of Aladdin's lamp and his personal fascination with Chinese lanterns. Thus he created Alan Scott, a railroad engineer who finds a magical lantern that granted mystical powers to the bearer (Jordan 14). In costume, Scott looks like Superman, if Superman were a vigilante magician powered by green

magic: a billowing cape, green pants, a red shirt with the lantern emblem, and, of course, a mask around the eyes. This Green Lantern is singular: the energy of the lantern obeys him, and there is only one lantern. Scott goes on to join the Justice Society of America, a precursor to the Justice League in the contemporary DC Universe. To bring order to a tangled weave of multiple teams, origins, and worlds, DC chose a multiversal approach. In the current version of that multiverse, Alan Scott's Green Lantern comes from Earth 2, a world similar to our own in the spectrum of possible histories. In the most recent version of that world in the "New 52" continuity, the comic book *Earth 2* features a new Alan Scott, now the CEO of a multinational corporation. In the early issues of the series, Scott travels to China to propose to his boyfriend, Sam Zhao. He and Sam are travelling on a high-speed train that derails under mysterious circumstances, killing Sam. In *Earth 2* #3, Scott finds himself near death, when he is roused by the words of a fierce green fire, which heals his wounds and announces, "Alan Scott, you are the one." Nicola Scott models this scene of commissioning after Moses' encounter with the Burning Bush on Mount Sinai. The green fire tells Scott that it represents the power of the living earth, which has chosen him as its champion against an evil that will threaten the world. In this continuity, Superman is dead, and the fire tells Scott he must replace the "sun god" as planetary defender. Scott will be granted the power of the earth, and his body will be "its storehouse." The earth's "power will shine forth from you as would the light from a lamp." In this version, the body of the hero becomes the lantern itself—the lamp refers to the Golden Age inspiration of Aladdin. The green energy of earth can be shaped into any form by the power of Scott's imagination, and when that happens, Scott becomes "the earth's one true knight," the Green Lantern. The fire then asks Scott to choose an instrument to focus his power, something "close to your heart." He chooses the wedding ring that would have been Sam's, and after rescuing the survivors of the train wreck, Scott kneels over Sam's body and swears to use his power in his honor.

This version of the Green Lantern represents at once a traditional rendering of the character and a radical revision. The train, the body as lamp, the kind of power granted, and the figure of Alan Scott refer back to the Golden Age and the origin of the character. The revision lies in the overtly ecological nature of the power, the power's origin, and the connection of the ring to gay sexuality and

marriage. For the first time in the history of the character, the source of Alan Scott's power is not an Orientalized magical object, but the spirit of the earth figured as a terrestrial flame of the God of Exodus. (Later in the series, the Green is drawn as a female tree, but here the fire remains nonanthropomorphic.) This shift from mechanism to vitalism enacts a version of the nerd transformation from idiot machine to avatar, as Scott himself represents an ideal heroic masculinity that reverses the form of the nerd-degenerate. However, this representation is complicated by the queering of the Lantern himself. By channeling his power through his wedding ring, and swearing to serve in honor of his lost love, Green Lantern becomes one of the only superheroes whose power arises from erotic love and the bond of marriage. Combined with the idea of the Green Knight—a reference to medieval Arthurian poetry— this figure of the planetary defender evokes the Sacred Band of Thebes, a legendary Greek army made entirely of male lovers. The Green Lantern of *Earth 2* broaches the realm of queer ecology and ecosexuality, a sexual identity that organizes desire beyond the human. If Alan Scott is not depicted as engaging in sexual acts with the planet, the energy of his heroism arises from his devotion to his dead lover. His costume and physiognomy reflect this blend of traditional masculine hero and queer disruption of comics. Scott is tall, blond, Anglo-American, broad-chested, and muscular, a figure of heroic male beauty drawn from the classical tradition of sculpture. He could model for Praxiteles, and resembles the male gods in the Elgin Marbles. He represents the eugenic figure admired by male nerds as an ideal alter-ego. However, he also performs a passionate affect, and this trait is modeled after the idealized knights of Arthurian legend. Kind, brave, and noble, he dedicates himself to the protection of Earth as lover. He is not the queer cowboy of *Brokeback Mountain*, trying to enact masculine reserve in public while having gay sex in the mountains. His powers would not work if he were: the lantern insignia on his chest bursts into flame when he uses his power, as we see when he lifts the wrecked train over his head to free the trapped passengers. This pose echoes an iconic *Action Comics* cover in which Superman becomes stronger than a locomotive. So *Earth 2*'s emerald knight is figured, visually, as a gay, ecosexual Superman who burns with the desire to preserve life.

This depiction of the new Alan Scott Green Lantern stands as a critique and extension of Green Lantern's grappling with issues of gender, race, and

sexuality. The Silver Age Green Lantern, Hal Jordan, is a U.S. Air Force pilot whose aggressive masculinity and hatred for male authority interfere with his heroism. In his earliest history through the 1960s, Hal has an Asian American sidekick nicknamed "Pieface," a racist term that refers to the "flatness" of East Asian faces. Alan's lover Sam, who begins as a lost love and returns later as an Avatar of Air, repudiates Pieface as an exoticized subordinate in the American tradition of racial castration. In the system of the Silver Age lanterns, the ring is powered by will, not love. Love, figured as kindness, compassion, and erotic connection, is the domain of the Star Sapphires, the celestial Amazons who broke away from the Guardians of the Universe, an all-male group from the planet Oa who founded the Green Lantern Corps. The Star Sapphires represent an early moment in the Silver Age when DC Comics attempted to recognize the power of feminism but contain it within traditional gender roles. Masculinity is will, femininity is love: each can accomplish things the other cannot, but they do not mix. The new Alan Scott, though, deconstructs this opposition between passion and will, love and courage, in a way that affects his fighting style. When his archetypal enemy, Solomon Grundy, the zombie-like Avatar of the Grey arises at the end of Issue #3, Scott responds by engaging in some traditional punching, which proves ineffective against an undead enemy. Grundy is a metaphysical adversary too: he represents the uncanny powers of decay-gone-awry, and his presence manifests as the death of a forest. Grundy's first act of destruction represents the power of ecocide, not the mortality of living creatures. His effects resemble slash-and-burn agriculture in which rain forests are torched to clear land, leaving charred remains and a degraded biome. As Green Lantern, Scott feels this destruction in his body, and is drawn to it in order to end it. His heroism involves empathy for other creatures, which mandates suffering at the unnatural end of their lives. For a gay superhero, this generates a transvaluation of values: the Green Lantern stands for planetary love; the ecocidal villain is "unnatural," undead, and uncanny. In Alan Scott, "queer" is refigured as an aesthetic of ecological heroism, built on the power of desire and devotion. The Green of the lantern severs queerness from the unnatural, the uncanny, and the grotesque, including the grotesquerie of racism and gender binarism. Like the Avatar of the Green, whom he represents, and the Green Knight, who bested Sir Gawain, Alan Scott figures a queer metahumanism in which the transcendence of traditional masculinity grants

the power to oppose the archons of ecocide. By channeling the power of Earth through his erstwhile wedding ring, Scott inaugurates a mode of heroism as queer ecosexuality. His vow operates outside the bounds of homonormative culture by affirming the erotic bond between man and planet in a union that does not mimic the bourgeois nuclear family. It takes Aldo Leopold's legendary "fierce green fire" to another register of "fierce".

The Green Lanterns of the Silver Age of Comics (1956–1970) renegotiate American masculinity in other terms. In this version of the mythos, there is a Green Lantern Corps headed by the Guardians of the Universe, superhuman aliens from the planet Oa who learned to channel the energy of will into physical force. Every sector of space is assigned a Green Lantern to patrol it. The metaphor at the heart of this model is the local cop on a neighborhood beat, and this metaphor asserts the masculinity of the lanterns as paramilitary officers. The costume of the Green Lanterns is both a public and a secret skin: the torso is green, the arms and legs black, the gloves are white and the boots are green. The stylized lantern insignia rests on the heart as seat of will or courage, the Lanterns' core virtue. As a cosmic institution, the corps presents a standardized face to the people of the universe: you can see a Lantern coming from a parsec away. Recruitment is represented as boot camp, with a drill sergeant yelling at rookies about their mistakes. This metaphor serves as an extension of Hal Jordan's identity as a U.S. Airman, and two other Lanterns of Earth fit this pattern: John Stewart, DC Comics' first African American superhero (1971), a Marine and architect; and Guy Gardner, a policeman from Baltimore. As masters of willpower, they were chosen by their rings for their potential to overcome fear in the pursuit of universal justice and order. However, the magical aspect of the Golden Age Lantern continues into the Silver Age: the rings are powered by will, but the power is shaped by imagination. The implicit metaphor at work is imagination: as it is for Tolkien, the faculty that allows the mind to form images of objects not present in reality. As artist-heroes powered by affect, the Silver Age Lanterns are among the only superheroes with an aesthetic virtue. Hal Jordan is literal-minded: when prompted in boot camp to form ring constructs, he forms fists and hammers (extensions of the body) or fighter jets and train engines (the classic trope reasserting itself). In the aesthetic realm, he is an inferior Lantern, and comes under regular criticism for this shortcoming. Though the core virtue of these Lanterns is will, the

metaphor of the train lantern suggests the core purpose of lighting the way to "finer worlds," as *Planetary* put it. Superior will yoked to inferior imagination leads to the many ethical errors that Jordan makes throughout his career. The fourth Green Lantern of Earth, Kyle Rayner, compensates for this deficiency: he is a comic book artist, a pencil-sketcher by trade, a superior maker of images, not an athlete or a soldier. In his hands, the light of will constructs complicated objects with an autonomous beauty. He produces different results than Jordan, Stewart, or Gardner; like Alan Scott, his courage contains more passion and less control, and his sense of justice is informed by his sense of beauty. He is a Platonic Lantern, whose premodern virtues connect truth, justice, and beauty as versions of one another. He represents a commentary on the Silver Age ethos on the part of the writers and pencilers. He asks a question: What would it be like to go beyond the pose of the space cop and embrace artistry for its own sake as an instrument of planetary defense? Though he loves the other Lanterns, his methods conflict with theirs. He is an icon of another kind of virtue.

In *DC: The New Frontier* (2015), Darwyn Cooke sets out to explore these tensions in a retro-chic tale of the formation of the Justice League in the wake of World War II. Because it is the Justice League, Green Lantern must be Hal Jordan, but this Hal Jordan moves through his origin myth with iconic affect of a different kind. Jordan is still the reckless flyboy of the Silver Age who is summoned to the wreckage of an alien spacecraft to receive the gift of the ring from the dying Lantern of our sector, a red-skinned alien named Abin Sur. Dying from an encounter with the poisonous yellow light produced by a hidden villain, Abin Sur must pass on his ring and its "battery of power" to a worthy successor. The space cop narrative stands: Jordan is chosen for his "pristine courage." This time, however, the story veers: Jordan objects, saying that he was labeled a coward during the war (Cooke et al. 286). Sur insists: courage can mean many things—"the courage of conviction," "the courage to avoid partisan thinking and value the existence of all," "the courage to act decisively when survival is at stake." American masculinity of the Cold War receives a lesson in courage from the most feared of sources, the alien of a different race. Jordan reconsiders, and when he puts on the ring, in the final frame verso, something different happens. Turning to the next frame recto, readers encounter a dramatic splash page of Hal Jordan bathed in the

green light radiating from his ring. As its rays shine to the ground, Jordan's pilot uniform becomes the costume of a Green Lantern. Surrounded by a glowing cloud of green, his upraised hand radiates tongues of flame. In a corny interjection believable from the mouths of the Greatest Generation, he exclaims "God's Creation!" Cooke represents the power of the ring as the divine fire that powers Sub-creation in Tolkien's account of Secondary Worlds. The ring-bearer is an artist, and the green light of the heart is the *Fiat lux!* that made the world. The Hal Jordan-style space-jock dovetails with the Kyle Rayner artist in a Promethean icon of the hero as artist of justice. Jordan reacts by launching himself into the sky in a fit of joy, finally flying without the aid of an airplane. This model of the hero alters his relationship to the villain and to the Guardians of the Universe when the time comes to face the destruction of the Earth. The Justice League—Wonder Woman, Flash, Superman, Batman, and the Martian Manhunter—have done their part, but they have all fallen in the face of the Centre, a monstrous life form from deep geological time that has risen into modernity to destroy the human infestation on the planet. Green Lantern is the only one left, but the sheer size of the Centre—a flying mountain that spits flame and dragons—foils his first attempt to meet it. He reaches out for help in an unknown direction, and the Guardians answer. In other Hal Jordan narratives, the Guardians are inflexible patriarchs that the conscientious rebel must disobey. Here, they are teachers, who help focus his will and expand his heart. The entire splash page glows green as Jordan narrates: "I pour my heart into the ring and it works. We contain the explosion. Letting it exhaust itself within a perfect emerald sphere. We *will* it to happen" (391). The power of the first person plural allows Hal to save the world, but not by killing the enemy. The Centre had always intended to see the universe, so Green Lantern launches it into space. The world is saved through the virtues of will driven by hope, solidarity, and imagination. Though Jordan still thinks of himself as a cop, he is more a knight of artistry, a synthesis of the Gold and Silver Age paradigms of the male hero.

Though the Lanterns of Earth practice an evolving masculinity, in the end they are all men, cut from the same heroic mold. Even Kyle Rayner, who has no professional reason to look like an athlete or a warrior, is rendered most often as if he is both. This demonstrates the sway of Renaissance humanist aesthetics on the representation of heroic virtue in comic books. *Green Lantern* comics

can do better than that. The radicalism of the Lanterns manifests in the cosmic context when Earth Lanterns interact with the corps, a model of interspecies cosmopolitanism with few peers in nerd culture. Through the rings, the Guardians select Lanterns from every sector of the universe, and each sector is defended by a Lantern indigenous to it. The comics must then portray every imaginable shape of sentient life—the electrified wire of the *Planetary* story is typical, not exceptional. Even in Earth Lanterns, there is racial diversity: Hal Jordan and Guy Gardner are white, but John Stewart, as noted, is black, and Kyle Rayner, despite his surname, is Latino. The most recent Earth Lantern, Simon Baz, is a Lebanese American from Dearborn, Michigan who replaced Kyle Rayner when his story took another turn. The current racial diversity of these Lanterns reflects the awareness of racial diversity in the audience. However, when the comics move the setting to Oa, the home of the Guardians, the standard establishing shot depicts Lanterns of every shape, size, race, gender, and species. There are many distinguished female Lanterns, including Arisia Rrab, a descendent of a long line of Milky Way Lanterns; Boodikka, a powerful Alpha Lantern, an Internal Affairs officer of the Corps; Katma Tui, a red-skinned native of Korugar, the planet of origin for Sinestro, Hal Jordan's great rival and ally; and the partners Iolande, a planetary princess, and Soranik Natu, a Korugaran physician. There are rodent Lanterns, such as B'dg and Ch'p of the planet H'lven; Leezle Pon, a sentient smallpox virus; and the most famous nonhuman Lantern, Mogo, the living planet (Jordan 559–564).

Mogo was created by the writer Alan Moore, the graphic novelist behind *Watchmen*, *V for Vendetta*, and *League of Extraordinary Gentleman*. As a planetary Lantern, Mogo inverts the science fiction trope of the world-mind that drives humans mad, found in Stanislaw Lem's *Solaris* and Ursula Le Guin's "Vaster Than Empires and More Slow." Mogo concerns itself with issues the other Lanterns need not consider, such as the effects of its gravity on any world it approaches: hence, the name of Moore's story, "Mogo Doesn't Socialize." Mogo is highly social in later stories, sometimes hosting the corps when Oa is destroyed, at other times venturing far from its orbit to assist other Lanterns. The difficulty humanoids suffer in trying to comprehend a planetary Lantern is sometimes played for laughs, as in the tale of Bolphunga the Unrelenting, when a space mercenary lands on Mogo looking for a bipedal opponent. (Bolphunga relents in the end.) At other times, Mogo's difference comes to the

fore: it offers burial to all the dead Lanterns in the *Blackest Night* sequence, and when the rings of the undead Black Lantern Corps must be kept secure, Mogo sends dozens of them into its planetary core. *Green Lantern* breaks the hold of Vitruvian aesthetics by depicting planetary defenders in as many forms, scales, and environments as artists can imagine. Heroism incarnates in all sentient species. Because comics are drawn, it is much simpler to depict the profusion of species among the citizens of the universe than it has been for film and television series such as *Star Trek* and *Buffy*. *Green Lantern* does not suffer the problem of the live-action alien, whose otherness is represented by modest modifications to a human face. The possibilities of the cosmopolitan imagination are represented by a Green cosmopolis that cannot be reduced to any version of Earth.

The profusion of virtuous shape leads to an expansion in affective power source. In the storylines for the *Blackest Night* event and the subsequent *Brightest Day* storyline, writer Geoff Johns multiplies and systematizes the emotional spectrum that powers the rings and the corps. There are many kinds of Lanterns: the Red Lanterns are powered by anger; the Orange Lantern's power of greed means there can be only one; the Yellow Lanterns evoke fear; the Greens, will; the Blues, hope; the Indigos, compassion; and the Violets, or Star Sapphires, Love. Just as the Black Lanterns represent the powers of the undead, so there is a White Lantern Entity, a White Lantern, and later, a White Lantern corps dedicated to the preservation of life. The spectrum of power demolishes gender binarism: when Green Lanterns were men empowered by will and Star Sapphires were women empowered by love, stories of the Lanterns were limited to feminist Amazons at best, and normative complementarity at worst. In the Johns version, anyone can be called to be a Lantern if they possess the right virtue, and monochrome Lanterns can learn to master other colors by developing their virtues. John Stewart, one of the most masculine of the Earth Lanterns, discovers that he is also a powerful Star Sapphire, whose love manifests as friendship and loyalty. Kyle Rayner becomes the first White Lantern by mastering all the emotions and their virtues. Furthermore, the colors of the emotional spectrum interact with one another in nonlinear ways. Blue Lanterns of hope, whose tag line, "All will be well," descends from the medieval mystic, Julian of Norwich, have little power on their own: they can fly and make basic light constructs. However, their presence supercharges the

Green Lanterns, representing the supportive relationship between hope and will. The Blue Lanterns can also break the hold of rage over the Red Lanterns. The fear of Yellow still impedes the operation of Green will, and the presence of "Agent Orange," the singular Lantern of greed, corrupts all the other emotions. By contextualizing Green practice in terms of the other colors, Johns's system underscores the different polities formed by affective communities. Not everyone has a corps: the Greens are orderly because will drives them. The Reds, as one might expect, are rancorous even among themselves, while the Blues are small in number, yet cooperative among themselves, because hope is a more difficult virtue than will. The Star Sapphires, led by the military Zamarons (an anagram of "Amazons"), discover that they resemble their ancient Guardian adversaries more than they might prefer. The Indigo rings of compassion are also the only rings that are forced upon bearers against their will. The Indigos are all sociopaths whose rings teach them the empathy they lack in life, and the practice of their virtue consists in a slow rehabilitation from the inability to feel the pain of others. Because of the multiplication of color-powers, the underlying logic of Aristotelian virtue ethics becomes even clearer: one may possess a form of moral excellence, but only the pedagogy of practice creates the life of flourishing. Faced with the common enemy of the undead, the different Lantern polities learn to cooperate, creating a corporate body with all the virtues in service of the alliance. The practice of planetary defense scales up to defense of all life in the universe when the Lanterns function as organs in a metahuman body of virtue.

It may seem that a Lantern alliance might be so powerful that too much can be accomplished. Metahumanism might be undermined by more virtue than mortals can exercise. This problem could be exacerbated by the traditional Lantern teaching that the power batteries of each group draw on the emotional energy of all living things in the universe, making the power available both renewable and limitless. The storyline after *Brightest Day* challenges this assumption. "Lights Out" features an antihero named Relic, a scientist who survived the end of the universe before our own, which collapsed because the energy of the emotional spectrum ran out. His mission in our time is to protect our universe from the grave threat of what might be called "peak light": the danger of collapse caused by the use of a finite resource as if it were infinite. As an allegory for the fossil fuel industry in the era of climate change, the Relic

narrative challenges the story of planetary defense that motivates the Green Lanterns. The energy they use to defend worlds imperils the existence of the universe itself. As Relic uses advanced anti-Lantern technology from his own universe to decimate the various corps, the Lanterns react in a manner that resembles the climate change debate. The chief Blue Lantern, Saint Walker, loses all hope and ceases to be a Lantern. The Greens disbelieve the word of an enemy, and splinter internally: some use less power, others use their rings only as a last resort, while still others continue business as usual. The war against Relic escalates, as the attempt to defeat him uses ever more spectrum energy, threatening apocalyptic collapse. It is only Kyle Rayner, acting as the White Lantern, who resolves the problem by restoring the energy stores of the universe using the White Lantern's virtue, life. Kyle understands that the solution is temporary, and that Lanterns must change their energy use if the universe is to continue. "Lights Out" takes the metahumanism of the Lanterns into a new realm: they must move beyond the narrative of individual virtue to enact a new ethos of self-limitation while still addressing their original objectives. Restraint is not a virtue practiced by any of the Lantern communities. Like the citizens of developed economies in the era of climate catastrophe, they must move beyond traditional energy economies that power virtue at the expense of the universe itself. What does it mean for an ethos based on emotional expression to face the contradiction at the heart of their civilization? The cultivation of compassion, the light of courage, the power of love—even the Orange Lantern, in his solitary paranoia—must turn to the task of preserving the possibility of life itself. They must become icons of a virtue they do not yet possess, which means an embrace of metamorphosis, of change in time, that seems inimical to the eternal truths of virtue.

Becoming the change

In the Marvel Comics, the heroes of metamorphosis are mutants. In the biological sciences, the term *mutant* denotes an individual whose genetic code has changed relative to its parental genome. The change occurs at the level of the base pairs of the DNA molecule because of an error in duplication or the introduction of an outside agent of change, such as radiation or a mutagenic

chemical. The trope of mutation signifies a change caused by stochastic processes at the level of the cell or by environmental disruption, especially through forms of industrial pollution. Unlike the heroes of iconic virtue, who are chosen or called to their vocation, a mutant is born that way. Metahuman mutation in Marvel Comics has been narrated in many different ways, and assigned many origins, but the archetypal team of mutants, the X-Men, began as "children of the atom," created by the fallout of the atomic age. The trope of mutant powers cleaves to the nerd narrative: most mutant powers appear in adolescence, triggered by a crisis in the life of the mutant. In the initial manifestation, mutant powers appear disruptive and uncontrollable, not a virtue at all, but a danger. Therefore, mutants need to learn to use their powers responsibly—this is one origin of Chris Hardwick's idea of the nerdist. Because it is a truth universally acknowledged that a new mutant must be in want of a teacher, the X-Men attend a school, Professor Xavier's School for Gifted Youngsters in the Hudson Valley of New York State. Professor X teaches his students to defend other people from the dangers of the modern world. Using this charge as the kernel of X-culture, his students evolve a common narrative from their mutual experience of exclusion, stigma, and heroic resistance. The *Uncanny X-Men*, their flagship comic, featured the motto "Feared and hated by a world they have sworn to protect" as a summary of the mutant agon with the dominant culture.

The figure of difference-as-power compensates for the initial exclusion that mutants experience on the basis of their genetic and phenotypic differences. Mutants are the ultimate nerd avatars, turning social stigma into the power to defend themselves and the world. Because mutants carry the sign of their difference in their bodies, the mutant condition lends itself to allegories of race, ethnicity, sexuality, religion, neurodiversity, and physical ability. Mutants are the all-purpose "other," and they develop counter-institutions that move beyond the school into political life: the island of Utopia in San Francisco Bay as mutant refuge; the city of Madripoor as a mutant cosmopolis; and the nation of Genosha as a separatist state. Because mutant identity is ultimately political, Professor X's discourse of salvation through integration must compete with eugenic ideologies that consider mutants to be a degenerate threat to humanity or the successors of humanity, a separate species called *homo superior*. The visual metamorphoses of the X-Men reflect these three

metahuman trajectories: willful identification with nonmutants in an expanded understanding of "humanity"; pursuit of metahuman culture alongside humanity as a peer-species; and violent overthrow of humanity as inferior progenitor. I will examine three cases in point: Ororo Munro, code-named "Storm"; Kurt Wagner, code-named "Nightcrawler"; and Katherine "Kitty" Pryde, code-named "Shadowcat."

Ororo Munroe faced the question of metahuman nature earlier than any of her peers. As the daughter of African American photojournalist David Munroe and Kenyan princess N'Dare, Ororo inherits the narrative of enslavement and liberation and the Black Athena narrative of Egypt as the cradle of civilization. Her mother was a priestess of a line descending from an Egyptian servant of Ma'at, the Goddess of cosmic order, so Ororo's mutant powers of weather control and biospheric empathy appear as an extension of her maternal lineage. The potential conflict between ordinary-American and royal-Kenyan identities is interrupted when her parents die in a plane crash, leaving Ororo to a childhood on the streets of Cairo as a trained thief and pickpocket. After a near-fatal journey through the Serengeti Plain, her weather powers manifest, and she becomes known to local people as a wind goddess. While she fulfills this role, Professor X recruits her as one of the "New X-Men," created by writer Chris Claremont and artist Dave Cockrum in 1976. She is the first black woman to join the X-Men, and her presence represents Marvel's attempts to integrate the Civil Rights Movement, Black Power, and the Black Arts into their universe. She is "a character with few, if any, genuine antecedents in American superhero comic books" (Fawaz 150). As Ta-Nehisi Coates points out:

> In the 1980s, Marvel had a black woman—not just a black woman, a woman who was born in Harlem, a woman who was African-American and whose mother was Kenyan—leading their most popular title. And then when she lost her powers, she was still kicking ass. Like she still had enough to whip Cyclops's ass. That was something they were doing. I can't really think of anywhere else I would've went at that time to see something like that. (Riesman n.p.)

In this respect she is the peer of Luke Cage/Power Man, Misty Knight, and T'Challa, the Black Panther, prince of the science-nation of Wakanda in east Africa. Ororo's story combines elements of Dickensian melodrama,

Afrofuturism, Egyptian hermeticism, and the Darwinian premise of mutant power itself. This background creates a character of extraordinary range, capable of lock-picking at one moment and lightning strikes the next. Her role in the X-Men as a team occupies the full spectrum of positions in an elective family and institutional structures. She is Jean Grey's best friend; an older sister to Kitty Pryde and Peter Rasputin/Colossus; a confidant and strategic peer to Logan/Wolverine; the leader of the X-Men who wins the possession by right of combat with Scott Summers/Cyclops, the leader of the original team; and a professor and Headmistress of the school. The sheer variety in her background and life experiences lead her to a profound understanding of the stakes of metahumanism. Because she has been a goddess before, she takes a cynical approach to the discourse of "homo superior" preached by Magneto, a Jewish mutant who survived the death camps of World War II. Sometimes an enemy and at other times an ally, Magneto disagrees with the rhetoric of coexistence offered by his friend Charles Xavier. Ororo remains unconvinced by Magneto's separatism because of its self-aggrandizing nature: Magneto always becomes the de facto leader of any mutant polity he founds. Suspicious of patriarchal tendencies couched in a rhetoric of liberation, Storm resists the domination of villains such as Doctor Doom, Emma Frost, and Dracula. As a lifelong claustrophobic, she has a physical and ideological revulsion at confinement. Later in life, when she marries T'Challa and becomes Queen of Wakanda, there is an air of inevitability to her royal ascent. At the same time, she copes when her powers are taken away, relying on superior tactical, combat, and stealth abilities. Her most enduring metahuman capacity is not an identity of any kind, but a practice of cultivation—of gardens, companions, institutions, and planetary defense. As a mutant, she is a master of changing selves and circumstances.

This mastery of metamorphosis is reflected in her physical appearance. A tall, dark-skinned woman with white hair and blue eyes, Storm's phenotype already defies American racial expectations. In its most common form, her costume is also hybridic: a tight-fitting black bodysuit with the flowing cape of a hero and a headdress that suggests her hieratic ancestry. Storm wears her hair long with this costume, a combination that produces an intimidating aesthetic when she uses her weather powers. When she wields wind and lightning together, Storm can appear grand, with hair and cape spread out in the air and electricity arcing across her body. This is the goddess pose that led to her

moment as a local deity. However, in moments when she loses her powers or faces tragedy, she gives herself a mohawk and dons a street-punk costume that lends itself to hand-to-hand combat. In this persona, she defeated Scott Summers and became leader of the X-Men for the first time. When the noble demigoddess threatens to reduce her to earth-motherhood, the punk pose asserts her oldest identity as the orphan who survives on the streets by her own wits. These sartorial identities bear a different relationship to her role as planetary guardian than the iconic costume of the Green Lanterns. Her powers of weather control are not symbolized by any version of her costume: there is no lightning-bolt equivalent to the Lantern insignia on Hal Jordan's chest. Unlike the power ring, Storm's mutant abilities are a fact of biology, not vocation. If she chose one day to retire from planetary defense, she would still be able to control the weather. In her style of metamorphosis, the task of reaching beyond the human looks like one task among others in a life of flourishing. This is not true of all mutants, especially those whose mutation makes them unable to "pass" as human. Ironically, given her race, Storm is able to pass as baseline human in public. Her friend and fellow X-Man, Kurt Wagner, has no such privilege. Kurt Wagner, whose code name, "Nightcrawler," evokes his Gothic appearance, announces his mutation with every step. A German with a history as a circus freak and acrobat, Kurt's skin and hair are dark blue, his eyes a jaundiced yellow, and his ears are pointed. He has a prehensile tail that ends in a spike, and his hands and feet have only two digits each. He appears to human eyes as a threatening blue devil, and he spent his early life running from humans trying to murder him because of his demonic visage. His mutant power has nothing to do with his appearance: he is a teleporter, able to transport himself and others without traversing the physical distance to his destination. Nightcrawler wears a red and black leotard with pointed shoulders, a vestige of his days as an acrobat, but neither his physiognomy nor his costume represents his ethos. They are thoroughly uniconic.

Nightcrawler's surface bears an ironic relationship to his personality, methods, and function in the X-alliance. He is among the most gentle of the X-Men, and his first function in the New X-Men is to befriend Wolverine. The Wolverine he befriends bears little resemblance to the film version played by Hugh Jackman. This Wolverine is a recovering psychotic killer, whose memory of his past identity has been removed by the same forces that gave

him his signature adamantium claws. Haunted by his profound capacity for slaughter, Wolverine spends many years as the chief antihero of the X-Men, always on the edge of rebellion, never comfortable with the leadership of Xavier or Scott Summers, suspicious of any club that would have him as a member. Nightcrawler, whose appearance would have signaled "villain" in the Golden Age of American comics, serves as his best friend and father-confessor. One of the overtly religious members of the team, Kurt mentors Logan through coming to terms with his past as super-weapon used by the Canadian government to accomplish the dirtiest work. Though alarmed by his friend's capacity for violence, Nightcrawler employs his own demonization as an argument that no one should be defined by their past or appearance. Metahumanism in the style of Kurt Wagner emphasizes the limitations of reading iconically, as if the costume defines the hero. Going beyond the human is not a matter of superior breeding or political precedence, but a process of undoing the dialectic of self and other, of bridging the distance between the pious demon and his murderous friend. Nightcrawler plays against type as the comic relief of his group of self-serious teammates, modeling himself after Errol Flynn as a Hollywood swashbuckler, and offering himself as Kitty Pryde's "fuzzy-elf" who stands watch over her adolescence like a pet monster. Despite his jocularity, Nightcrawler exemplifies the kind of mutant who needs the refuge of Xavier's School to shield him from human violence. In the comics, Kurt occasionally employs a portable device to make himself appear to be human, but eventually rejects it as too grave a lie about himself. In the second X-Men film, *X2* (2003), Alan Cumming captures Nightcrawler's pain in affirming himself despite the cost of alienation. Brainwashed by the villain, William Stryker, to attempt an assassination of the American president, Nightcrawler takes refuge in the shadows of a cathedral, where Jean Grey and Storm must find him and convince him to join the team. Ororo's relative normality makes her untrustworthy at first, and Kurt struggles to find a place in a mutant group whose members can pass as human. It is only when Stryker turns Professor X into a telepathic weapon against all mutants that the problem of appearance versus essence fails. Stryker hates all mutants, including his own son, emphasizing anti-mutant violence as hatred within a larger family of humanity. Nightcrawler saves mutantkind all over the planet with the team, and its dedication to all mutants is affirmed by the shot of Wolverine carrying

in his arms a young boy with the darting tongue of a lizard. In Nightcrawler's narrative, solidarity trumps appearance, and in this sense it is more nerdy and monstrous than queer.

The metahuman question of identity affirmation meets the eco-cosmopolitan question of how to save a planet in *The Black Vortex* (2015), a crossover event between the X-Men and the Guardians of the Galaxy. Kitty Pryde, who entered Xavier's School at age thirteen, is now a professor at that school engaged in a long-distance relationship with Peter Quill, Star-Lord, the leader of the Guardians of the Galaxy, a team of space pirates. The X-Men and the Guardians have encountered an ancient artifact called the Black Vortex, which reveals one's ultimate self and promises to transform one into it. In terms of nerd tropology, the Vortex is an avatar engine that shows your self after apotheosis, the cosmic being you would be without the limitations of genetics, environment, and mortality. As a magic mirror, the Vortex reflects the glory of your divine self and the costume appropriate to it. One need only gaze into the image and say "I submit to the Black Vortex" and the transformation will occur. Having just witnessed the destruction of Hala, the home planet of the Kree Empire, the X-Men and Guardians are tempted to use the Vortex to acquire enough power to save Spartax, the planet of Peter's father's people, now under attack by the Brood, a parasitic insect race modeled after the Xenomorphs in *Alien*. These creatures are Kitty Pryde's oldest enemies, the reason she hates space. Kitty demurs. Vala, an elder of the universe who is twelve billion years old, warns the group that the Vortex grants power by changing the heart, and the changed heart destroys worlds. She admits that she killed the last of her own people in a battle that began when all of them submitted to the Vortex. This is a test of metahumanism as planetary defense: Is it true that power is the key to saving the world? If one meta-mutates, speeding up evolutionary processes that take billions of years, will worlds survive because of it? Kitty watches her friends choose. Hank McCoy, the Beast, receives total understanding of the physics of the multiverse. Warren Worthington, Angel, submits because he has met his future self, and wishes to change his destiny as a tool of planetary destruction. Peter Quill peers into the Vortex and finds the ultimate emperor, his evil father's wicked son whose obsession with power drives Kitty away. "'Sup, bro?" cosmic Peter asks himself, and Star-Lord winces in disgust. As in the film *Guardians of the Galaxy* (2014), Peter is a hero of renunciation, the

rejection of patriarchal power that is his by right of blood. As the human member of an alliance that includes a cyborg raccoon, a green assassin, an alien mercenary, and an ambulatory tree, Peter rejects his right to become a cosmic predator. Peter's power is to know what kind of power will suffice, but his decision guarantees that Kitty will choose the Vortex, because Spartax is in trouble, and someone must defeat the Brood.

Even for a metamorphic hero, Kitty has been visually unstable to an unusual degree. She "phases" through matter, realigning her body at the quantum level to pass through solid objects and disrupt electrical activity in machines. (She is also a genius, the computer hacker of the team, but not because of a mutation.) Though her power produces dramatic effects—Joss Whedon's run in *Astonishing X-Men* ends when Kitty saves the Earth by phasing a planet-killing bullet through it—it is uninteresting to view, making her look like a ghost. The lackluster aesthetics result in a series of unsatisfying code names—Sprite, Ariel, Shadowcat—and dull costumes. As a result, even though she is a member of the faculty at the time of *The Black Vortex* narrative, she wears the yellow and blue spandex that identifies beginning students who are not allowed to be "X-Men" yet. If Storm represents metamorphosis as a series of impressive costumes, and Nightcrawler marks the resistance to the iconic as a mode for representing ethos, Kitty stands for metahumanism that resists the visual entirely. Her powers do not mount a floor show, a difficult problem in visual media like film and comic books. When she submits to the Vortex, we are not allowed to see the image of her cosmic self. That issue, *Legendary Star-Lord #11*, ends with a splash page in which Kitty's head has turned transparent, and the vastness of space shines through. In the conclusion, *Black Vortex Omega #1*, Kitty's transformation is revealed. She moves beyond a singular cosmic self, merging with all the versions of Kitty Pryde throughout the multiverse. Every Kitty Pryde that ever could have been becomes part of her experience. At this moment of transcendence, she disappears from view, and Vala proclaims that the cosmos has taken her. Peter disagrees, saying that she will return, because she is a paragon among mutants: "She's Kitty Pryde. My dream girl." Peter is right: the cosmic Kitty deliquesces back to Spartax, albeit in a giant, nebulous form. The Vortex has amplified her power to planetary level: she phases Spartax out of the amber prison the Brood made, crushing it and the Brood warriors, leaving them shattered in empty space. She has not

just saved Spartax as a whole; she has saved Ma Savage's orphanage and its orphans, a community funded by Peter's piracy. She loves Ma and the kids: they are the persons (not all of them human) who give "Spartax" meaning to her. This is Kitty's metahumanist triumph: at the moment of maximum reach, when she unites with the multiverse itself, she turns back to the local because she cannot forget her particular loves: friends, teammates, and space pirate. The Black Vortex is unable to corrupt her because she has moved beyond the desire for power to the material entanglements of local lives. She learns that every version of her life—the Kitty of mutant concentration camps and Chicago soda shops—depends on people who could not be left behind. There is no costume to represent this: her cosmic self gives way to the young woman with curly brown hair who can walk on the ground of the planet she saved with the people she loves. Her cosmic power and knowledge have not disappeared, but they do not make a scene. For a moment, Kitty Pryde moved beyond the logic of the comic book itself to a virtue that resists representation. As in Dante's *Paradiso*, high fantasy fails her, and she awakens in a world that can still be saved.

This investigation into the modes of comic metahumanism reveals two strategies for representing planetary defense: the icon of virtue, identified with the Green Lanterns of DC Comics, and the trope of mutation, identified with the X-Men of Marvel Comics. Though these modes are sometimes opposed, I argue that they illuminate one another as aspects of a larger metahumanist practice of planetary defense. In more traditional terms, iconicity and metamorphosis can be understood as part of the ethics of virtue and the ethics of care, which metahumanism unites as part of the crucial task of planetary defense. Though I can only provide a sketch of this union here, what follows is the beginning of an ethical theory of metahumanism as it grows with and from nerd ecology.

Virtue ethics is identified with Aristotelian philosophy, but it remains influential because of Aristotle's influence on medieval Scholasticism and contemporary Neo-Thomism. For Aristotle, the life of human flourishing can be attained by the cultivation of certain strengths of character called virtues, such as justice, temperance, wisdom, and so on. Virtue is an inborn quality of soul, but it can also be strengthened through the formation of habits. Unlike ethical systems that identify an essence that produces an effect—good people

act in ways that are good—virtue ethics holds that good people cultivate habits of doing good that result in the achievement of good in the world. Habits can be formed through the exercise of the will guided by reason, so personal moral excellence can be pursued as a conscious goal. This pursuit then shapes the life of flourishing or not flourishing: the fruits of virtue become visible in the life of the virtuous person as a shape of the spirit made material by action in the world. This is the model of the Lanterns. The task of planetary defense is empowered by the practice of certain virtues—the will to defend; the love of place, persons, and creatures; anger at destruction—that manifest an energy that accomplishes tasks in the world. Certain kinds of light shine from the heart into the world in order to defend it. But we do not always choose the kinds of excellence available to us, through heritage or circumstance. Sometimes we are thrown, as Martin Heidegger would say, into a world where certain kinds of care are demanded of us, even though we did not choose them. The contemporary tangle of biospheric crises of land, sea, and air that gather toward the Sixth Great Extinction, carrying us with them, qualify as this kind of event. Such an ethical environment may best be described by the feminist ethic of care. Joan Tronto identifies four elements of the act of caring: noticing the need to care; assuming responsibility for care; giving care; and receiving care. From these elements arise four aspects of the ethos of care: attentiveness, responsibility, competence, and responsiveness (Tronto 252). The practice of care involves paying attention to others and their needs; deciding to help fulfill those needs; being able to provide good care; and listening to those who receive care in each moment of caring. Applied to Kitty's situation in *The Black Vortex*, these aspects of care correspond to: realizing Spartax was in danger; deciding to save it, even at great personal cost; being able to save it; and responding to those who were saved. As Kitty herself notes, being an X-Man leads to finding a danger to others and taking responsibility for it, the first two aspects of care-giving. As a good teacher and hero, Kitty was already practiced in listening to those under her care. The problem lay in the third aspect, the ability to provide care. Kitty understood that she did not possess sufficient virtue to care for Spartax as she found it. Her team as a whole lacked the collective virtue to do so as well. In this analysis, the Black Vortex represents the process of acquiring necessary virtues to provide the care needed in each situation. This is where virtue ethics and care ethics can inform one another. Care grounds virtue in the needs of the

community. One does not acquire virtue to achieve personal flourishing alone; one acquires it to achieve planetary flourishing. In turn, virtue ethics tells us how to gain the powers needed to provide the care. After the Vortex, Kitty returns to Spartax because power is not an end in itself, but a means toward the preservation of the planet in danger. She is not corrupted by the Vortex because she combined virtue ethics and the ethics of care. So, metahumanism as a practice of planetary defense must cultivate the virtues represented as icons and the capacity to gain these virtues represented as metamorphosis. The practice of moving beyond humanity into a realm of new powers cannot be merely a compensation for the wounds of childhood, a revenge of the nerds in the key of Aristotle. It cannot even be nerdism, understood as an artful practice of nerding-out for its own sake. Metahumanism must be directed toward the common good of planetary defense in an age of environmental catastrophe. The light of the Lanterns must enter history and change accordingly. Only then will our favorite stories function as they should. The example of Kitty Pryde leads to a modest proposal for a metahumanist practice of planetary defense based on unpopular culture.

Conclusion

Mutatis Mutandis: A Manifesto
for Metahumans

In their graphic novel *Promethea*, Alan Moore and J. H. Williams tell the story of Sophie Bangs, a college student researching a comic book character named "Promethea." As she learns more and writes with abandon, Sophie finds that she has *become* Promethea, the eternal embodiment of Story, who is also a little girl from Alexandria who fled from a Christian mob on its way to murder the philosopher Hypatia. Promethea is the history of the Promethea character, the community composed of all the artists who have ever been Promethea. Sophie embarks on a career as a superhero in New York, which includes numerous adventures involving villains, demons, corrupt politicians, unreliable sidekicks, and the Kabbalistic Tree of Life. While communing with the God(dess)head, Sophie discovers that she will become the Promethea of the Apocalypse, and swears to prevent the destruction of the world by never becoming Promethea again. In Book V, the end of the story, Sophie is cornered by government agents who force her to become Promethea in self-defense. In this form she does, indeed, bring on the end of the world, but with a clever twist: it is a eucatastrophe. New York, and then the entire planet, is overcome by a vision of the eternal moment of synchrony, when all the characters and plots of the cosmos coexist, and the illusion of separate, small, meaningless lives disappears. The esoteric ground of meaning becomes exoteric and available to all. The world as we know it ends, to be replaced by another world, that is, the same world perceived as cosmopolis, in which all persons and creatures—whales, Tyrannosaurs, stars—are citizens of the Tree of Life. Though this is a comic, not a tragic apocalypse, there is still violence: some people were more ready than others to accept this vision, better able to cope with the altered consciousness it produced (Garrard 85–107). The underprepared go crazy, the somewhat-prepared adapt, and the fully prepared still wonder at

the new world where everyone is their own superhero. Williams represents this as the transformation of Gothic New Yorkers into cosmopolitans clothed in beautiful costumes supersaturated with color, a kind of *Yellow Submarine* city that everyone can see, a place that reveals everyone's secret skin. The world is saved, and the world is a comic book, an album cover, an esoteric treatise on the power of culture to avert catastrophe.

In many ways, *Promethea* constitutes exemplary metahumanist art. It employs an illegitimate medium to tell a story of apparently ordinary people moving beyond their limitations to save the world. It affirms cosmopolis as a multinational, multispecies polity. It represents the formation of local communities as refuge and refugia. It deconstructs the opposition between Earth and the Immateria (Moore's term for the realm of ideas); it narrates a counter-apocalypse by affirming the value of Secondary Worlds of art; it takes seriously the existence of corrupt institutions, and our complicity in their destruction of the world. It understands the discourse of superheroism as an enchanted instrument of self-transformation for meeting the perils of modernity with hope and resilience. If you do not go crazy first, you find your very own secret skin. So far, so good?

Though Moore affirms a comic apocalypse, not a campaign of redemptive violence, the revelation of Promethea still occurs through the effort of a small group of artists mediating the metahuman realm to mortals. Read with a hermeneutic of trust, one might understand this as the classic nerd trope of alliance, the hope that a group of dedicated friends can avert the Big Bad. Read with a hermeneutic of suspicion, however, one might understand this trope as a reversion to vanguardism, the notion that a small group of revolutionaries must lead the masses to enlightenment by force. The unwilling and the mad are collateral damage. The problem of compensatory elitism pervades many of the artifacts of nerd culture this book has examined. It manifests as the utopianism of the Federation in *Star Trek*; the conservatism of the Council of Zion in the *Matrix*; the militarism of District 13 in *The Hunger Games*; the discourse of hidden royalty in *The Lord of the Rings*; the supercilious manner of the Watchers' Council in *Buffy*; the arrogance of the Guardians of the Universe in *Green Lantern: Blackest Night*; and the charisma of Magneto in the *X-Men* films. These serve as warnings that nerds must not "get high on their own supply," as Biggie Smalls would say. They must guard against the

reversal of eugenics into narratives of revenge and supersession, the illusion that marginalization is, in itself, enlightenment. This glitch becomes more than an internal matter of concern now that nerd culture is moving into the mainstream, its signal boosted by the powers of global capitalism spreading nerd tropes into popular culture.

Buffy explores the tragic results of nerd complicity in the structures of marginalization in "Out of Mind, Out of Sight." This episode examines the life of Marcie Ross, a classmate of the Scoobies who has gained the power of physical invisibility because of her extreme social invisibility. Xander and Willow have trouble remembering her; Marcie seems to be disappearing altogether from the social fabric of Sunnydale High. Through this discovery, the Scoobies realize that there are students far lower than they are in the social hierarchy, the ignored of the ignored. Their epiphany comes too late, and the episode ends in a class called "Infiltration and Assassination," taught by the FBI to Marcie and students like her. There is a lesson for aspiring metahumans here: leave no people, no species, no world behind. Villainy is the unfinished business of heroism. Whatever *meta-* means, it must not mean that some people are disposable, that sacrifice zones just happen, and that Earth gets left behind in one's plans for immortality.

If we are to inhabit our favorite stories in order to defend the world, it might be helpful to make a list of first principles, an enchiridion for enchanters, a Mystery Machine to get the Scooby Gang to the scene of the crime. With irony, in order to remember our own capacity for villainy, let us call our list:

A Prolegomenon to an Evil Plan for Doing Good

1. Metahumanism arises at the intersection of nerd culture and environmental culture in order to defend the world from the powers of destruction.
2. As an avatar of nerd culture, metahumanism embraces the Matter of Nerdland, the unpopular materials loved by generations of fans despite derision from the arbiters of culture. It asks who and what are being excluded, since when, and for what reason.
3. Metahumanism affirms the Matter of Nerdland as the ground of an ethos of planetary defense, worthy of interpretation, commentary, and transmission into the future.

4. Metahumanists read nerd culture like a Thermian, moving beyond the literal meaning of the text to moral, allegorical, and anagogical meanings.

5. Metahumanists resist the forces that created the nerd: eugenics, the anticulture of waste, and the fear of the machine. They know that the disconsolate white boy is not the center of history, even if representations of the "nerd" take this for granted. They remember that the history of the nerd has yet to be written. They ally with the degenerate, the swarm, and the cyborg. They embrace the aesthetics of the queer, the monstrous, and the uncanny as harbingers of a sensorium beyond the normal.

6. Metahumanism constructs utopias out of styrofoam. In space. It approaches eco-cosmopolitanism nerdily, wary of world-cities that exclude the country, the suburbs, and the ghettos of the poor as unworthy or uncool. Metahumans search for the right ship to go where no one has gone before. Metahumans strive for a multispecies polity in dialogue with alliances made before and outside their own. They favor telepathic diplomacy. They defy tyrants. They make contact with rocks and their children. They listen for whalesong. When tempted to the life of disembodied intelligence, they watch the Historical Documents again.

7. Metahumanism rejects metaphysical dualisms that oppose a perfect, immaterial world to a corrupt, material world in order to escape the latter through the former. It understands virtual worlds as aspects of an augmented "Real Life (RL)." It rejects the destruction of the sky as a means of denying refuge to aspiring citizens, be they coders, robots, or coal miners. It affirms the creation of refuge for such persons and refugia for endangered species. Paradoxically—given the love of Secondary Worlds— it accepts the truth of climate activism, that "There Is No Planet B."

8. Metahumanism embraces the trope of the world-as-art insofar as it affirms creation as good and beautiful. It understands Secondary Worlds as critical spaces of refuge for the healing of a broken reality (cf. Jane McGonigal). It resists totalizing narratives of historical decline by looking for eucatastrophes and enacting them whenever possible. It constructs counter-apocalyptic narratives of ecological restoration. It does not surrender to Sauron.

9. Metahumanists slay the powers of undeath. They recognize Slayage-in-community as the care and feeding of Scooby Gangs, which unite against the Big Bads of corrupt social institutions. They look for the next apocalypse, do the research, and "save the world a lot." They cultivate the combo-Buffyism of individual gifts. They share power through insurgent institutions that resist hell-on-earth. They remember that there is always a "last surprise," a hidden sororal history that judges the Shadow Men. They close hellmouths by giving them the axe.

10. Metahumanists admit that humanity must get over itself in order to defend the planet. They read superhero comics as a nerdonomicon for saving the world. They recognize that some heroes are chosen for iconic virtues, while others are born with the powers of change, but all must develop the habits of planetary defense. Powers must be employed in an ethos of care: "With great power comes great responsibility"—the Spider-Man Principle. Metahumanists look for the light of queer lanterns. They wonder when Professor X will invite them to school. If they see an evil bro in the Black Vortex, they renounce him. No matter how cosmic they become, they return to their friends. They promise to guard the galaxy.

Shiny? I'll take questions now.

Q. *Isn't metahumanism a comic-book version of Nietzsche's Übermensch?*

A. No. The vocabulary of metahumanism bears some resemblance to Nietzcshe's philosophy, but that is because nerd culture has struggled to overcome the Nazi appropriation of the superman since Superman. Nietzsche believed that the will to power was the central motivation of all living things, and that "higher men" would manifest this will in acts of self-overcoming, developing their particular virtues. For instance, Beethoven worked to overcome himself with every new symphony, and Nietzsche worked to do so with every new book. Though this scheme bears a resemblance to metahumanism, there are crucial differences. First, Nietzsche's ethos is individualistic, whereas the works in this book are communitarian. The Slayer gives way to the Slayers, Frodo to the Fellowship, the Green Lantern to the Green Lantern Corps or the Justice League. Though "will" and "power" are important concepts where superheroes are concerned, they are put in the service of a greater good, which Nietzsche would see as slave

morality. The self-overcoming of the higher men concerns *men* in an exclusive way that neither River Tam nor Gracie the Humpback whale would approve, not to speak of Ororo Munroe or G. Willow Wilson. Finally, metahumanism has an end, planetary defense, while Nietzschean self-cultivation centers on the higher man. Superman was crafted by Jewish artists during World War II to repudiate the Nazi appropriation of the Übermensch. Nerds are the untermenschen in the Nazi scheme. Nerd ecology, therefore, cannot involve a blood-and-soil ideology or an attempt to found a fascist state.

Q. *What about the "humanism" in metahumanism? Is this supposed to be a movement beyond the humanities?*

A. Ecocriticism has recently incorporated the "turn to the posthuman" that has occupied literary and cultural theory in the last decade. In this turn, humanism is commonly understood as Enlightenment humanism, focusing on the autonomous, bourgeois subject as the agent of world history. (Nietzsche rebelled against this very concept.) So, when Bruno Latour claims that "we have never been modern" and Donna Haraway writes a manifesto for cyborgs, they are trying to overcome this atomized individual bent on the mastery of nature. These are worthy goals. The category of the posthuman is meant to further them, but as N. Katherine Hayles points out, "Although in many ways the posthuman deconstructs the liberal humanist subject, it thus shares with its predecessor an emphasis on cognition rather than embodiment" (Hayles 5). In nerd-ecological terms, posthumanist discourses of cybernetics, virtual bodies, and information flow tend to have a Matrix problem. Transhumanism, as a movement that advocates the preservation of human minds in immortal robot bodies, exemplifies the dualism explored in Chapter 3. Metahumans do not revert to antihumanism in their search for a multispecies cosmopolis. With Cary Wolfe, I affirm that any posthumanism must confront the way we *think* human-animal-machine being in a biotechnosphere (Wolfe xvi). In this sense, metahumanism participates in the formation of a matrix of disciplines, "the environmental humanities," that seek to reassemble academic knowledge across traditional boundaries of sciences and the humanities.

Metahumanism recovers the cosmic dimension of Renaissance humanism apparent in Pico della Mirandola's "Oration on the Dignity of Man." For Pico, the dignity of man [*sic*] rests on our capacity to change at will, to self-fashion,

in a manner he contrasted with the beasts and the angels. The metahumanism discourse of mutation descends from the *Oration*, but it turns the medieval scala naturae into a web. (Perhaps the web of Spider-Man.) In doing so, we initiate a trophic cascade, where the reintroduction of cosmos limits the *meta-*, the beyond, to a material network of "vibrant matter," to use Jane Bennett's term. The capacity of humans to change culturally inheres in a larger matrix that shares those capacities. The vector of the aesthetic reappears, the question of beauty and ugliness in the metahuman way of life. Here, the disciplines considered the "humanities," including literature, music, history, religious studies, and philosophy, may play a distinct role. In the work of building cosmopolis through ecological restoration and planetary defense, how are aesthetics and ethics related? Is a cosmopolis that is beautiful to humans also good for other species? When do the ugly and the good go together? What role does beauty or eloquence play in persuading others to engage in planetary defense? These are metahumanist questions that must involve the humanities.

Q. *That's nice. Can you give a concrete example of the way students can engage these questions?*

A. Yes. In 2013, I participated in a professional mentoring group at the Juilliard School in New York. The group was convened to assist four undergraduates in their long-term project of creating a "superhero opera" that could serve as an arts outreach program for school children. The project would be called "Operation Superpower" (http://www.operationsuperpower.com). The core group included Armand Ranjbaran, the composer; Peter Dugan, the collaborative pianist; and Tobias Greenhalgh and John Brancy, baritones. The mentoring group consisted of performance faculty, entrepreneurs, and arts administrators, who had experience in creating productions from the ground up. I provided a grounding in comics history and the rhetoric of the superhero. Though the plan for the opera and the outreach program evolved in discussion, the students made it clear that they understood "superhero" in the iconic terms of the DC tradition discussed in Chapter 6. They believed that each hero represented a particular kind of excellence that could be communicated to the audience in performance. They critiqued the metamorphic tradition of Marvel Comics as too somber and lacking in a hopeful metanarrative of political progress. (Mutants: always feared and hated by a world they have

sworn to protect.) The decision to work with the iconic tradition led to certain ends: the plot would emphasize origin myths; the costumes would feature bright, primary colors; the music would draw from the tradition of Romantic quest narratives and science fiction soundtracks; and the story would end with the formation of an alliance. The structure of the opera informed the strategy of the outreach program, designed as an event that could be held in a school auditorium and in local opera houses with children's programs. The conceit of the outreach considered the development of gifts as "superpowers." Each performer would tell the story of his artistic gifts, the obstacles that had to be overcome to develop them, and the practice necessary to cultivate them. Audience members would be invited to share their superpowers—artistic, athletic, academic, and so on—and their plans to develop them. By connecting origin stories to a sharing of virtue in the context of community, Operation Superpower is able to cultivate a sense that everyone has a gift to share that will make the world better. The manifestation of virtue in live performance adds a dynamic of embodiment unavailable through films or comic books. By showcasing the gifts of young, world-class musicians, Operation Superpower helps students to imagine themselves into their heroic future, represented by performers only a few steps ahead of them in the drama of cultivation. The ethos of sharing gifts in community service extends beyond the performance space into cosmopolis. Related work includes sustainable food production and climate activism. The metaphor of superheroic power as artistic virtue sponsors the first move into metahumanist pedagogy and practice.

Q. *Sounds like the next generation of popular culture to me. What are the implications of metahumanism for the culture industry?*

A. Metahumanism would encourage creators of literary, cinematic, video, graphic, and musical arts to engage questions of planetary defense and the creation of environmental cultures. We see this already in the profusion of climate fiction or "cli-fi" narratives in literary genres such as science fiction (Paolo Bacigalupi's *The Wind up Girl*), Hollywood blockbusters (*Interstellar*), and independent features (*Snowpiercer*, first a graphic novel and then a film). Activist theater has entered the fray, including Karen Malpede's *Extreme Whether*, Steven Cosson and Michael Friedman's *The Great Immensity*, and Bruno Latour's *Gaia Global Circus*. These incunabula of metahumanist art

raise important questions about the function of popular, high, and avant-garde culture in advancing metahumanism. Must citizens be addressed in cultural registers and genres typical of their class? What effects are produced by art that puts audiences in the traditional role of reader and spectator? What happens when kinesthetic participation is added, as in the case of video games? For instance, in 2006, Clover Studio developed a game called *Ōkami*. Players engage in environmental remediation in the person of a white wolf, the avatar of the Japanese sun goddess Amaterasu. Drawing on folktales that tell of Amaterasu saving the people from darkness, the game pits players against a dragon of pollution who cannot be defeated by violent means. Players operate a digital sumi-e brush to redraw the world, represented in the classical style of Japanese scroll-work. Using the brush, one revives a cherry tree that remediates its environment after the dragon pollutes it. Does this kind of play create a different sense of environmental agency relative to spectatorship and reading? What might be the relationship between the digital-aesthetic activism of *Ōkami* and activism in RL? Metahumanist scholarship should address such questions, beginning with the scholarship on fan communities pioneered by Henry Jenkins. Jenkins's notion of the "prosumer," the fan as consumer and producer, whose participation influences the culture industries, is especially relevant.

Q. *Great, but what about nerd culture itself?*

A. The project of metahumanism inspires a critique of nerd culture, especially the story that "nerds have won" popular culture, now saturated with nerd tropes. Metahumanists should question what it means for nerds to "win" when eugenic racism still terrorizes children in school and adults on the streets. If nerds are the product of biopolitical ideologies, is it possible to contest social-Darwinian competition, the practices of conspicuous consumption, and the demonization of intelligent machines as threats to the planet? Nerd culture must also go meta-. As Megan Condis points out in her critique of the "fake geek girl" meme, "I understand the instinct to protect our space; I get the fear that, as geekdom changes and expands, it might not protect us in quite the same way. But the solution is not to push people away and turn into the same kind of exclusive, snobby, cruel kids' club that we fled into fandom to escape in the first place" (Condis 15). Nerdist, heal thyself. How can we resist eugenics but treasure compensatory narratives of our own superiority? How

can the racism and misogyny of Gamergate and the trolling of Ellen Pao be addressed honestly? Can we love alliance but remain suspicious of institutions larger than our friendship groups? The powerful streak of Libertarianism in nerd culture must address the question of counter-institutions constructed with nerd knowledge. We know from the San Diego Comic-Con International that we are capable of building large-scale events that suit our habits of consumption. Can the Con, and the hundreds of events like it, become centers of metahumanist activity? What would it mean for traditional practices of cosplay (costume play), pageants, and gaming to link nerd creativity with metahumanist activism? What if we all appeared in public in our secret skin?

Q. *That's a lot of think about. Are we done?*

A. We are not done. This book has barely scratched the surface of nerd ecology. The elements chosen as subjects of each chapter can be understood differently, connected in other ways to each other, and replaced by elements of nerd culture of similar importance. A metahumanist treatment of *Star Wars* instead of *Star Trek*, Ursula Le Guin rather than Tolkien, the fantastic beasts of *Harry Potter*, Frank Herbert's *Dune*, Larissa Lai's *Salt Fish Girl*, the vitalism of Jes Grew in Ishmael Reed's *Mumbo Jumbo*, the cosmic satire of the Church of the Subgenius, the ecology of *Dungeons & Dragons*, Afrofuturism, the ecosexuality of vampires and werewolves, the films of Sing-Chi Stephen Chow (*Kung Fu Hustle*, *Shaolin Soccer*), the anime of Studio Ghibli, the virtual animals of *Pokemon* … the list of nerd artifacts is endless. Add to these the cultures of the Japanese *otaku* and the English boffin, the prehistory of the egghead, the deep origins of the nerd in the Industrial Revolution, the question of Second World nerds during the Cold War, and a vast space opens, vaster than Middle-earth, better hidden than Miranda.

Can the powers of unpopular cultures across the globe be harnessed to defend the world? Let's find out.

You can't stop the signal.

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