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Refuse Ecologies:
Indigenous Posthumanism in Polluted Futures

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

English

by

Stina Evans Attebery

September 2020

Dissertation Committee:

Dr. Sherryl Vint, Chairperson

Dr. Mark Minch-de Leon

Dr. Dana Simmons

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The Dissertation of Stina Evans Attebery is approved:

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ABSTRACT OF THE DISSERTATION

Refuse Ecologies:
Indigenous Posthumanism in Polluted Futures

by

Stina Evans Attebery

Doctor of Philosophy, Graduate Program in English
University of California, Riverside, September 2020
Dr. Sherryl Vint, Chairperson

In an era increasingly defined by apocalyptic climate change and extinction, critical theories often situate politics in strange forms of more-than-human kinship. In this dissertation I explore the ways human lives are entangled with the nonhuman matter of technologies and technological waste in addition to the animal and plant beings endangered by these conditions of environmental precarity. Post-apocalyptic Indigenous futurisms depicts dangerously toxic technological kin created from the refuse of capitalism and colonialism but enlivened through their relationship to Indigenous ontologies which find kinship in a nonhuman world. Indigenous futurisms craft ecologies that incorporate these toxic materials not just as kin but as a form of posthuman kinship. These figures are posthuman not because they are positioned beyond or after the human, but because they are as entangled with capitalism, climate chaos, and colonial science as they are with Indigenous ontologies of nonhuman life. This reorients a set of conversations about technological futurity towards land, sovereignty, and settler colonialism.

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Introduction:

Posthuman Kin

We call here for those studying and storying the Anthropocene to tend to the ruptures and cleavages between land and flesh, story and law, human and more-than-human. Rather than positioning the salvation of Man—the liberation of humanity from the horrors of the Anthropocene—in the technics and technologies of the noösphere, we call here for attending once again to relations, to kin, to life, longing, and care.

-Zoe Todd and Heather Davis, “On the Importance of a Date, or Decolonizing the Anthropocene,” 775

Staying with the trouble requires making oddkin; that is, we require each other in unexpected collaborations and combinations, in hot compost piles.

-Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, 4

In an era increasingly defined by apocalyptic climate change and extinction, critical theories often situate politics in strange forms of more-than-human kinship, from Donna Haraway’s provocation to “make oddkin” in “hot compost piles” to Zoe Todd (Métis) and Heather Davis’ call to decolonize the Anthropocene by tending to our nonhuman relations on this damaged planet. I would like to propose one such kin: the plastiglomerate. Discovered and named by Patricia L. Corcoran, Charles J. Moore, and Kelly Jazvac along the Kamilo Beach in Hawaii, plastiglomerates are comprised of sand, shells, basalt, wood, coral, and other formerly alive and never alive matter bound together by melted and hardened plastic (Corcoran et al. 4). It is sometimes possible to pick out individual bottle caps, plastic fibers, and other pieces of debris poking out of these rocks, and sometimes the plastic of the plastiglomerate is only visible as brightly colored swirls of blue, green, or yellow in the rock. They can be strangely beautiful objects, even as they portend an increasingly toxic ecosystem.

Plastiglomerates defy easy categorization. They are naturally forming and human made, technological as well as geological objects. Corcoran, Moore, and Jazvac refer to plastiglomerates as “an anthropogenic marker horizon in the future rock record,” a way of framing these living and nonliving assemblages through their relationship to a troubled future (4). This language of speculative futurity is picked up in popular science publications on the plastiglomerate, where they are referred to as “Future Fossils” (Nuwer) or as a variety of “Techno-Fossil” (Stone). Unlike the microscopic fragments of “plastic confetti” waste found in our oceans, plastiglomerates are dense objects that threaten to become part of the fossil record. Describing plastiglomerates as futuristic fossils frames them as simultaneously living and dead matter, part of the segmented, sedimentary layers of geological time. They exist as both a remnant of a dead technology and a sign of technology’s enduring material presence, promising a dangerous and unpredictable afterlife for plastics. They may last long after human life, bearing traces of our petrochemical waste into an uncertain posthuman ecology. As a plastic “fossil,” plastiglomerates span three distinct temporalities—the future of their uncertain fossil record, their present material existence as trash along the Kamilo Beach, and their past as the living matter that formed the wood, shells, and petrochemical origins of the plastic itself. Claiming plastiglomerates as kin acknowledges the uncomfortable connections between futurity and waste at stake in these collaborations with the nonhuman world.

In claiming the plastiglomerate as kin, I am interested in the ways human lives are entangled with the nonhuman matter of technologies and technological waste in addition to the animal and plant beings endangered by these conditions of environmental

precarity. Plastiglomerates are geological objects, but the concerns they raise over climate destruction, technological waste, and nonhuman kinship reflect the complex ways these concerns are taken up in science fiction literature and art, particularly within Indigenous futurisms. As peoples too often preemptively declared “extinct” or absent from the future, Indigenous writers, artists, and scientific thinkers have a vested interest in rejecting simple divisions between life and death, or animate and inanimate beings, instead crafting entangled ecologies that promise alternatives to bleak ecological futures. These Indigenous ontologies recognize nonhuman forces and objects as beings. Grounding speculative futures in Indigenous ontologies therefore challenges the classification of futuristic waste objects like the plastiglomerate as a fossilized remnant of human technocultures, rejecting the deathly preservation of the fossil in favor of finding new forms of futurity based in the more-than-human kinship of these entangled technological ecologies.¹

In post-apocalyptic Indigenous futurisms, the plastiglomerate finds itself among other dangerously toxic technological kin: bioengineered experiments, broken machines, electric trees, landfill tricksters, unruly chemical agents, gas-masked warriors. These figures operate at an odd boundary point—they are beings created from the refuse of capitalism and colonialism, but enlivened through their relationship to Indigenous ontologies which find kinship in a nonhuman world. My provocation in this project is that Indigenous futurisms craft ecologies that incorporate these toxic materials not just as

¹ Indigenous peoples have often similarly been wrongly represented as living fossils from a pre-colonial time, rather than peoples with dynamic living cultures, so an Indigenous perspective on an object like the plastiglomerate is particularly apt.

kin but as a form of *posthuman* kinship. These figures are posthuman not because they are positioned beyond or after the human, but because they are as entangled with capitalism, climate chaos, and colonial science as they are with Indigenous ontologies of nonhuman life. Although I have hesitations about using the term “posthuman” in an Indigenous context, at present I find it the best term available for the perverse technological beings I find populating Indigenous futurist texts. The benefit of drawing on Indigenous theory and Indigenous art to rethink the posthuman is that it reorients a set of conversations about technological futurity towards land, sovereignty, and settler colonialism. After all, the plastiglomerates scattered across Hawaiian beaches are as much objects of settler colonial pollution as they are “techno-fossils.” Not all strands of posthumanism can be productively brought in dialogue with Indigenous ontologies of the nonhuman, but bringing these fields together opens up a set of questions which I find necessary and useful for living in ecologies made of refuse.

Indigenous Ontologies and Critical Posthumanism

What does it mean to theorize the posthumanism of a figure like the plastiglomerate at this moment in time, especially in relation to Indigenous futurisms? Posthuman theory follows a number of distinct critical trajectories, many of which have too often failed to consider the ways Blackness, Indigeneity, and colonialism historically structure the human as a category of being. Biopolitics, digital humanities, science and technology studies, speculative realism, object oriented ontology, affect theory, animal studies, cyborg feminisms, new materialisms, and other schools of thought prominent in late 20th

and early 21st century theory move away from human subjects in order to explore human interconnections with nonhuman systems and subjects. As the interdisciplinary framework of this project has shifted over the last few years of writing, I have found myself in conversation with many of these fields. This project was initially, after all, an attempt to think through the proliferation of digital lifeforms during the 6th Great Extinction, and many strands of my argument here are still informed by that early work with animal studies and digital humanities.

Not all of the critical perspectives I've listed here embrace "the posthuman" as a term. Even some of the thinkers responsible for developing and popularizing the term, like Donna Haraway, have moved away from posthumanism in recent years.² This turn away from the terminology—but not necessarily the methodologies—of the posthuman has resulted in the proliferation of new terms and concepts across all of these fields. There are now multiple posthumanisms, alongside nonhumans, inhumans, infrahumans, and other figures. At this point, posthuman theory has several distinct definitions and critical trajectories. As Sherryl Vint points out, "this refusal to acknowledge 'the posthuman' as a universal is important too: if so much of what is wrong with 'the human'

² As Haraway explains in a 2006 interview in *Theory, Culture and Society*: "I've stopped using it. I did use it for a while, including in the 'Manifesto.' I think it's a bit impossible not to use it sometimes, but I'm trying not to use it. Kate Hayles writes this smart, wonderful book *How We Became Posthuman*. She locates herself in that book at the right interface – the place where people meet IT apparatuses, where worlds get reconstructed as information. I am in strong alliance with her insistence in that book, namely getting at the materialities of information. Not letting anyone think for a minute that this is immateriality rather than getting at its specific materialities. That I'm with, that sense of 'how we became posthumanist.' Still, human/posthuman is much too easily appropriated by the blissed-out, 'Let's all be posthumanists and find our next teleological evolutionary stage in some kind of transhumanist technoenhancement.' Posthumanism is too easily appropriated to those kinds of projects for my taste. Lots of people doing posthumanist thinking, though, don't do it that way. The reason I go to companion species is to get away from posthumanism. Companion species is my effort to be in alliance and in tension with posthumanist projects because I think species is in question." (140)

lies in its claims to represent all while ignoring so much, it is fitting that approaches to posthumanism are multiple, even at times contradictory: what is required is a conversation, not a fixed concept” (Vint 2). However, it is difficult to hold these conversations without shared terminology. Despite shared interests in humanity, technology, animality, and other-than-human life across many of these fields, the rejection of a term like “posthumanism” means that many of these strands of critical thought are not in dialogue with each other. I am more interested in grappling with the problems and the affordances of posthumanism as a framework for bringing these disparate strands of theory together than continuing to vacillate between terms which I feel communicate the same ideas. This is partly a strategic move. Indigenous science and technology are often at the margins of work on STS, digital humanities, and others of these critical conversations, when I feel they should be central to all of them. Using the phrase “Indigenous posthumanisms” in this project is a way to interpellate a specific audience. I want scholars of the posthuman to engage with this work, because I think the forms of posthumanism created at this meeting point between colonial governmentality and Indigenous ontologies have value for a number of different critical conversations.

I want to align the work of critical posthumanisms with Indigenous political sovereignty, considering how the Indigenous posthuman as a figure could redirect these conversations towards the groundedness of technologies and waste. In doing so, I am extending Audra Simpson’s (Mohawk) work on “ethnographic refusal” into Indigenous futurisms’ trashed apocalypses. Simpson explains that refusal is an important methodology, which “comes with the requirement of having one’s *political* sovereignty

acknowledged and upheld, and raises question of legitimacy for those who are usually in the position of recognizing: What is their authority to do so? Where does it come from? Who are they to do so?” (11). While Simpson is writing about the politics of recognition and reconciliation under settler colonialism, I am playing with the wording of refuse as the act of refusing and refuse as a term for detritus, junk, or trash. As is appropriate for a concept rethinking waste, my thoughts at this point are messy. Ecological refusal is a term with relevance for post-apocalyptic Indigenous futurisms, but it also has relevance beyond Indigenous texts. World science fiction increasingly imagines futures in spaces which are trashed and toxic. Speculative texts like the Ethiopian film *Crumbs* (2015) or Chen Quifan’s novel *The Waste Tide* (2013) suggest to me that refuse ecologies are an integral part of both Indigenous and postcolonial speculative fictions. The work that I sketch out here, then, is really the beginnings of a wider-ranging project on the doubling of refuse and refusal across multiple matrixes of colonial power.

These, then, are the two related concepts I delve into in this project: refuse ecologies and Indigenous posthumanism. To understand how I’m developing both terms, I first need to address how Indigenous ontologies approach the nonhuman or the inhuman. Indigenous theory, art, and activism create different models for inhuman identity grounded in Indigenous ontologies of kinship, sovereignty, storytelling, and spirit. Posthuman theory would greatly benefit from Indigenous methodologies and ontologies around other-than-human forms of being. I use the term ontology cautiously here, aware of Zoe Todd’s critique that too often within science studies work “‘ontology’ is just another word for colonialism.”

As she points out:

When anthropologists and other assembled social scientists sashay in and start cherry-picking parts of Indigenous thought that appeal to them without engaging directly in (or unambiguously acknowledging) the political situation, agency and relationality of both Indigenous people and scholars, we immediately become complicit in colonial violence. When we cite European thinkers who discuss the ‘more-than-human’ but do not discuss their Indigenous contemporaries who are writing on the exact same topics, we perpetuate the white supremacy of the academy. (Todd, “An Indigenous Feminist’s Take on the Ontological Turn”).

Even citational nods to Indigenous thinkers can risk replicating this colonial violence, if the political concerns over sovereignty which inform Indigenous theory are absent from an ontological project.

Indigenous ontologies are embodied and storied. In “Ontologies of Indigeneity: The Politics of Embodying a Concept,” Kwakwaka’wakw scholar Sarah Hunt notes that “ontology is, ironically, not a word that comes to mind when I think of Indigenous ontologies. What comes to mind, instead, are stories” (27). For Hunt, knowledge is “relational, alive, emergent” (31), so an Indigenous ontology cannot be adequately contained within a western epistemological framework, and it can’t simply be adopted as another form of “otherness” within critical theory without addressing the ongoing violence of settler colonialism on these dynamic living communities. Indigenous ontologies are especially important for storying science. As Gregory Cajete (Tewa) defines it:

Native science is a metaphor for a wide range of tribal processes of perceiving, thinking, acting, and ‘coming to know’ that have evolved through human experience with the natural world. Native science is born of a lived and storied participation with the natural landscape... To understand the foundations of Native science one must become open to the roles of sensation, perception, imagination, emotion, symbols, and spirit as well as that of concept, logic, and rational empiricism (2).

Sciences and storytelling are in need of these types of syncretic, embodied ontologies.

This kind of scientific storytelling is a key characteristic of Indigenous futurisms. Colonial ideologies have informed certain traditions within science fiction visions of the future.³ However, understanding colonialism as a precursor to the development of the genre does not mean that writers of color cannot redeploy these tropes in more ambivalent or oppositional ways that resist the colonial project.⁴ In fact it is precisely the centrality of colonialism to the genre which makes it fertile ground for reimagining race and colonialism. Indigenous futurisms are one of a number of global science fictions by writers of color which create non-Western scientific futures and interrogate the structuring role Western science and technology have played in colonialism, capitalism, and climate collapse. Grace Dillon (Anishinaabe/Métis) coined the term in her anthology

³ As John Rieder argues in *Colonialism and the Emergence of Science Fiction*, science fiction emerged out of the colonial ideologies central to early adventure fiction. These can take the form of lost race or lost world stories, Darwin-inspired stories of species and racial difference, or satirical reversal stories of alien colonization. These tropes are deployed over and over again in science fiction, from the early 19th century examples Rider analyzes up to the present day, and can still be leveraged towards white supremacist politics. As David Higgins points out, science fiction's reversal of colonized and colonizer results in a genre which too often "portrays privileged subjects as colonized subalterns" such that "white figures usurp the positions of colored bodies within oppressive regimes of colonial control" (52). Science fiction can be a productive vehicle for stories of decolonization in uncertain environmental futures, but there is nothing authentically or necessarily decolonial about the genre.

⁴ The genre of Afrofuturisms has a long history in science fiction creative and critical works, from the writing of Samuel R. Delany and Octavia Butler to the speculative media of Sun Ra, Janelle Monae, and others. Although the term "Afrofuturisms" can be controversial, since it was coined by a white scholar, Mark Dery, in his 1994 interview with Delany, Greg Tate, and Tricia Rose, it has largely been embraced as a term bringing together works by African diasporic authors reimagining colonial pasts and technological futures. Key to Afrofuturisms is an emphasis on African scientific and spiritual practices as future-oriented. Afrofuturisms promises worlds beyond present traumas and inequalities. There are similar strategies for cultural renewal and understanding the alienness of cultural contact taken up by the related categories of Chicanafuturisms, Asian futurisms, and other genres that took inspiration from Afrofuturisms's growing prominence within science fiction.

Walking the Clouds, categorizing Indigenous futurisms through five overlapping categories: “Native Slipstream; Contact; Indigenous Scientific Literacies and Environmental Sustainability; Native Apocalypse, Revolutions, and Futuristic Reconstructions of Sovereignties; and *Biskaabiiyang*, ‘Returning to Ourselves’” (3). These categories invite challenging new relationships between temporality, apocalypse, futurity, and land. The “Native Apocalypse” is important for my reading of Indigenous posthumanisms and refuse ecologies in this project. In Indigenous futurisms, apocalypse is connected with what Anishinaabe scholar Lawrence Gross calls “post-apocalyptic stress syndrome,” and the task many of these stories take on is to interrogate “the ruptures, the scars, and the trauma in its effort ultimately to provide healing and a return to *bimaadiziwin* (the state of balance)” (9). Healing and *bimaadiziwin* are closely associated with “survivance,” the term Anishinaabe writer and scholar Gerald Vizenor coined for the “active repudiation of dominance, tragedy [...] and victimry” in the face of settler colonialism (*Fugitive Poses* 15). Dillon’s discussion of *bimaadiziwin* requires an engagement with sovereignty based in environmental futures, as the process of decolonization, which Dillon associates with *biskaabiiyang*, an Anishinaabemowin term for “returning to ourselves” (10), is grounded in upholding and disseminating indigenous ecological knowledges to combat the losses in biodiversity and cultural knowledges.

Biskaabiiyang does not indicate a return to a pre-contact past untouched by colonial violence. Dillon suggests that because Indigenous languages like Anishinaabe and Cree often use doubled or paradoxical statements, a concept like balance could also encompass

imbalance.⁵ The trashed and polluted ecosystems in apocalyptic Indigenous futurisms are a good example of this doubling of balance with imbalance. My goal for this project is to explore the imbalances of Indigenous futurisms, especially within stories of the Native Apocalypse. These stories still value survivance and *biskaabiiyang* in worlds already impacted by colonial science and governmentality, built around the ever-present refuse of technological waste.

The plastiglomerate is a useful example for thinking with these problems. Indigenous ontologies of nonhuman life are often articulated around stones, as beings with a clear and present relationship to land sovereignty. Plastiglomerates are both trash objects and a new kind of geological object, so they direct our attention towards land as a politicized space. Kim Tallbear's (Cheyenne and Arapaho) work is an important touchstone for these ontologies of nonhuman matter. In her essay "An Indigenous Reflection on Working Beyond The Human/Not Human," she argues that inanimate matter can be spiritually vital in Indigenous cultures in ways that are distinct from other theorizations of the nonhuman. The pipestone shows how "for many indigenous peoples, their nonhuman others may not be understood in even critical Western frameworks as *living*. "Objects" and "forces" such as stones, thunder, or stars are known within our ontologies to be sentient and knowing persons" (Tallbear 234). This is particularly true of the red pipestone or "catlinite" that the Lakota, Dakota, and Sioux use to carve pipes and other objects. As Tallbear explains, the pipestone is "a material with... legendary status as an artifact of 'blood' of a people" from a Dakota story where a flood killed a group of

⁵ Personal email correspondence with Grace Dillon, August 25, 2017.

people whose blood pooled together to form the distinctive red stone (232-33). Pipestone is therefore “sometimes spoken of as a relative. Unlike with blood or DNA, pipestone does not possess a cellular vibrancy. Yet without it, prayers would be grounded, human social relations impaired, and everyday lives of quarriers and carvers depleted of the meaning they derive from working with stone” (233). Where the state, in its formation of a national monument to conserve the site, treats the red stone as “frozen in time,” Indigenous ontologies practice an ongoing relationality with the pipestone that acknowledges this stone as kin.

Elizabeth Povinelli similarly tackles the status of life and nonlife within Indigenous ontologies in her theorization of “geontopower” as a conceptual framework to replace the *bios* and *zoe* of biopower. Geontopower better addresses the ways settler colonialism governs through distinctions between “the lively and the inert,” between “Life and Nonlife” (16). These distinctions play out for Povinelli through three figures: The Desert, the Animist, and the Virus (16). The Desert describes places which “with the correct deployment of technological expertise or proper stewardship, be (re)made hospitable to life,” through carbon and petroeconomies as well as through the nonlife of the Fossil (16). The figure of the Animist most closely resembles the vital materialism of Deleuzian or Spinozan philosophy, as the Animist is “all those who see an equivalence between all forms of life or who can see life where others see the lack of life” (18). Although the Animist can seem more positive than the figure of the Desert, Povinelli warns that a simplistic vitalism risks transposing “biological concepts of birth, growth-reproduction, and death” onto forms of Nonlife for which these concepts should not apply (18). As she

argues, “this ascription of the qualities we cherish in one form of existence to all forms of existences [might] reestablish, covertly or overtly, the hierarchy of life” (18).⁶ Finally, the Virus is the figure that erases differences between Life and Nonlife by “claiming that it is all difference that makes no difference *not because* all is alive, vital, and potent, nor because all is inert, replicative, unmoving, inert, dormant, and enduring” (19). The Virus uses, recombines, and subverts categories of Life and Nonlife in order to continually replicate itself. It “is an active antagonistic agent built out of the collective assemblage that is late liberal geontopower” (19). Under this framework, we should distrust a simplistic vitality and instead try to understand the productive forces that Nonlife can have on precarious ecosystems and populations.

Each of these figures dramatizes a life/nonlife division that Povinelli notes can be leveraged towards settler governmentality or Indigenous politics. As she argues:

Geontopower has long operated openly in settler late liberalism and been insinuated in the ordinary operations of its governance of difference and markets. The attribution of an *inability* of various colonized people to differentiate the kinds of things that have agency, subjectivity, and intentionality of the sort that emerges with life has been the grounds of casting them into a premodern mentality and a postrecognition difference (5).

For both Tallbear and Povinelli, then, Indigenous ontologies of the nonhuman and the nonliving emphasize living networks of kinship which supplant western ideas of temporality, ecology, and death. These living cosmologies of stones can reach back to

⁶ Povinelli is fairly critical of many of the branches of posthuman theory. As she argues, “new materialism, speculative realism, and object-oriented ontology aggressively inserted the problem of things-in-themselves and the it-itself into a critical creature feeling its own exhausted impotence in the face of capital and war, and claimed that this impotence was an effect of the way critical theory treated objects and things. In other words, not only did these new schools propose a new question, but the question they proposed went for the jugular of the previous, now exhausted dominant theoretical species” (70).

include extinct species, as spiritual kin. As Audra Mitchell has argued, discourse about biodiversity in the Anthropocene:

exclude myriad forms of life and relations and draw sharp boundaries between 'living' and 'dead' that confound the basic principles of so many living cosmologies... [effacing] the ways in which... 'extinct' life forms may continue through relations with the spirit world, through genetic entanglement, and through lived histories that extend across the imposed boundaries of 'species' (n.pag.).

Ostensibly "dead" beings like fossils or stones continue to be a part of living communities, even beyond extinction.

Together, these ontologies of nonlife help codify a long tradition of thinking with nonhuman subjects entirely outside of posthumanist discourse. These theories of what Mark Minch-de Leon calls the "Indigenous inhumanities" produce:

[M]ethodology that begins from Indigenous inhumanity as a refusal of vitalist knowledge production and critique. Moving past the life and death divide, as Kim Tallbear describes, also opens new possibilities of conversation with posthumanist discourses that center non-western positions and modes of being. It also extends the conception of race beyond a human attribute to the foreclosure and destruction of worlds outside of the western theologico-secular vitalist order created by and enforced through humanization. It asks the question, what does non-vital anticolonial work look like outside of the bounds of and in contradistinction to a humanizing process?" (251)

To me, Indigenous inhumanities are distinct from Indigenous posthumanisms, although they share a number of concerns and these ontologies of the inhuman are crucial for my reading of posthumanism in Indigenous futurisms. Centering posthumanist discourses on non-vitalist Indigenous ontologies, whether articulated in Indigenous scholarship or stories, brings a new set of concerns to work on the posthuman. If a plastiglomerate can be a posthuman, then posthumanism can become a term for articulating future-oriented,

technological relationships to land, kinship, and the politics of colonization and decolonization.

What does it mean to move “post” or beyond the human for groups who have traditionally had complex and shifting relationships to the category of the human? A number of Black and Indigenous feminist scholars have taken issue with the word in recent years.⁷ “Post-” human does initially seem to indicate thinking beyond or after the human.⁸ As Zakiyyah Iman Jackson argues in “Outer Worlds: The Persistence of Race in

⁷ Tiffany Lethabo King’s article “Humans Involved: Lurking in the Lines of Posthumanist Flight” is a good example of these critiques, as she both develops her own argument against posthuman theory and gives a clear overview of similar moves to reject posthumanism across Indigenous and Black feminist scholarship. King is largely concerned with the privileging of posthumanism within the university, pointing out the serious problems with expecting marginalized scholars to move away from subjectivity and representation as topics for critical inquiry, especially when, as King and other Indigenous feminist scholars like Jodi Byrd and Eve Tuck have pointed out, poststructuralist theory draws on Indigeneity as a trope. This parasitic relationship between critical theory and Indigenous bodies turns Indigeneity into a floating signifier of deterritorial movement, instead of a living culture with particular ties to land sovereignty. I share King’s skepticism. However, there is a problem with this critique’s elision of posthumanism with Deleuze and Guattari’s work. These schools of thought are not synonymous. King consistently refers to “posthumanism” in her article, but only mentions Deleuze and Guattari as examples of posthuman thinkers. She gives an excellent overview of Black and Indigenous work that rejects Deleuzian theory, but makes no reference to Hayles, Haraway, Braidotti, or any of the other scholars whose work has been pivotal for establishing posthumanism as a field.

⁸ Herbrechter’s emphasis on *critical* posthumanism as a distinct trajectory of posthuman thought is important context for why so many theorists reject this term out of hand. There are two distinct uses of the posthuman which are in many ways directly opposed. First, there are critical posthumanisms which seek to retheorize the human and the humanities in an era increasingly shaped by capitalism, technoscience, speculative fictions, and climate chaos. This version of the posthuman owes its legacy to Haraway’s “Cyborg Manifesto” and Hayles’ *How We Became Posthuman*. It emphasizes embodiment, gender, race, and sex and is highly skeptical of any attempt to use technology to transcend or move beyond the human. The other common usage of posthumanism is more rightly termed transhumanism, although we could also think of it as a popular posthumanism. This is the posthumanism of Hans Moravec, Ray Kurzweil, and Max More. Transhumanism is the branch of posthuman thought most deeply concerned with using technology to replace the human, either through technological augmentation or through the quasi-mystic belief in the Singularity, both examples of what Andrew Pilsch calls “evolutionary futurisms.” So, as Cary Wolfe argues in *What is Posthumanism?*, posthumanism might more accurately be “the *opposite* of transhumanism, and in this light, transhumanism should be seen as an *intensification* of humanism” (Wolfe, *What is Posthumanism?* xv). I disagree with Wolfe slightly on this point, although I think it is useful for scholars rejecting the posthuman to be aware that moving beyond the human is a concern that critical posthumanists share. To me, the fact that the term posthuman has been so easily coopted by Silicon Valley singularity fetishists is worth discussing as part of this term’s enduring legacy. As I’ve previously argued, “simply opposing critical posthumanism to transhumanist ideals of human perfectibility does not allow us to

Movement Beyond the Human,” “far too often, gestures toward the ‘post’ or the ‘beyond’ effectively ignore praxes of humanity and critiques produced by black people, particularly those praxes which are irreverent to the normative production of ‘the human’ or illegible from within the terms of its logic” which risks conflating moving beyond the human with moving beyond race (215-16). For Jackson, these theories fail to consider the central role Blackness plays in historical developments of the human, especially when it functions as an experimental, plastic form of humanity which serves as a definitional pivot point between human and nonhuman (*Becoming Human* 3). In an Indigenous context, this plasticity of the raced human might function through the pivotal role of “Indianness” outlined in Jodi Byrd’s “transit of empire,” in which “ideas of Indians and Indianness have served as the ontological ground through which U.S. settler colonialism enacts itself as settler colonialism enacts itself as settler imperialism at this crucial moment in history when everything appears to be headed towards collapse” (xix). In each of these cases, the racialized human serves as a mutable threshold figure for maintaining imperial power.

Moving “beyond” the human fails to acknowledge the ongoing “temporal and spatial connotations of this ‘beyond’” (Jackson, “Outer Worlds” 215) which might move the posthuman beyond the concerns of racial violence and land sovereignty. However, the

address either the similarities between the transhuman and the posthuman in fields such as biomedicine or the racial discourse that informs these ideals. Exploring the dialectic created between transhumanism and other forms of posthumanism within the context of Indigenous experimentation suggests new ways of theorizing transhumanism outside this paradigm of embodiment vs. disembodied rationality” (Attebery 100).

“post-” prefix here doesn’t strictly or necessarily function like the “post-” in postcolonial, or poststructural, or post-racial.⁹ There is room for the human, the inhuman, and the posthuman to commingle within the critical frameworks set up by posthuman theory. The challenge for reworking the posthuman in an Indigenous context is “to find in the ‘post’ neither a temporal after nor a reflexive return to an antecedent, but rather a politics of suspension of the western humanizing colonial project” (Minch-de Leon 240).

Posthumanism is capacious enough a concept to allow for these suspensions as long as it is being defined in a way that acknowledges the continued presence not just of the human but multiple abjected forms of humanity within ongoing colonial politics.

This brings me to my primary issue with critiques of the posthuman as a term—so many of these critiques, from outside and within posthuman theory, presuppose that the problems inherent in this word’s history and construction mean that we must reject it outright or replace it with a different word. I would argue that the fact that this term is entangled with all of these problematic meanings is precisely what makes it useful. It is to this end that I wish to reinterrogate the word itself in order to develop a reading of the

⁹ The definition of this prefix will vary significantly depending on the theorist. Neil Badmington argues the “post” prefix is more similar to the “post” in “postmodernism,” such that “the ‘post-’ of posthumanism does not (and, moreover, cannot) mark or make an absolute break from the legacy of humanism” (“Theorizing Posthumanism” 21-2). Judith Halberstam and Ira Livingston don’t associate the posthuman with a clear chronology in relation to humanism or the human at all, but instead use it as a category for bodies and identities marked as different or perverse, similar to the ways “queer” operates within queer studies (Halberstam and Livingston 10, qtd in Hollinger 270). Hayles argues that “‘human’ and ‘posthuman’ coexist in shifting configurations that vary with historically specific contexts... the past tense in the title—‘became’—is intended both to offer the reader the pleasurable shock of a double take and to reference ironically apocalyptic visions” of posthuman futures without endorsing the posthuman as a replacement for the human (Hayles 6). Stefan Herbrechter similarly suggests that the human is still central to critical posthumanism, even if it drops out of other strands of this conversation, arguing that the “‘critical’ in ‘critical posthumanism’ names precisely this: the task of analysing [sic] the process of technologization, based on the idea of a radical interdependence or mutual interpenetration between the human, the posthuman and the inhuman” (20).

posthuman in relation to race and land. In modern usage, the posthuman primarily developed from Hayles, who draws on Ihab Hassan's worries in "Prometheus as performer: Towards a Posthumanist Culture?" (1977) that humanism is in a moment of crisis, such that "we need to understand that five hundred years of humanism may be coming to an end as humanism transforms itself into something that we must helplessly call post-humanism" (Hassan 212 qtd. Hayles 247). However, the word posthuman predates the 1970s, and this pre-cybernetics history is useful for rethinking the posthuman in relation to colonialism and Indigenous erasure.

Depending on where the term originates, a topic there is some disagreement over within the field, the "post-human" was either first used by H.P. Blavatsky in *The Secret Doctrine* (1888) or by Maurice Parmelee in *Poverty and Social Progress* (1916). Both of these origins tie the posthuman to the structures and theories of colonial science as it became codified in the 19th century. Blavatsky used the posthuman in the context of her non-Darwinian evolution of "Root Races" from etherial beings through the mythical lost continents of Lemuria and Atlantis up to her contemporary Aryan society. Blavatsky doesn't definite the posthuman, but she associates it with a mix of occultism and 19th century scientific racism. Parmelee's eugenicist tract is an alternative origin point suggested by Megan Glick, which "uses the term to refer to the penultimate eugenic subject, honed after years of population improvement techniques... beyond limitations of natural human evolution" (Glick, *Infracumanisms* 125). I am interested in both of these possible origin points, because both suggest an overlooked structuring absence of race and sovereignty in the prehistory of posthuman theory. Parmelee's usage connects the

posthuman to genetic engineering and the biopolitical management of populations, while Blavatsky's theosophy of lost continents is reminiscent of the ways "Indianness" functions in Western thought as the vanishing remnants of a past civilization. I have not seen people address the posthuman as a figure tied to colonial management, of both land and populations, but these perverse origins are what makes the posthuman useful as a term for analyzing Indigenous speculative fictions.

To me, it is a mistake to assume that posthumanism endorses the things that it diagnoses. It certainly can, and some strands of posthuman theory are very affirmational, but there is nothing inherently positive about becoming posthuman. In the most influential texts outlining the posthuman as a critical concept, Hayles' *How We Became Posthuman* and Haraway's "Cyborg Manifesto" (1985)¹⁰, the posthuman is a discomfoting figure, produced through the imposition of imperialist masculinist technoscience on gendered bodies. Both Hayles and Haraway invest much of their critique in arguing against transhuman cyberneticists, but they acknowledge that "nightmare" versions of the posthuman which are "seduced by fantasies of unlimited power and disembodied immortality" still coexist within the term (Hayles 5).

This perverse origin of the posthuman is clearest in Haraway's three models of hybridized cyborg identity: The merging of human and animal in feminist analysis, animal rights activism, biology, and biotechnologies (151-152); the merging of this

¹⁰ Haraway is foundational for a number of fields, from posthumanism to animal studies, but I want to note that the manifesto also draws inspiration from Gloria Anzaldúa's work, indicating the often overlooked influence of BIPOC women scholars on many of the branches of the nonhuman turn. The boundary breakdowns that Haraway describes owe their origin to the complex geopolitics of borderlands and hybrid racial identities, as much as to the figures of hybridity like onco-mouse that Haraway explicitly discusses.

human-animal organism with machinery, particularly in developments around cybernetics and Marxist analysis of labor and automization (152-153); and the merging of materiality and immateriality in our invisible, miniaturized technologies of communication, media, cryptography, and the disembodied networks of modernized warfare (153-154). Haraway's cyborg emerges from this mix of masculinist technoculture and feminist theory to offer alternatives to contemporary myths of wholeness and permanence, foundational for posthumanism, animal studies, and feminist science studies. She uses the posthuman cyborg to emphasize an attentive relationship to the sciences around nonhuman others, the imbrication of the nonhuman in systems of biocapital, and the messiness of human and nonhuman relationships as they co-shape our worlds.

Cyborg subjects can leverage their posthumanity towards more positive politics, but they never escape these troubling origins. As Haraway argues:

From one perspective, a cyborg world is about the final imposition of a grid of control on the planet... From another perspective, a cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints. The political struggle is to see from both perspectives at once because each reveals both dominations and possibilities unimaginable from the other vantage point. Single vision produces worse illusions than double vision or many-headed monsters (154).

These problems and perverse origins are precisely what makes the posthuman so useful for discussing the intersections of Indigenous ontologies of nonlife with the deathly technologies of colonial science. The posthuman is a term which encompasses a set of contradictory critical perspectives and methodologies which move beyond the human at precisely the intersection of human, animal, machine, data, and planet that I am

concerned with, and it does so because it is a term capacious enough to bring together the pleasures of inhuman kinship alongside the politics of techno-scientific domination.

The posthuman is simultaneously a figure, a field, and a moment. As a figure, it addresses the technologized subject, transformed through perverse cyborg origins into a new kind of human. As a field, it brings together discourses of late capitalist destruction, media making, climate chaos, and the questioning of life itself as an object of study. As a moment, it addresses two convergences in contemporary life. First, the sense in the 21st century that time running out. The nonhuman world looms large in the cultural imagination as an object of fear and fascination as extinction and planetary destruction become increasingly likely. Second, the proliferation of technology and science into our lived experience of daily life and the resulting sense that contemporary life is science fictional. As a field of study, posthumanism is immediately recognizable as concerned with science and technology. It is also a concept deeply entwined with science fiction and the speculative in literature and media.¹¹

The posthuman offers a framework for addressing the doubled perspective that post-apocalyptic Indigenous futurisms take on when imagining speculative, technological futures. This doubled perspective where the posthuman simultaneously shares kinship with nonhuman life and threatens technological control over land and bodies makes it distinct from Indigenous ontologies of the nonhuman or inhuman. Indigeneity and posthumanism may be in an uneasy alliance, but it is precisely the discomfort of these

¹¹ Donna Haraway turns to science fiction by Anne McCaffrey, Joanna Russ, Samuel R. Delany, James Tiptree, Jr., Vonda McIntyre, and Octavia Butler at the end of her “Cyborg Manifesto” as texts illuminating the affordances and limitations of this figure. N. Katherine Hayles similarly draws on the mid-60s novels of Philip K. Dick when thinking about posthuman.

connections that make Indigenous posthumanism useful as a concept for reading nonhuman beingness across Indigenous post-apocalyptic futures.

Petroleum, Biomedicine, Haunting, and Refuse

I propose three overlapping forms of Indigenous posthumanism that work together to shape refuse ecologies of colonialism and capitalism: Posthuman Petroleum, Posthuman Biomedicine, and Posthuman Haunting. In naming these three categories I don't wish to imply that these are the only forms of posthumanism in Indigenous futurisms, but that these are three categories with particular significance for our moment of planetary destruction. Together, these three figurations of the posthuman reorient posthumanism towards the question of sovereignty within refuse ecologies.

My first chapter on posthuman petroleum sets out the stakes of much of the rest of my argument by beginning with some of the most toxic forms of posthuman kin which intermingle living and dead matter in our moment of late capitalism and environmental degradation. In this chapter, I read posthuman petroleum in Elizabeth LaPensée's (Anishinaabe/Métis) game *Thunderbird Strike* (2017), a game that animates posthuman futures through the stop motion materials of water, cedar, copper, tires, and oil as the backdrop of a water protection game. As a game about polluted waterways and oil pipelines, *Thunderbird Strike* extends Indigenous ontologies of kinship to the new forms of posthuman life at this meeting place between energy and toxicity. In *Thunderbird Strike*, becoming posthuman is not only tied to new technologies, but also to the toxic plastics, chemicals, and trash left behind by these technologies. *Thunderbird Strike*

imagines an Indigenous energy future where oil and petromaterials are situated alongside posthuman beings energized by lightning and spirit. In this way, *Thunderbird Strike* serves as an example of how speculative fiction can speak back to petrocultures by imagining alternative futures for such posthuman beings.

My next chapter considers the role of biopolitics in Indigenous posthumanism. I read the biomedical posthuman through representations of chemical refuse and the biopolitics of Indigeneity in Bunky Echo-Hawk's (Pawnee/Yakama) paintings *Gas Masks as Medicine* and Misha's (Métis) cyberpunk novel *Red Spider White Web* (1990). As I have previously argued, Indigenous science fiction often grapples with the biopolitical and necropolitical violence of colonialism through speculative imagery of zombies, disease, and surgical experimentation (Attebery, "Indigenous Posthumans"). The biomedical posthuman plays with hybridity and embodiment in perverse and ironic commentaries on the troubled biopoliticization of Indigeneity. These posthumans question when chemical exposure and genetic experimentation heals or harms, based in the material-semiotic ambiguity of chemicals as both a medicine and a poison. Biomedical posthumans are the genetic scientists, rogue experiments, and disabled hybrid tricksters populating Indigenous futurist stories of post-apocalyptic life.

My third chapter on posthuman haunting most closely aligns with discussions of virtuality in cybernetics and media. While scholars like N. Katherine Hayles see cybernetics and informatics as spaces that risk masculinist fantasies of disembodiment instead of grounded posthuman embodiment, Indigenous media theorists represent media and virtuality as spaces haunted by colonial violence and the spirit of ostensibly dead

species and ancestors. As Steven Loft notes in his introduction to *Coded Territories*, in Indigenous approaches to media “the ‘media landscape’ becomes just that: a landscape, replete with life and spirit, inclusive of beings, thought, prophesy, and the underlying connectedness of all things—a space that mirrors, memorializes, and points to the structure of Indigenous thought” (xvi). I draw on the media art of Archer Pechawis (Cree) and Skawenatti (Mohawk) in this chapter on Media Hauntings as examples of the variety of ways that posthuman hauntings can invoke spirit beyond death. I see these forms of haunted media and virtuality in Indigenous new media performance, as well as in the representations of robotics, computer technologies, and virtual intelligences in Indigenous futurisms.

My final chapter considers how Indigenous posthumanism can operate as a framework for exploring sovereignty and survivance in ecologies made of refuse. I turn to the science fiction of Gerald Vizenor as a key thinker for this turn to refuse and refusal. My understanding of refuse ecology brings together the trickster aesthetics of survivance with the Marxist materialism of salvage theory. I set up a dialectical relationship between theories of survivance, salvage, and refuse. At the start of this chapter I present a series of short readings of Vizenor’s own engagement with these three forms of posthumanism across his speculative fiction, specifically in his short stories “Feral Lasers” (1989) and “Landfill Meditation” (1991) and in his novel *Heirs of Columbus* (1991). Refuse Ecologies explore the political potential of material waste, turning to Indigenous speculative cosmologies of lively, entangled nonhuman beings as a counterpoint to this system of surplus, obsolescence, and mass extinction.

As posthuman kin, the plastiglomerate takes on resonance beyond being a strangely beautiful object or a techno-fossil marking the Anthropocene age. Plastiglomerates, like many of the strange, polluted techno-trash materials common to Indigenous futurisms, invite lively spiritual, genetic, and chemical relationships between humans and nonhuman waste beyond the individual discarded commodities melted together into stone.

Chapter One:

Posthuman Petroleum

In 2016 thousands of water protectors gathered at Standing Rock Reservation attempting to halt the construction of the Dakota Access Pipeline. A year later, the completed pipeline had already leaked five times and is likely leaking now (Brown). The Standing Rock Sioux nation and other Indigenous nations affected by pipelines continue to fight the expansion of these pipeline networks, most recently in the violent occupation of Wet'suwet'en territory by the RCMP in service of the TransCanada Coastal GasLink pipeline. For these activists, water is worth protecting even when it has already been polluted with leaking oil. Protecting the future even when these futures are contaminated adds an important dimension to discussions of futurity in energy cultures because these struggles reveal the complex ways that futurity and Indigenous land sovereignty comeingle in our imagination of energy futures.

Anishinaabe and Métis game designer and artist Elizabeth LaPensée represents this dilemma over protecting contaminated futures in her video game *Thunderbird Strike*. *Thunderbird Strike* depicts an Anishinaabe thunderbird protecting the Great Lakes waterways from the Enbridge Line 5 oil pipeline. As the thunderbird, the player can destroy pipeline materials and equipment with lightning strikes and use the same lightning to reenergize the land and people. In the game's final fight, the player faces the pipeline itself in the form of a giant metal snake belching clouds of smoke and bleeding oil. LaPensée explains on the game's website that the thunderbird is both an Anishinaabe

spirit and a kind of electric being who transforms water protectors into hybrid lightning people:

For generations, the thunderers brought forth rain and fires that renewed the lands and the waters for the plants, the animals, the fish. However, the unsatisfiable greed of another people brought about such vast changes to the lands and the waters that the people cried out for the return of the thunderbird people and their searing lightning. And so they walked among the people again, through the people, in their hearts, in their eyes, in their voices, in their songs, and in their motion.

The story is accompanied by reflection questions that ask the player to imagine energy futures beyond oil: “How do you imagine thunderbirds look and sound?” “What do you imagine a future that is not reliant on oil looks like?” There are also links to further information about oil spills, tar sands, and environmental toxicity. This story and these questions imagine renewal through an electrifying form of hybridity that offers alternatives to the polluted energy futures of oil.

Since it premiered at the 2017 ImagiNative Film Festival in Toronto, the game has become the target of a conservative smear campaign over its depiction of the water protection movement precisely because it imagines a future beyond oil dependence.¹²

¹² Immediately after the game was released, the pipeline lobbying group Energy Builders released a press statement expressing concern that the game would “encourage eco-terrorism or other bad behavior.” Picking up on this language, a Republican Minnesota senator began calling the game the “eco-terrorist version of Angry Birds,” a sound bite that was repeated in almost every news story about the game. LaPensée’s detractors were concerned with the flow of capital as well as the flow of oil. Their main criticism was that LaPensée received state funding for the game through the Minnesota Legacy Fund, as part of an initiative created to “protect, enhance, and restore lakes, rivers, streams, and groundwater” and “preserve arts and cultural heritage.” Drawing on this rhetoric of eco-terrorism, Minnesota Republicans attempted to retroactively take away LaPensée’s grant funding for the game. After finishing the game, LaPensée moved from Minnesota to take a job as a professor at Michigan State University. The Minnesota Republican Party used the controversy as an opportunity to attempt to overhaul the entire Legacy Fund and introduce legislation fining artists who receive state funding if their work is seen to encourage “domestic terrorism.” The Energy Builders called for Congress, NASA, and the NSF to pull funding from Michigan State University’s computer lab. In addition to the audit of her artist fellowship, LaPensée was further targeted with online harassment, including threatening emails, anonymous phone calls, and attempts to hack her online accounts (LaPensée, “Thunderbird Strike: Survivance in/of an Indie Indigenous Game”).

These accusations reveal the white supremacy and colonial logic underlying energy cultures. The campaign against LaPensée began within the same month that eighty-four US representatives petitioned the Department of Justice to extend the definition of domestic terrorism to include the actions of protestors like the Standing Rock water protectors when their actions disrupt the flow of oil into and across the US (Gardner). The accusations of eco-terrorism leveraged against LaPensée take this a step further, framing antipipeline art alongside activism as similarly destructive acts. As Shelley Streeby points out in *Imagining the Future of Climate Change: World-Making through Science Fiction and Activism*, Standing Rock is an important example of climate change activism as a form of futurism. She suggests that “Indigenous science, fiction, and futurisms have converged to shape struggles over the DAPL as well as other struggles over water, oil, and resource extraction throughout the world” (36). In addition to outlining the use of science and technology in the water protectors’ use of social media like the hashtag #noDAPL, Streeby discusses the science fictional world-making inherent in organizing access to health care, food, and Lakota language schooling at the Sacred Stone and Oceti Sakowin camps (41). *Thunderbird Strike* joins these other forms of Indigenous world making, adding play to the mix of Indigenous science, education, food security, and health care that are so important for the ongoing Indigenous activism around water protection.

LaPensée reflects on her experience making and defending *Thunderbird Strike* as an example of survivance, the Anishinaabe writer and scholar Gerald Vizenor’s term combining survival and resistance, representing the “active repudiation of dominance,

tragedy and victimry” in the face of settler colonialism (Vizenor, *Fugitive Poses* 15). As she points out, the backlash to the game suggests the need for more “sovereignty in game development, leading to more self-determined games” (LaPensée 36). LaPensée’s detractors figure an Anishinaabe woman into a threatening outsider through the racially charged language of terrorism, the Great Lakes communities into clearly bordered states connected by pipelines but not by environment or artistic community, and a being of great power and vitality into merely an angry bird. At the same time, oil symbolically *becomes* the lifeblood of Minnesotan and American culture, enlivened into a being whose life and livelihood can be threatened.

The fear that a digital game can have a material effect, spurring the creation of a new world beyond pipelines, is suggestive of the ways that *Thunderbird Strike* itself functions as a form of Indigenous survivance, imagining a futuristic ecology affected but not destroyed by the petroeconomy. LaPensée represents oil as a kind of being, part of an ecology where energy and pollution are integrated into our ecosystems and bodies. Drawing on the same signification of oil as life that motivated her opponents, LaPensée creates a nuanced representation of energy futures where environment, technology, and waste have become increasingly interconnected.

LaPensée’s representation of energy and waste is a type of Indigenous posthumanism, which incorporates more familiar technologically hybrid posthumans alongside the toxic nonhuman kin that intermingle living and dead matter in our moment of late capitalism and environmental degradation. In *Thunderbird Strike*, and in similar Indigenous futurist texts that imagine polluted post-apocalyptic futures, becoming

posthuman is tied not only to new technologies but also to the toxic plastics, chemicals, and trash left behind by these technologies. In *Thunderbird Strike*, oil serves as a medium for stories of resistance and water protection. The game imagines an Indigenous energy future where oil and petromaterials are situated alongside beings energized by lightning and spirit. In this way, *Thunderbird Strike* serves as an example of how speculative fiction can speak back to American petrocultures by imagining alternative futures inhabited by such posthuman beings. Oil in the game becomes a new form of posthuman kin, inextricably part of an ecology made out of refuse.

From Oil Futures to Indigenous Futures

Energy futures are caught up in a crisis of temporality where it is difficult to imagine futures beyond pollution and beyond peak oil. Imre Szeman argues in “System Failure: Oil, Futurity, and the Anticipation of Disaster” that “oil capital seems to represent a stage that neither capital nor its opponents can think beyond” (94). This crisis in imagining a future beyond oil results in a set of science fictional discourses around the futures of energy. Szeman explains:

The disaster discourses of the end of oil are necessarily anticipatory, future-oriented ones—narratives put into play in the present in order to enable the imagined disaster at the end of oil to be averted through geopolitical strategy, rational planning, careful management of resources, the mobilization of technological energies, and so on (96).

This future-oriented perspective leads to three dominant narratives in energy futures: “strategic realism, techno-utopianism, and eco-apocalypse” (97). Techno-utopianism and eco-apocalypse are science fictional narratives, suggesting that the future-oriented

speculative elements of this genre uniquely position it to reveal the ways oil and other fossil fuels have become synonymous with futurity and progress in American culture.

Picking up on Szeman's association of energy futures with science fiction, Gerry Canavan argues in "Retrofutures and Petrofutures: Oil, Scarcity, Limit" that science fiction has a long history of imagining energy futures with and without oil. Canavan outlines the historical specificity of techno-utopia and eco-apocalypse in science fictional energy futures. Techno-utopianism prominently features in golden age science fiction at the turn of the century, which depict fantastical technologies fueled by new substances and oil culture as a thing of the past (336).¹³ As oil becomes more central to American nationalism and imperialism, "The one-time symbolic repression of oil has now been replaced in more recent science fiction with a doomed sense of its overriding, totalizing importance—which in turn generates for us a crushing sense of impending futurological limit, of resources and even time itself running out" (333). Canavan concludes with an ambivalent reading of oil futures in science fiction. As he notes:

The end of oil, as we have seen, fuels at once both Utopia and dystopia: it is the crisis that breaks the world into ruin but also the opportunity out of which the possibility of another world might emerge. Here again we can find science-fictional imaginings retreating from the cold, rational calculus of energy scarcity into something more like fantasy—only in our moment the fantasy is not of improbable technology and perpetual-motion hacking of the laws of physics, but rather than human beings might change the way they behave (345).

A more hopeful science fiction narrative of energy futurity looks like that imagined by water protectors at Standing Rock. These, and other sites of Indigenous survivance, could

¹³ Canavan references Everett F. Bleiler's comprehensive index of early science fiction, which lists atomic and solar energy alongside other fantastical future fuels like "ether flow," "Zodiacal force," "space mirrors," and "feline static electricity." See Bleiler, *Science Fiction: The Early Years*, 875-76 and *Science Fiction: The Gernsback Years*, 638.

change the way oil futures are conceptually caught between techno-utopia and eco-apocalypse. Indigenous communities are among the most at risk for the toxic by-products of the extraction and transportation of fossil fuels. What, then, would an Indigenous energy future look like? How does Indigenous theory and art approach the material and cultural role of oil in American energy cultures? And how do Indigenous futurist narratives represent oil's science fictional temporality?

As peoples disproportionately affected by the often invisible pollution of leaking oil pipelines, Indigenous scholars, artists, and activists have a vested interest in creating alternative representations of energy futures beyond a naive techno-utopianism and despairing ecological apocalypse. Potawatomi scholar and activist Kyle Whyte defines Indigenous climate change studies around three basic tenets. First, climate change is an intensification of the ways colonial structures of power have always shaped environments. Second, Indigenous communities can better prepare for climate change by renewing Indigenous knowledges, including languages, sciences, and forms of human and nonhuman kinship. Third, the perspective of Indigenous peoples who are already adapting to the post-apocalyptic conditions of colonialism changes the ways these communities imagine futures affected by climate change (“Indigenous Climate Change Studies 153–54). Whyte calls this last point living in “the dystopia of our ancestors,” and he points out that such a perspective results in a very different approach to conservation, stating that “our conservation and restoration projects are not only about whether to conserve or let go of certain species. Rather, they are about what relationships between humans and certain plants and animals we should focus on in response to the challenges

we face, given that we have already lost so many plants and animals that matter to our societies” (“Our Ancestors’ Dystopia Now” 207). As an ongoing process of adaption to dystopian conditions, Indigenous climate change studies refuses the apocalyptic temporality common to narratives of energy futures. Instead, these futures draw on nonhuman kinship and relationality in response to increasingly dystopian science fictional worlds.

Indigenous Futurisms invite challenging new relationships between temporality, apocalypse, futurity, and land. Indigenous Futurist stories often speculate about futures affected by pollution and energy capital, but they emphasize survivance by drawing attention to what Grace Dillon calls “the ruptures, the scars, and the trauma in [an] effort ultimately to provide healing and a return to *bimaadiziwin* (the state of balance)” (9). Bringing the concept of survivance into a speculative post-apocalyptic ecosystem, as Indigenous futurisms do, challenges the hopelessness and imperialist nostalgia that plagues narratives of climate crisis. Dillon’s discussion of *bimaadiziwin* similarly requires an engagement with sovereignty based in environmental futures, as part of decolonization, which Dillon associates with *biskaabiiyang*, the Anishinaabemowin word for “returning to ourselves” (10). Indigenous Futurisms are therefore grounded in upholding and disseminating Indigenous ecological knowledges through future-oriented storytelling and science.

Biskaabiiyang describes a return, but not a return to a precolonial past untouched by the destruction of colonialism in the Anthropocene or Capitalocene. As Dillon points out, Indigenous languages like Anishinaabe and Cree often rely on doubling and

paradoxical statements such that a concept like balance could contain within it an ironic and seemingly incongruous return to imbalance.¹⁴ Dillon argues that Indigenous sciences seek “to reenergize the natural environment while improving the interconnected relationships among all persons (animal, human, spirit, and even machine),” inviting new approaches to technological identities by framing posthuman beings as part of a reciprocal community of human, animal, and spirit (7). Picking up on Dillon’s claim of kinship with machine people, Jason Edward Lewis (Cherokee, Hawaiian, Samoan), Noelani Arista (Hawaiian), Archer Pechawis (Cree), and Suzanne Kite (Oglala Lakota) have co-written a collaborative manifesto “Making Kin with the Machines,” which argues, “As we manufacture more machines with increasing levels of sentient-like behavior, we must consider how such entities fit within the kin-network” (n.pag.). If machines are kin, then kinship might similarly apply to the nonliving substances that fuel technological development. By applying such categories of machine personhood to substances like oil and pipeline infrastructures, this exploration of machines as Indigenous posthuman kin shows how science fiction narratives can imagine energy futures in which the leaking and diminishing resource of oil does not lead to techno-utopianism or eco-apocalypse but instead strives to represent new forms of balance.

Living Oil and Dead Fossils

As an Indigenous Futurist game, *Thunderbird Strike* complements Indigenous ontologies of life, death, kinship, and land with the discourse within energy cultures around living

¹⁴ Grace Dillon, personal correspondence, August 25, 2017.

oil. Much of the cultural imaginary around fossil fuels concerns how these materials are represented as ontologically lively despite having deadly, toxic effects. As Stephanie LeMenager argues in *Living Oil: Petroleum Culture in the American Century*, “Liveness, as in seeming to be alive, now relies heavily upon oil. Oil itself is a medium that fundamentally supports all modern media forms concerned with what counts as culture” (6). LeMenager is concerned with petromedia and petrofiction, cataloging the aesthetics of oil alongside the material entanglements of all media production in oil. As she points out, “Films, books, cars, foods, museums, even towns are oil media” (11). Although many scholars of petroculture draw on this association between oil and the liveness of media and capital, the details of this comparison can vary. Matthew T. Huber argues in *Lifeblood: Oil, Freedom, and the Forces of Capital* that “oil is now equated with life itself, a life that necessitates a form of spatial practice ‘one mile at a time’” (xii), equating oil’s liveness with movement, acceleration, and “an imaginary of ‘entrepreneurial life,’” or the “view that one could actually shape a life as one’s own” within a neoliberal system of governance (xiv). Oil is semiotically as well as materially slippery, and so its symbolic “liveness” can take on a variety of contradictory meanings. Still, within this ontological slipperiness, oil cultures expose the central contradiction that our culture becomes enlivened with oil at the same time that every aspect of the petroeconomy, from the sites of extraction to the spills to the circulation of petroleum products themselves, contributes to the slow deadly violence of pollution and climate crisis. In *Thunderbird Strike*, oil is similarly depicted as alive, as the oil pipeline itself rears out of the ground and attacks the player. However, the game does not represent oil as alive in exactly the same way that

Huber and LeMenager describe. Instead, LaPensée associates living oil with the technological kinship of Indigenous posthumanism by placing oil within Indigenous ontologies of inanimate and non-living beings.

These Indigenous ontologies of life and not-life feature prominently in the game's first level, where oil begins to take on the properties of fossilized animals. Oil's liveness often begins with the material and cultural associations between fossils and fossil fuels. As LeMenager points out, "Oil challenges liveness from another ontological perspective, as a substance that was, once, live matter and that acts with a force suggestive of a form of life. . . . the microbial life in oil, in addition to oil's deep geologic history as life-through-time, forces questions of how biology, geology, and culture come together to define what counts as living matter" (67). This signification of oil as the revived energy of fossilized matter prominently features in *Thunderbird Strike*'s depiction of energy futures. Within the game, the player gathers lightning in the clouds and then swoops down, guiding lightning strikes by clicking at different objects on the screen. Much of the time she uses the lightning to destroy pipeline equipment: segments of pipeline, construction equipment, or oil refineries. However, she also has the option to strike buried fossils of caribou, wolves, and buffalo, which brings these animals back to life. Visually, the skeleton is replaced with an outline of the fleshed animal containing smaller pockets of flickering lightning, animated in an electrified version of Anishinaabe Woodlands-style art, and these animals are animated to run off the screen. These living fossils repurpose oil's association with movement, acceleration, and the cultural animation of media technologies in an image of ecological revitalization. These animals

have not been returned to a purely “natural” state but instead have taken on the flickering posthuman lightning of the thunderbirds. In a game imagining alternatives to American petroculture, this electrifying animal rebirth sets up a different way to approach energy and fossil fuels. This gameplay draws attention to and complicates the connection between petroculture and dead or extinct life forms. Destroying pipeline equipment and bringing fossilized animals back to life result in separate scores for “destruction” and “restoration” at the end of each level, so the journey the thunderbird takes from the Alberta tar sands to the Great Lakes focuses as much on cultural and ecological resurgence within a polluted ecosystem as it does destroying the pipeline.

In representing polluted and environmentally precarious land as a site of playful revitalization, *LaPensée* shows how Indigenous ontologies around living and inert matter work to oppose American energy culture. As Kim Tallbear (Sisseton Wahpeton Oyate) points out in her essay “An Indigenous Reflection on Working beyond the Human / Not Human,” inanimate and nonvital matter often take on queer forms of nonhuman kinship within Indigenous thought. Tallbear interrogates the division between life and not-life through two entangled materials: first, she looks at genomic data and cryopreservation in the context of settler and Indigenous sciences; second, she investigates the pipestone mined and shaped by Pawnee and Sioux peoples in Minnesota. Tallbear argues that “the stone is sometimes spoken of as a relative. Unlike with blood or DNA, pipestone does not possess a cellular vibrancy. Yet without it, prayers would be ungrounded, human social relations impaired, and everyday lives of quarriers and carvers depleted of the meaning they derive from working with stone” (233). The Osage philosopher George Tinker

makes a similar argument about the life of stones, writing in his essay, “The Stones Shall Cry Out: Consciousness, Rocks, and Indians,” that Osage communities recognize “all life forms not only have consciousness, but also have qualities that are either poorly developed or entirely lacking in humans” (106). Tinker challenges Western philosophical and neuroscientific models of consciousness to account for the lively consciousness of rocks and other inanimate beings. This inanimate but spiritually vital matter represents, for Tallbear, the ways that “for many indigenous peoples, their nonhuman others may not be understood in even critical Western frameworks as *living*. “Objects” and “forces” such as stones, thunder, or stars are known within our ontologies to be sentient and knowing persons” (234). In this context, nonbiological or deathly matter is animated similarly to new materialist theory like Mel Chen’s concept of the “animacy” of toxic, nonliving matter like mercury or lead (Chen 159), but Tallbear differentiates between Chen’s secular terminology of nonliving animacy and an Indigenous perspective that would put more emphasis on “the co-constitutive entanglements between the material and the immaterial—that is, indigenous peoples’ social relations also with “spirit” beings (for lack of a better term)” (“Beyond the Life/Not-Life Binary” 191). For Tallbear, the cellular matter of genetics, the technological matter of genetic data, and the ostensibly nonliving matter of pipestone all circulate as different interconnected methods of charting out kinship between human and nonhuman persons. When these relations play out in a polluted, technological landscape, such entangled relations between matter, spirit, energy, and data register as posthuman, but posthuman in a profoundly different way from white feminist posthuman theory.

Tallbear's exploration of the life of stones bears relevance for the complex politics of fossils as a material and semiotic stand-in for Indigeneity, a key aspect of the ways that fossils and fossil fuels become posthuman within the futurist world of *Thunderbird Strike*. There is a danger of seeing stone as "frozen in time," just as Indigenous culture is often represented as frozen in time or existing as a fossilized remnant of a lost past. Elizabeth Povinelli takes up this question of the fossilization of Indigeneity in her theorization of "geontopower" as a conceptual framework replacing biopower. Povinelli's geontopolitics productively brings together struggles over Indigenous political sovereignty with the material and cultural status of substances like oil within settler energy cultures. She argues that the divisions between *bios* and *zoe* central to biopolitical theory do not represent the ways matter is governed in the settler state. Instead, the difference is between "the lively and the inert," which she defines through "Life" and "Nonlife" in the form of three conceptual figures: the desert, the animist, and the virus (16). The desert represents spaces where life is currently absent but which could, "with the correct deployment of technological expertise or proper stewardship, be (re)made hospitable to life" (16). It encompasses the material and cultural Nonlife of fossils, as matter perceived to be formerly alive and filled with the potential to become energy in the form of fossil fuels, the specific form of life central to "contemporary, hypermodern, informationalized capital" (17). At the same time, in the context of extractive energy cultures, the geontopolitics of the desert leads to what Traci Voyles calls "wastelanding," the "racial and spatial process of signification that makes extreme environmental degradation possible" by "rendering an environment pollutable in

ways that are both ideational and material,” cultural and biological (9). Within petroculture, these processes of lively remaking and deathly wastelanding occur simultaneously, as petromaterials both energize and pollute. In so doing, petromaterials showcase the productive force that Nonlife can have on precarious ecosystems and populations in sites like Standing Rock where energy futures are tied to the violent displacement and land politics of the settler state.

Povinelli frames this Life/Nonlife division through both settler colonial power and Indigenous resistance. As she notes:

Geontopower has long operated openly in settler late liberalism and been insinuated in the ordinary operations of its governance of difference and markets. The attribution of an *inability* of various colonized people to differentiate the kinds of things that have agency, subjectivity, and intentionality of the sort that emerges with life has been the grounds of casting them into a premodern mentality and a postrecognition difference (5).

Povinelli’s attentiveness to settler colonialism’s role in geontopolitics extends to her discussion of fossils. Although not herself Indigenous, Povinelli draws extensively on her work with Aboriginal Australian communities in her theorization of geontopower. As she observes, Indigenous peoples are often “presented as an inanimate Animism, the oxymoron of a living landscape frozen in time” (80). However, despite the dangers of associating Indigeneity with the fossil, Povinelli argues that we can learn a great deal about geontopower from Indigenous perspectives on fossils. Discussing her film *When the Dogs Talked* (2014), in which an Indigenous family finds fossilized dinosaurs alongside human bones, Povinelli notes that “a fossil, a bone, a set of living, now recently deceased people—for my old friends, all are in the same time and same space of signifying material mutuality” (69). This emphasis on material and temporal mutuality is

a more scientifically accurate way to approach fossils. The imagery evoked by fossils of a long-dead remnant preserved in time and clearly delineated from the present is geochemically inaccurate. Povinelli points out that fossils “are changing as they are imprinted morphologically, chemically, and atomically by the absorption of their environment, and the environment too by the absorption of them” (75). If I were to pick up a fossil, there is a microbial trace of that interaction on me and on the fossil. A fossil is a dynamic object that continues to be entangled in an ecology after the death of the original animal.

Fossils have a continued social life and kinship after death, and this kinship does not vanish as species go extinct and fossils are technologically transformed into fossil fuels. Audra Mitchell argues that conversations about matter and biodiversity in the Anthropocene:

exclude myriad forms of life and relations and draw sharp boundaries between ‘living’ and ‘dead’ that confound the basic principles of so many living cosmologies . . . [effacing] the ways in which . . . ‘extinct’ life forms may continue through relations with the spirit world, through genetic entanglement, and through lived histories that extend across the imposed boundaries of ‘species’ (n.pag.).

Spiritual relationships, genetic kinship, and fossilized, “dead” matter all continue to influence living communities even in the apocalyptic crisis of the Anthropocene or Capitalocene. Understanding extinct life as bearing an ongoing vitality undercuts the nostalgia and despair common to Anthropocene fiction, requiring different types of ontologies and stories. Indigenous ontologies conceive of nonliving, inert matter through models of kinship and mutuality that challenge American petrocultures precisely because they imagine future-oriented relations between life and not-life. Instead of representing

fossil fuels as inert matter only enlivened when it circulates through the petroeconomy, *Thunderbird Strike* draws attention to the geologic history of the fossil and imagines an alternative posthuman future for this fossilized life through the posthuman lightning of the thunderbird. While fossils within American energy culture are given new “life” in the form of oil as they circulate through the petroeconomy, in Indigenous futurist texts like *Thunderbird Strike* these “dead” fossils are reenergized not through their transformation into gas, electricity, or capital but through the spiritual electric power generated by the thunderbird. *Thunderbird Strike* offers a productive counterpoint to narratives of apocalyptic petrofutures. *Thunderbird Strike*’s playful gamification of inanimate life is a necessary story for imagining futures beyond the apocalyptic energy futures of a world after peak oil.

Thunderbird Strike celebrates inanimate life as a site of posthuman kinship through its gameplay revitalizing fossilized matter. The game also extends this game mechanic beyond fossilized animal species. In the game’s second level, the background fossils are replaced by human figures. The player can use lightning to reenergize these humans in the same way that she interacted with buried fossils in the first level. The animation similarly depicts the humans as Woodlands-style silhouettes filled with flickering lightning. At the same time, the player can restore the thunderbird’s lightning abilities if she flies through background groups of humans marching and holding signs. The inclusion of human beings complicates the relationship between the thunderbird and fossilized matter. Using a game mechanic for revivifying fossilized life to similarly revivify human life plays with the common representation of Indigenous peoples as

fossils from a lost time. Indigeneity is often represented in the settler state as backward and premodern. Indigenous futurist media, like *Thunderbird Strike*, tackles this stereotype by celebrating the role of science, technology, and futurity in Indigenous cultures. By comparing Indigenous water protectors to forms of fossilized life that continue to live and thrive in a petroleum-driven settler state, LaPensée turns fossilized matter's status as "life-through-time" into a celebration of Indigenous survivance. By combining these figures of fossilized time, *Thunderbird Strike* undercuts the way the fossil functions as both a symbol of settler petroculture and as a common stereotype of Indigeneity. If fossils return from the earth with new life and energy, then "fossilized" Indigenous cultures are similarly enlivened and energized within and beyond the settler state.

LaPensée creates a hopeful representation of fossilized life as matter that can be reenergized and brought into positive relations with human cultures beyond the petroeconomy. However, *Thunderbird Strike* still represents oil as a threatening substance at the geontological boundary between Life and Nonlife. In the game, revived fossils live alongside a living pipeline, instead of entirely replacing this pipeline. What does it mean for the game's depiction of Indigenous energy futures that this inert liveliness is both rejuvenative and toxic? Tallbear, Tinker, and other Indigenous scholars writing about nonvital life in Indigenous ontologies focus on objects like stones, but as LeMenager and Povinelli demonstrate, this logic could equally apply to toxic substances like oil and other petroleum products. How far should these Indigenous ontologies of the inhuman extend? Should oil, tar, and plastics also take on these complex politics of

ecological relationality under Indigenous ontologies? It is tempting to separate nontoxic forms of inert life, like stones, from lively toxic matter, as stones draw their lively relationality from Indigenous cultural traditions and stories while oil is associated with liveliness through its central role in fueling capitalism. However, such distinctions rely on a false separation between nature and technology, which is increasingly misleading as stones and sacred sites are also becoming spaces of intense pollution and environmental precarity. By focusing on such precarious, polluted landscapes, *Thunderbird Strike* refigures LeMenager's and Huber's discussions of lively oil cultures through an Indigenous futurist perspective that sees oil as unavoidably part of a polluted future while still imagining Indigenous futurisms beyond apocalypse and beyond petrocultural.

Land, Oil, and Water

Thunderbird Strike situates this resurgence within the politics of race and land in American energy culture. American racial politics is often sublimated into these discussions of oil as neoliberal, entrepreneurial freedom and oil as lively media.¹⁵ From an Indigenous perspective, the politics of North American petroeconomies also relies on the ongoing racial displacement and colonial occupation of Native land. Rachel Webb Jekanowski points out that coal, oil, and other fossil fuels make up a new “petrocommons,” as they are represented as existing outside time, waiting to be brought to life through extraction by the nation state (3). Treating energy resources like oil as a

¹⁵ In his book *The Energy of Slaves: Oil and the New Servitude*, for instance, Andrew Nikiforuk identifies how nineteenth-century abolitionists framed oil as a replacement for slave labor.

petrocommons naturalizes settler displacement of Indigenous peoples from their land and from the wealth generated by extracting, refining, and transporting oil. As LeMenager suggests, “Oil is a form of capital that bulks out and inhabits place, changing the quality of air, water, noise, views, and light” (13), and this sense of occupation elides the material substance of oil and petromedia with the political occupation of the settler state on Native land. Oil pipelines are therefore a crucial site for interrogating the relationship between oil, place, and Indigeneity when imagining energy futures.

Thunderbird Strike is attentive to place in designing levels and backgrounds as complexly layered ecosystems created by animation instead of algorithm. There are three levels of the game, each of which corresponds to specific locations leading to the Line 5 oil pipeline. There are over thirty different unique background elements per level. Each background element combines hand-drawn details with textures and materials taken from along the pipeline route. All these elements are then animated and layered on top of each other through stop-motion animation, creating an incredible richness to the background not often seen in games. Typically, game designers will use digital 3-D modeling to design specific background elements in isolation, and then randomize these elements to make an interactive world. Compare LaPensée’s approach to a video game like *No Man’s Sky* (2016), which created hundreds of richly detailed planets by randomly generating topography, mineable resources, flora, and fauna without necessarily focusing on how each of these elements would relate to each other within an ecosystem. Although this approach can create amazingly detailed alien worlds, LaPensée’s animation integrates gameplay with the land itself. Oil may still be a form of capital that bulks out and

occupies Indigenous land, but LaPensée's emphasis on land as complex and layered ecosystems refuses this settler colonial logic of the petrocommons. Oil, in these animated layers, is only one element among many within a larger relational ecosystem.

This integration of the digital landscape of the game world with the actual landscape threatened by oil spills refuses to make a clear separation between the digital medium of the game and the physical land along the pipeline. In *Thunderbird Strike*, and in her other animation work, LaPensée uses material like water, copper, leather, and birch bark as the basis of her stop-motion world. These are all materials with specific significance in Anishinaabe science, and they are all materials that create a richly textured and tactile sense of place for this game world. LaPensée also uses tires as an animation material in the game's first level, and oil in some of the animated cut-scenes between levels. These materials are not simply interconnected in the game's narrative or gameplay: they also make up the medium of the game itself. As a speculative energy ecology, then, *Thunderbird Strike* narrativizes resistance to petroleum dependence at the same time that it frames petroleum as part of the material process of game making. LaPensée refers to this as representing "land as level," mapping the video game design terminology of levels as spaces for player interaction onto Indigenous approaches to land and ecology ("Relationality Mechanics and Land as Levels in Indigenous Games"). The video game, thus, becomes a privileged medium for representing the complex, situated kinship relations central to a posthuman Indigenous ecology.

Lively relationality is an important part of Indigenous political sovereignty, and it offers an important framework for rethinking the invisibility of these pipeline networks

built on Native land. Representing pipelines as an enormous living snake is a common image in Indigenous water protector movements, prominently featured in signage, art, and slogans. Much of the activism around pipeline projects in Standing Rock and other, less-publicized sites contrasts the dangers of this oil snake to the life-giving properties of water. Activists describe themselves as “water protectors” rather than anti-pipeline protesters, emphasizing the substance being defended instead of focusing on oil, bitumen, and other toxic substances threatening the water. Sometimes this conflict is expressed simply in slogans like “you can’t drink oil” or “water is life,” and sometimes protectors explore the ways oil and water flow together.¹⁶ Until the proliferation of Indigenous water rights activism into mainstream US news, many communities were unaware if there was an oil or natural gas pipeline running under their homes. By carrying a snake-like pipeline effigy through the march, protectors created a constant reminder of the material presence of pipelines within threatened communities.

When incorporating many of these water protection images and slogans into her game, LaPensée transforms symbols of water protection activism into speculative science fictional images. Each of the three game levels is preceded and succeeded by a short animated sequence of LaPensée’s art. In addition to her own work as an animator, LaPensée includes two prominent images by other artists associated with Indigenous art and activism around the pipelines. One is “Thunderbird Woman” by the Anishinaabe

¹⁶ For example, when I attended a water protection march in downtown Los Angeles in 2017, several people brought an enormous inflatable black plastic tube covered in slogans including “Clean Energy Future,” “#NODPL,” and “For Our Kids.” The tube was simultaneously a representation of the pipeline, a space for writing water protection slogans, and a way to visually represent a threat that is largely hidden underground.

artist Isaac Murdoch—a drawing of a woman with the arms of a bird. The second is an image with the slogan “No Pipelines on Indigenous Land” accompanied by a stylized pipeline creature with horns, claws, and sharp teeth by the Métis artist and scholar Dylan Miner.¹⁷ Both Murdoch and Miner provide high-resolution, open-access versions of these images online for people to print on posters, banners, and shirts. LaPensée uses Miner’s snake image prominently in the game in both animated cut-scenes and on the signs held by water protectors in the background of the game’s second level. Water protectors are actively present in the world of the game alongside more fantastical representations of the threats that they face.

Miner’s dragon-like illustration of a pipeline snake is then brought to life in the final level of the game, where the thunderbird faces off against a coiled segment of pipeline with a snake head belching smoke through its fangs. While the first two levels depict the thunderbird flying across the land destroying segments of pipe, construction vehicles, and refinery infrastructure, in depicting the snake pipeline as the final boss fight of the game, LaPensée unifies the threat of oil extraction, spills, contamination, and the petroeconomy itself in this posthuman being at the boundary of life and not-life. On the game’s website, LaPensée describes the pipeline as the consequence of American settler colonialism and capitalism:

¹⁷ Miner works as an artist, activist, and scholar and serves as director of American Indian and Indigenous Studies, as well as associate professor for the Residential College in the Arts and Humanities (RCAH) at Michigan State University. He creates mixed media textile and instillation art as well as prints. His art, publications, and syllabi can be found at dylanminer.com/. Isaac Murdoch co-organizes the Onaman Collective, a grassroots art initiative named for the red ochre paint used by Cree and Anishinaabe peoples, along with Christi Belcourt (Michif) and Erin Konsmo (Métis/Cree). In addition to designing prints and banners, the collective organizes an Ojibway language, arts, and culture camp for youth and Elders. Their art and information about their community programs can be found at onamancollective.com/.

We were warned, there would be a generation when there would come to be a snake that would threaten to swallow us whole, a snake with a hunger which could never be satisfied, brought forth from under Grandfather Rocks by the grabbing hands of another people.

The pipeline snake is threatening because it reveals how American petrocapi-talism depends on not-life consuming life. As LaPensée's description of the snake suggests, much of the danger of this snake pipeline comes from its hunger and consumption, as a materialization of capital itself. The boss fight begins as the thunderbird approaches the pipeline snake curling up from the bottom of the screen. Only seven segments of the snake's body are visible on the screen, emphasizing the enormous scale of the pipeline stretching all the way back materially to the Alberta tar sands and temporally to oil's deep geologic past. The snake cannot do damage to the thunderbird in this final boss fight, as the thunderbird is incapable of dying at any point during the game. Instead, the game raises the stakes in this final fight by giving the snake the power to belch clouds of smoke that temporarily remove the thunderbird's lightning abilities and by slowly leaking oil into the background. The pollution of fossil fuel extraction, here, is represented not as an unfortunate by-product of energy culture but as the antithesis to the thunderbird's spiritual electric power.

To destroy the snake and win the game, the player needs to avoid the clouds of pollutants coming from the snake's mouth and aim her lightning strikes at the leaking joints in between the different pipe segments. This is an interesting method of attack, as even swiftly killing the snake through this method will result in a polluted water source. The background for this level is entirely composed of animated water, in contrast to the layers of earth, water, and sky featured in the first two levels. As the fight continues, the

background water will darken as it becomes more and more polluted by the leaking oil. The real stakes of this boss fight, then, is whether the water remains partially polluted or becomes catastrophically polluted. This oil cannot be entirely contained, but the player still has the ability to protect this partially contaminated water source.

This imagery of a pipeline as a material, permeable, leaking barrier is emphasized by the animation and gameplay of the boss fight. Throughout this fight, the pipeline is always represented as alive. It is a living threat, but not entirely in the way that LeMenager and Huber describe, where oil is alive through its imbrication with capital, entrepreneurial individualism, acceleration, and movement. In fact, the snake is surprisingly slow-moving and stationary. The thunderbird can fly around the screen, but the snake appears to be stuck in one place throughout the fight. Acceleration and entrepreneurial movement forward are revealed, in this fight, to be fantasies that do not reflect the way that oil infrastructures are actually rooted in a specific place. Oil's fungibility as a unit of energy or capital depends on this fantasy of unlimited, free-flowing movement. Associating oil capital with the earthbound pipeline undercuts this American cultural fantasy by grounding oil's living inanimacy in the land it pollutes.

Understanding the petroeconomy and the politics of oil pipelines as a living being helps bring together different sites of oil extraction and transportation as part of the same problem, or segments of the same snake. Another image from a cut-scene animation shows the snake with its tail in the Alberta tar sands and its mouth opening to swallow the Great Lakes. There are no borders in this image, even though the snake crosses the United States and Canada. Instead, the pipeline as snake emphasizes the connections

across these pipeline sites. American energy culture relies on narratives of progress, expansion, and freedom of movement that obscure the ways these materials are actually situated on lands that have a long and abiding connection to Indigenous nations. By unpacking these cultural associations between oil and American energy culture, *Thunderbird Strike* also questions the ways energy futures are tied to an American national project that overlooks the present and future life of Indigenous peoples across borders. The game imagines a future for energy beyond oil dependence and beyond the imaginary of American national and imperial projects dependent on living oil.

It is significant that LaPensée and other activists creating water protection art focus on the pipeline itself as the ultimate threat. Oil's ontological liveliness in Western petromedia typically imagines oil in its liquid form. Even when depicting the infrastructure surrounding oil's extraction and refinement, petromedia and petrofiction tend to represent oil as a free-flowing liquid resource. Depicting the dangers of oil as the combination of oil within a pipeline draws attention to three types of permeable barriers that oil leaks through: the pipeline as a leaking barrier between the oil and the earth, the earth's surface as a barrier breached by the placement of pipeline segments, and the body as a barrier permeated by the toxic effects of oil spills. The representation of pipelines as posthuman snakes at the boundary between life and not-life focuses on oil as a medium of dangerous transference instead of oil as a material associated with acceleration or free-flowing capital.

This sense that oil is uncontainable within a larger posthuman apparatus is present throughout water protection art and activism. Sophie Lewis has coined the term

amniotechnics for what she calls “a cyborg ecology of liquid” that draws on Métis and Lakota ontologies to unpack why “water is life” is such a crucial slogan for these movements. As she writes:

The cause for “water protection” holds not because liquid is benign and romantic but, actually, precisely because it is a kind of *frenemy within*. Water is very accommodating. It is easy to taint and to flavor and exceedingly difficult to wipe clean of the traces of ignorant deeds. It is by far the greater part of us, yet with just the slightest change of proportion it will drown us; it is entirely dead, yet teeming with the life that can’t exist without it; it is far bigger than us and it is utterly, blithely inhuman. Hold it better, and kinship might grow between strangers. Release it carefully, lest it drown that kin (n.pag.)

Amniotechnics connects water protection movements to amniotic fluids and reproductive justice. Water holds and encloses, it drowns, it moves across what we might like to think of as impermeable boundaries across the womb and between bodily interiority and exteriority during childbirth. *Thunderbird Strike* enacts this amniotechnic approach to water protection by exploring the dangerous slippages of both water and oil across and between segments of pipe, as well as the dangerous consequences of these slippages. Water therefore serves as a medium for the creation of both toxic and rejuvenative posthuman kin. The posthuman body of the thunderbird depends on the same cyborg water system of river and rainfall threatened by the pipeline’s leaking body. Posthuman kinship, in the game, is created through water’s dangerous mix of lively and inert matter. Water is life, but water also facilitates new forms of toxic posthuman not-life as it erases barriers between these ontological categories. It is not that the thunderbird is a “good” posthuman while the snake represents the “bad” aspects of posthuman becoming; rather, they are both materially and semiotically polluted through their contact with the refuse in

these ecosystems. Posthuman petroleum encompasses these contradictory positions as it creates technological beings to fight the conditions in which they were formed.

Conclusion

As I play *Thunderbird Strike*, I am struck by the fact that is impossible to lose this game. The thunderbird cannot die or even be halted in its flight across the screen. Even if the player misses all the equipment, fossils, and water protectors with her lightning, the game still treats the completion of the journey as a victory in itself. As an Indigenous Futurist text, and one that contains such post-apocalyptic imagery of pollution and contamination, this game offers a way to play through the problem of pipelines. Zoe Todd's (Métis) research into the interconnected lives of fish and oil in polluted Canadian rivers suggests that kinship relations in a polluted, posthuman ecology must consider the role of "tenderness" when building more just futures. As she points out, "Tender is a simultaneous condition for connection and a symptom of *too much connection. The kind of connection that renders you numb*" (n.pag., italics in original). Despite the risks involved, tenderness is crucial at a time when white supremacy is reaching back into the material geologic past to claim ownership on life and not-life.

Writing “On Time,” Todd argues:

White supremacy infiltrates the stories of our origins—shapes them in its image, tries to evacuate all other ways of knowing and being. . . . Through the logics of its own science, white supremacy seeks to categorize humans in such a way to stretch its spindly white fingers back through the mammals, the dinosaurs, the marine creatures, the stromatolites, the nucleated-cells. . . . the very carbon and oxygen and hydrogen and nitrogen and atoms and electrons and quirks and quarks and energy that comprise this existence—they try to stretch that spindly finger back to the very beginning of *being* here on this planet, in the forms we understand being to take (n.pag.).

The backlash to this game reveals how energy futures in American culture are temporally dependent on narratives of technological progress where carbon and petroleum and energy itself is leveraged in service of white supremacy. *Thunderbird Strike* places value on radical tenderness in imagining a future affected but not destroyed by oil in order to combat these white supremacist origin stories. By encouraging the player to protect future environments even when these environments are already contaminated, LaPensée resurrects a past where fossilized kin do not continue to fuel American white supremacy. Instead, the reenergization of the world through the spiritual power of the thunderbird creates a posthuman energy future based on pleasure, protection, and play.

Chapter Two:

Posthuman Biomedicine

As the effects of climate crisis and pollution become more widespread, queer theory, disability studies, and feminist ecocriticism have increasingly shifted discussions of posthuman hybridity toward the merging of human and nonhuman found in chemical waste and toxicity. This new materialist turn in posthuman scholarship simultaneously confronts the devastating effects of the capitalocene on environments and bodies while imagining positive or at least pleasurable and playful queer futures stemming from these conditions. At the center of these queer materialist futures is the biopolitical management of toxicity itself. Chemical waste, radiation, and other toxic matter can serve as a politically transformative space for exploring human embodiment as part of a network of animals, environments, and objects, exploring “the capacity to rewrite conditions of intimacy, engendering different communalisms and revising biopolitical spheres, or at least, how we might theorize them,” as Mel Chen writes in *Animacies: Biopolitics, Racial Mattering, and Queer Affect* (3). These revisions of biopolitical spheres lead to ambiguous futures. There can be both trauma and queer posthuman pleasure resulting from living with exposure to a contaminated world. In this chapter I will consider how Indigenous futurism draws on and repurposes the medically toxic posthumans found in new materialist theory. Centering toxic posthumanism on Indigenous perspectives shifts these discussions towards sovereignty, genetics, and reproductive futurity.

Feminist theories of the posthuman have always stressed embodiment and have increasingly turned to biology and environment as the material substate in which we

become posthuman. N. Katherine Hayles' definition of the posthuman as "informational pattern over material instantiation" has influenced a great deal of feminist work on prosthesis, computer simulation, gene splicing, and robotics as key examples of this figure (Hayles, *How We Became Posthuman* 2), but in the past twenty years this term has often shifted into biological and biomedical categories of matter itself. Donna Haraway's emphasis on animals and chthonic ecologies, Karen Barad's materialist approach to feminism and physics, Stacy Alaimo's writings on exposure and trans-corporeality, among others, reframe the posthuman as a biological, biopolitical, and ecological category of being. In this chapter I am interested in how Indigenous forms of posthumanism reframe these discussions of toxicity and biomedicine. Indigenous peoples are often especially at risk of medical abuse and neglect. These medical risks overlap with the treatment of Indigeneity itself as genetic category of racial identity, suggesting the toxic posthumanism of new materialist theory is structured by colonial apparatuses of biopolitical governmentality. The posthuman biomedicine found within Indigenous futurism, then, connects the medicalized body to land sovereignty through an attentiveness to the governance of toxic lands and toxic bodies alongside each other. On the one hand, these texts revise biopolitical spheres into Povinelli's "geontopolitics," where bodies are intimately connected to land and governed through the division between "Life" and "Nonlife." On the other, the apparatuses of biopolitical management and the elision of technology and technological waste in these toxic ecosystems pushes these grounded geontological beings into highly technological futures. It is at this nexus of

biopolitical governmentality and Indigenous knowledges that we find the creation of posthuman kin.

As I have previously argued, Indigenous futurism associates the posthuman with biopolitics and necropolitics precisely because settler colonialism uses technologies of empire like genetic sequencing or the biopolitical management of health and species as a way to categorize and control Indigenous peoples. When writing about the television show *Helix* (2014-15) and the cyberpunk film *File Under Miscellaneous* (2010) by Miq'maq filmmaker Jeff Barnaby, I argued that Indigenous futurism draws on the figure of the zombie to explore the biomedical formation of posthumanism (Attebery, "Indigenous Posthumanisms" 95). In these texts, posthuman futurity and transhumanist longing for an artificially enhanced and extended life map onto the necropolitics of colonialism, exposing the ways life-extension technologies like organ transplantation or the development and testing of new medicines often rely on the invisible clinical labor, to use Melinda Cooper and Catherine Waldby's term, of marginalized peoples who experience posthuman biomedicine as a kind of zombie identity.

In this chapter I expand on my previous work to consider how two other Indigenous texts tackle similar issues of genetic identity, biomedical abuse, and posthuman becoming by associating toxicity with the subversive figure of the trickster in Indigenous storytelling. Indigenous tricksters are a key feature of Native humor and storytelling. As Allan J. Ryan defines them in *The Trickster Shift* (1999), "Native humour" is an important part of contemporary Indigenous writing, "a sensibility, a spirit, at work and at play in the practice of many of the artists, grounded in a fundamentally

comic world view and embodied in the traditional Native North American trickster” (xii). The trickster can be utilized in a variety of ways. One possibility is the close association between trickster aesthetics and Gerald Vizenor’s writing on survivance, as he privileges humor and irony in postmodern Indigenous storytelling as narrative strategies which allow a playful approach to identity, particularly in relation to what he calls the “simulation” of the lower case *indian* as a colonial stereotype. For Vizenor, survivance is a practice of “vital irony” (“Aesthetics” 1). Native humor can also be bleak, a way of finding the humorous side of a dark situation. Ryan calls this “toxic humour” (168), a term that I find appropriate for the toxic posthumanism in some of the more apocalyptic Indigenous futurist texts. If the trickster can evoke “a form of humour based on toxicity,” one where “[y]ou have to laugh because there is nothing else to do but laugh at [a dark situation] in order to face the reality of it, in order to get past it” (Farmer qtd. in Ryan 168), then perhaps toxicity itself can become a material for the creation of posthuman tricksters. This figure plays with chemical contamination and toxicity in order to imagine queerly posthuman futures based in Indigenous land cosmologies.

These trickster posthumans question the biopolitical formation of “Indigeneity” as a genetic racial category by playing with the relationship between biomedicine and land. This posthuman biomedicine does not merely exist as a zombified commentary on colonial violence. Instead, Indigenous futurism imagines toxic futures where the health hazards of toxic waste create transformative moments of intimacy between mutated humans and mutated environments. To better unfold the pairings of contamination with connection, kinship with illness, injury with futurity, I will be looking at two texts which

exemplify this attentiveness to toxicity: Bunky Echo-Hawk's (Pawnee/Yakama) painting series *Gas Masks as Medicine* (2003-present) and the 1990 cyberpunk novel *Red Spider White Web*, by Métis writer Misha. Both of these texts create ironic pairings of the biopolitical management of contamination with the possibilities for intergenerational healing, creating biomedical posthumans out of this mix of colonial violence and Indigenous ontology. By nature of their relationship to irony and subversion, tricksters are well positioned to combine and refigure the dominant images of medical technologies: the chemically mutated or exposed body and the technologically enhanced body witnessing these risks through a protective barrier (the hazmat suit, the gas mask, the microscope, etc.). In either case, this is a form of posthumanism intimately tied up with surveillance and the assessment of risk. Posthuman tricksters can subvert the colonial apparatuses of biomedical surveillance by either repurposing such apparatuses into technologies for bearing witness to toxic landscapes or by the refusal to be surveilled at all. Echo-Hawk and Misha's work explore the tension between witnessing damaged lands and peoples and the desire to decolonize and unmap these surveilled toxic landscapes, turning both into trickster strategies for survivance in posthuman times.

Witnessing, Risk, and Toxicity

Bunky Echo-Hawk is a Pawnee/Yakama visual artist whose work reimagines mainstream pop culture figures through Indigenous iconography. He is perhaps best known for his 2007 painting *If Yoda was an Indian*, which depicts the *Star Wars* character Yoda wearing Pawnee regalia. As Olena McLaughlin notes, adopting Yoda as a form of native

representation allows Echo-Hawk to “defy stereotypical expectations of the mainstream audience about Native art and create images that represent their personal experiences with contemporaneity” (31). Echo-Hawk’s pop art does not exclusively draw on science fiction—he also uses a lot of sports imagery in his paintings and murals, and he has done design work for skateboards and clothing lines—but this interest in contemporaneity situates his art within Indigenous futurisms.

Other examples of Echo-Hawk’s pop art are less whimsical than his Pawnee Yoda and more confrontational about environmental and political injustice. As he notes in his artist’s bio, Echo-Hawk’s “birthplace is 30 miles downwind from the Hanford Nuclear Site, the facility that created the bombs dropped in Hiroshima and Nagasaki,” resulting in a decade of unknowing exposure to low level radiation for anyone living on Yakama territory.¹⁸ The Hanford Nuclear Site brings Hiroshima and Nagasaki together with Yakama territory by linking their experiences of fast and slow racist imperial violence. The invisible toxicity of the Hanford Nuclear Site reveals the ways land sovereignty and health are both impacted by the scientific imperialism of the Atomic Age.

¹⁸ These events are, interestingly, also influential on Misha’s work, especially in her story “Chippoke na Gomi (Tiny Dust).” As she explains in an interview with Marc Laidlaw for *Weird Fiction Review*: “I had always and forever been upset about Hiroshima and Nagasaki, even as a little girl. I could never accept the reasons why the government felt it necessary to kill 74,000 people in one go, not to mention animals, plants, etc, in order to “win.” It was unacceptable. Completely and utterly unacceptable. Even as a little girl, frightened by drills to prepare for nuclear blasts, it had not escaped me that my country, the United States of America, was the only one which had dropped a nuclear bomb on another country. I was heartstruck by it, and always will be. It is a recurring theme in a lot of my writing. But then again, keep in mind, some of my heritage is Native American. A culture and race of people nearly genocided by others who wanted to win a war. A war on Indians. No. I said no and I will say it again: no!”

As Megan Glick points out, Atomic Age anxieties about contamination and mutation resulted in two forms of what she calls the “infrahuman”:

In an era of mechanical intervention, organic life continually proved insufficient. Anxieties that accompanied these deficiencies created a postwar culture that continually sought to rebuild the human body from within and without, exemplified by the rising fields of plastic surgery and genetic engineering (98).

I connect both of these postwar interventions to the posthuman, particularly the forms of transhumanism which value modifying and perfecting the human body. The key here is to consider which people have access to these mechanical interventions and which are denied these technologies of medical rebuilding. As Patrick Sharp points out, nuclear apocalypse narratives often “drew on the imagery of the frontier—and its racist vision of a savagery that threatened to swallow civilization—to romanticize their accounts of life after a nuclear war” (6). These nuclear frontier stories create a clear distinction between white survivors, who can access the medical technologies to rebuild the body, and racialized others who are excluded from these interventions. At stake in the Yakama nation’s exposure to radiation, then, is the biopolitical management of genetics and futurity—which populations are medically rebuilt and which are managed as already contaminated and exposed.

This personal legacy features prominently in the bleak imagery of Echo-Hawk’s art, particularly in a series of paintings called *Gas Masks as Medicine*, spanning roughly from 2003 to the present. In her article “Laughing in the Dark: Weird Survivance in the Works of Bunky Echo-Hawk and Daniel McCoy Jr,” Kristina Baudemann connects Echo-Hawk’s work to trickster aesthetics, arguing that because “survivance can involve dark humour and bleak imagery one might consider worthwhile the introduction of a new

term that directs the scholarly gaze to the artistic handling of the grotesque and bizarre elements” (49). Baudemann defines this mix of dark humor and bleakly surreal imagery as “weird survivance,” a form of survivance which posits the futurity of landscapes and peoples even when they are poisoned.

Weird survivance is a good description of the unsettling trickster aesthetics of Echo-Hawk’s paintings, which position masked figures against green, orange, pink, yellow and blue backgrounds which are vibrantly colored in shades which look unnatural. Part of this unnatural effect comes from using colors which do not match their apparent landscape. For example, in the painting “Chief Weapons Inspector Found Weapons of Mass Destruction,” a masked Pawnee figure in quarter profile faces away from the viewer towards a pig with glowing yellow eyes, presumably the Chief Weapons Inspector, who has a single feather from a war bonnet caught in its mouth. This startling and darkly humorous image takes place in a landscape where the ground is light blue and the sky is dark orange. In the distant background a dark blue city is surrounded by a hazy yellow and green glow. These colors are not impossible to find in nature, but their placement in the painting seems unnatural and toxic.

Echo-Hawk’s use of color reflects the ways the shift into toxic forms of posthumanism can have a profound influence on perception and aesthetics. Writing about their experiences with MCS, Chen argues that sensitivity to toxins creates a “toxic sensorium,” a changed relationship to sensation and affect which queers the human body by rendering it more open to assessing and perceiving nonhuman intimacies (196). These intimacies are characterized by a “poisoned affect,” one which “incontrovertibly meddles

with the relations of subject and object required for even the kind of contractual immunitary ordering that Esposito suggests” (195). *Gas Masks as Medicine* similarly foregrounds a toxic, poisoned sensorium. The typical invisibility of toxic chemicals is made visible through these brightly colored, poisonous landscapes—a kind of deviant or poisoned affective experience for the viewer. The viewer is therefore positioned as a witness to a toxic environment, who can be perceived through Echo-Hawk’s dramatic color choices toxic risks which might otherwise have been invisible.

Echo-Hawk’s poisoned landscapes and peoples create a sense of unease in the viewer which make the assessment of environmental risks a key part of his work. The assessment of risk in a chemically toxic environment can open up queer possibilities for scientific risk assessment alongside or outside of the control of empire. Stacy Alaimo uses the term “trans-corporeality” for the ways toxicity and chemicals open the human body to our environments, suggesting that a queer, disabled “environmental health and environmental justice [...] emerges from exactly this sense of risk society, in which individuals require scientific knowledge not only to assess risks but to survey the landscape of the self” (*Bodily Natures* 19). This transformation of the supposedly bounded body into a scientific instrument inexorably tied with toxic environments connects the toxic body to the posthuman, as the term is used in feminist science studies theory. Alaimo points out that the toxic body is a sensing body, as “the body becomes something akin to a scientific instrument, in that daily life becomes a sort of experiment: what happens when I go there, breathe that, touch this?” (24). This toxic posthuman body can neither be transcended through technological apotheosis nor can it exist separate from

its environment. Instead, the body's openness to forces and matter beyond the human instrumentalists the human into a bio-technological being who exists to measure and assess risks.

The environmentally-ill body becomes biomedicalized through this process as the body is both the injured flesh to be managed and the apparatus through which risk assessment is made possible. As Adele Clarke et al define it, biomedicalization is the “term for the increasingly complex, multisited, multidirectional processes of medicalization that today are being both extended and reconstituted through the emergent social forms and practices of a highly and increasingly technoscientific biomedicine” (162). Genomic research is an important part of biomedicalization, as are other fields where medicine is becoming increasingly technological:

Biomedicalization is reciprocally constituted and manifest through five major interactive processes: (1) the politico-economic constitution of the BiomedicalTechnoService Complex, Inc.; (2) the focus on health itself and elaboration of risk and surveillance biomedicines; (3) the increasingly technoscientific nature of the practices and innovations of biomedicine; (4) transformations of biomedical knowledge production, information management, distribution, and consumption; and (5) transformations of bodies to include new properties and the production of new individual and collective technoscientific identities (Clarke et al 163).

I read biomedicalization as an important aspect of twenty-first century posthumanism. Like other versions of critical posthumanism, these technologies of medical surveillance and knowledge production can lead to emergent communities and identities, but they also situated human individuals and populations within the biopolitical structures of settler colonialism and imperialism.

The biomedicalized body becomes a space where the biopolitical regulation of empire plays out at the scale of the individual or community—the borders of the toxic body are surveilled, breached, and policed in service of the biopolitical management of empire. As Neel Ahuja argues in *Bioinsecurities: Disease Interventions, Empire, and the Government of Species*:

In the process of forming the human out of cacophonous biosocial relations, empire often persists—even after the formal conclusion of colonial occupation or settlement—in part because it invests public hope in the management of bodily vulnerability and orients reproductive futures against horizons of impending risk, a phenomenon I call *dread life*. In such processes by which bodily vulnerability is transmuted into political urgency, techniques proliferate for managing the relations of populations and the living structures of species (human, animal, viral). As such, empire involves the control of life through accumulation of territory and capital, which may be securitized by activating life’s relational potential. (Ahuja xi, italics in original).

There are numerous examples of dread life operating as a racialized policing of species and population, and Ahuja notes that these structures of power are intensifying as “the idealism of the global is transcended by figurations of planetary crisis of human security in the form of extinctions, resource depletion, climate change, and epidemic disease” (202). Ahuja is specifically interested in the viral as a category of dread life, but I find his assessment of how risk operates within the biosocial technologies of empire useful for looking at these issues in Echo-Hawk’s work. The same public management of bodily vulnerability similarly structures responses to chemical exposure around race and empire.

While, for Ahuja, dread life transforms bodily vulnerability into forms of political urgency which easily slide into fascism and white supremacy, in new materialist posthumanism and Indigenous futurisms these practices of risk assessment can be recuperated into a more resistant form of witnessing—drawing attention to the risks of

exposure which disproportionately effect Indigenous peoples and other marginalized groups. As Alaimo argues, the posthumans created through exposure to chemicals and other toxins can operate as “deviant agents” who “[rupture] ordinary knowledge practices” (Alaimo, *Bodily Natures* 17). Alaimo gives examples like cancer autobiographies, MCS portraits, or science fiction texts, all of which offer different ways of assessing and visualizing the body. These scientific artistic creations point to the empowerment and community-building made possible in part by conceiving the body as a scientific instrument. Assessing one’s own risks, in this case, can create deviant scientific practices outside of the dread life of empire. Chen addresses these poisoned affects as a response to Esposito’s biopolitical framework of *communitas* and *immunitas*, but I would argue that this suggestion that the environmentally ill body becomes a “landscape of the self” also shifts this into a geontopolitical register. Species, diseased bodies, and toxic land bleed together, not merely through the elision of species, disease, and national borders, but through Indigenous ontologies which prioritize land sovereignty and inhuman kinship. The deviant agency of the sensing body is equipped to recognize these commonalities in ways that draw on Life/Nonlife more than making live and letting die.

Echo-Hawk reworks the posthuman technologies of risk assessment into the witnessing of these connections across bodies, species, and land through the imagery of the gas mask. The gas mask operates as a posthuman prosthesis for assessing and surveilling risk. In Echo-Hawk’s paintings, the gas mask becomes an Indigenous technology, often visually incorporated into a Pawnee headdress as yet another piece of

regalia. He subverts the imagery of the gas mask as invoking safety, immunity, and national power by exposing the risks and vulnerabilities inherent in a biopolitical nation state. After the dangers of these synthetic chemicals, particularly pesticides, became popularized in America by Rachel Carson's *Silent Spring* (1962), there was a cultural shift away from enthusiasm over synthetic chemicals as a futuristic augmentation of human life to its presence as a dangerous and often invisible threat. Discourse around chemicals shifts to risk assessment and concern over exposure. Carson's influence created a popular environmental movement focused on the invisible risks of chemicals, especially the perceived risk to white bodies and heteronormative futurity. Finis Dunaway notes that the iconography of the gas mask became prominent at the start of the 1970s as part of the emerging American environmental movement. The gas mask was such a striking image because it "personalized the sense of risk by showing ecological threat intruding upon the daily lives of all Americans, warning that everyone could suffer from the deadly spread of pollution." (Dunaway 68). Its origins as a technology for mitigating the damage of chemical warfare similarly structures the mask as a technology of empire. As Dunaway points out, gas mask iconography is also tied up with American racial and gender politics. Analyzing a famous *Life* magazine photograph from 1970 featuring a masked woman and child in a stroller, Dunaway notes that such images become a cultural shorthand for a threatened white futurity, serving as a "secularized image of the Madonna and child, set not in the biblical past, but rather in the apocalyptic future" (75). The gas mask promises safety for the white heteronormative family while

simultaneously revealing the presence of invisible threats within and surrounding the family.

Interestingly, the circulation of these images of an apocalyptic masked Madonna coincided with the “Crying Indian” public service campaign. The famous “Crying Indian” image was put out by the organization Keep America Beautiful in 1971, and featured a close up image of Iron Eyes Cody, a white actor wearing redface, staring tragically into the camera as he weeps a single tear for the transformation of a “pristine” pre-contact America into a nation filled with trash and pollutants. Here the indian—in Vizenor’s sense of a lower case “indian” as a colonial simulation—becomes a metonym for colonized land. As Michelle Raheja (Seneca) points out, this redface performance of settler colonial tragedy is a famous example of the “vanishing Indian” trope, as he “can prompt environmental action on the part of the viewer through an appeal to guilt precisely because he is figured as ghostly (i.e., therefore not within the bounds of contemporary discourse on race in North America) and not a member of a vibrant, extant community” (107). I would suggest that these two images of pollution and environmental precarity—the gas mask wearing mother and child and the crying, ghostly redface performance—work alongside each other to separate Indigeneity from reproductive futurity in the American environmental movement. The white family must be protected from outside forces which threaten their futurity and their bodily purity, but the protective technology of the gas mask cannot be afforded to the Crying Indian without suggesting that he has a stake in a non-white post-apocalyptic future. The Crying Indian is non-reproductive, vanishing or already vanished. Dressing him in a gas mask would undercut

the campaign's message of white guilt because it would disrupt the power of this imagery—if Iron Eyes Cody wore a gas mask, a white audience wouldn't be able to see his stereotypical performance of redface or the single tear upon which the campaign focuses, and he might be able to survive into a poisoned future.

I bring up the Iron Eyes Cody public service campaign because this is precisely the kind of pop culture image of the “ecological indian” which Echo-Hawk's work references and repurposes into a trickster image, in part by combining these two trajectories for 1970s pro-environmental iconography. Many of Echo-Hawk's masked figures are positioned similarly to the Crying Indian—they look directly at the viewer in an extreme close up—but the addition of a mask changes the ways these figures witness risk and empire. Many of the paintings in the series focus on observation. They are titled names like “Outside Looks In,” “Witness,” “She Watches,” “Eyes on You,” “Always Watching,” and so on. These paintings are framed as portraits, with the subject facing the viewer, often in what feels like an accusatory stare despite or perhaps because of the lack of eyes visible through the gas mask. This accusatory stare reverses the biopolitical apparatuses of surveillance that Ahuja describes. Surveillance becomes witnessing, and the Indigenous posthuman figures in the paintings are the ones with the agency to witness instead of be witnessed.

“Outside Looks In” is a good example of this indeterminacy of witnessing. In this painting, a native man sits in a toxic green armchair next to a deserted road. He holds a remote out in his hand, but the painting doesn't show what device the remote controls. The figure is glancing towards the viewer, but it is unclear if the empty eye sockets of the

gas mask are really directed out of the frame of the painting or somewhere else entirely. The focus of the painting is on the witness, not a damaged landscape, and it is unclear whether they are surveilling the landscape at all—either an external or internal landscape of self—or witnessing the oppressive systems of white settler power which cause the destruction, or bearing witness to the act of representation and media making. This incorporation of prosthesis, both as medical technology (the gas mask) and media (the remote), make him a posthuman figure, but one who occupies the darkly humorous boundary-crossing position of a trickster.

The trickster humor in this image refuses legibility within this a colonial system of biomedical surveillance. Most of these images both refuse eye contact and lack faces. The eyes of the gas mask are typically empty, but in two of the paintings—“Witness” and “Camp Cryer”—the eye sockets seem to cast a reflection. In “Witness,” the eye sockets contain three bright yellow splashes of color which almost look like land masses and almost look like tears, especially in the figure’s left eye, which contains a dripping yellow oval in exactly the place where a tear would form in the corner of an eye. “Camp Cryer,” as the punning title suggests, similarly features swirling yellow shapes in the figure’s empty eye sockets, this time for a figure dressed and posed like a television interviewer, complete with a microphone. I read these paintings in particular as an ironic reframing of the “Crying Indian” image. These figures refuse the type of performance of authenticity which Cody’s redface relies on. They refuse to show their faces at all. In doing so they take on the role of observer situated *within* this toxic landscape, but not necessarily a witness *of* this toxic landscape. Even their tears are denaturalized, as it becomes unclear

whether these are toxic matter caught in the prosthesis of the gas mask or a reflection of the toxic land around them. In this way, surveying the self becomes a survey of land as well as individual medicalized body.

As posthuman biomedicine, these gas mask warriors confront the structures of colonial power and empire responsible for their illness. Out of the dozens of paintings in this series there are two types of poses taken on by these figures. The majority of these paintings feature Indigenous men in suits, gas masks, and headdresses as they take on some sort of legal authority. In the painting “Prosecution Rests,” for instance, the masked figure is carrying a briefcase as he walks away from a courtroom. “State of the Union” and “Inauguration” show suited, masked figures standing in front of an American flag and the White House, respectively. “National Resource Management” has two figures in masks and judges robes, one holding a briefcase and one holding a gavel affixed to the end of his breathing tube, as an oil derrick and the face of George W. Bush loom in the background. There are paintings called “Tribal Law,” “Tribal Council,” “The Delegates,” which, although they lack the clearer markers of business attire or paraphernalia, suggest that these masked figures are bearing witness, in a legal sense, to the environmental devastation of their poisoned landscapes. Witnessing, here, is not a passive act, but a step in a future-oriented process of decolonization and renewal. These paintings draw attention to the ways decolonization is an ongoing struggle over access to stolen lands which often takes place in spaces of settler governance like courtrooms. Witnessing also takes on an ironic position in these paintings, since bearing legal witness places these Indigenous men in a position of settler authority, as indicated by the white house,

American flag, political press conference, and other icons of American statehood. In Echo-Hawk's work, these toxic colorful landscapes seep into the settler spaces where they had ostensibly been kept out. These places of legal witnessing also bring the threat of toxic futurity into the heart of settler governmentality.

This sense that the land itself enters spaces of legal governance in order to bear witness becomes most clear in the 2010 painting "In Pursuit of Justice." The masked figure in this painting is dressed similarly to those in "National Resource Management," wearing a suit and holding a gavel, but this figure is astride a horse. The horse initially appears to be also wearing a gas mask, but looking more closely it becomes apparent that the horse's head *is* a gas mask—the animal has merged completely with the empty eye sockets and bulbous filtration canister of the mask. This is not the only time a masked animal has appeared in Echo-Hawk's paintings. "Tribal Law" also includes a horse in the background of the image, but in that painting the straps of the horse's gas mask are clearly visible. "In Pursuit of Justice," on the other hand, suggests that the horse has merged completely with the technology of the mask, and that the same might be true of the rider. This complete merging with technology reinforces the posthumanism of these figures and it turns Alaimo's reading of the exposed body into a literal blending of bodies with technology to rebuild their bodies as scientific instruments. The safety and distance from chemical toxins evoked by the gas mask is subverted as these figures blend interior and exterior across species, becoming a two-bodied trans-corporeal scientific instrument in their quest for justice. By seizing the posthuman medical interventions denied to them, this human/horse pair expose the colonial state's complicity in the biomedicalization of

Indigenous bodies and lands while suggesting new forms of resistant community can form around these shared experiences of toxicity. These posthuman figures both diagnose the colonial violence of biomedicalization and imagine a future where these abuses can be witnessed and rectified.

Aside from these paintings focusing on law and justice, many of Echo-Hawk's works imagine how intergenerational relationships are transformed through toxicity. Two paintings in particular—"Inheriting the Legacy" and "A Mother's Love"—combine the technologies surrounding toxicity with parental care and reproductive futurity. I'm particularly interested in the way the gas masks in "A Mother's Love" are connected by a tube resembling a weird technological umbilical cord between the mother and child, an image also suggested in the green tie visually connecting the two masks between a father and child in "Inheriting the Legacy." These images of intergenerational chemical exposure becomes a conduit between the biopolitical regulation of Indigenous identity and the geontological regulation of native land. While all bodies within a nation state are regulated through biopolitical apparatuses, Indigenous bodies bear additional signification as a population whose genetics are a fraught object of study. Indigenous posthumans shift this science of exposure into the fraught politics surrounding Indigeneity, especially attempts to biomedicalize Indigenous identity through apparatuses like blood quantum. As Kim Tallbear argues in *Native American DNA: Tribal Belonging and the False Promise of Genetic Science*, blood takes on a complex material-semiotic signification in both tribal politics and American imperialism. Blood is conflated with genetics. Native blood sometimes becomes an object of nostalgic fascination to white

settlers and at other times is rendered dilutable through the counting of tribal belonging through percentages or fractions (Tallbear 6).

This fractioning and dilution of racialized biopolitical identity is complicated by the biomedicalization of chemical exposure. Anxieties about chemical contamination and racial contamination operate alongside each other. Chemicals are more or less dangerous depending on their percentage in the body, so observing and measuring this percentage, judging the difference between acceptable and dangerous levels of exposure, becomes important for assessing this risk. However, these risks are often not clear cut. Some toxic chemicals have bioactivation dependent toxicity, where harmless chemicals are converted to toxic materials only once they have entered the body (Jeffrey, “Biochemical Basis of Toxicity” 15). Bioactivation can be particularly important for assessing the transference of chemicals between kin, particularly across a placental barrier or through breast feeding. Other chemicals are widely considered to be safe, but only in small proportions. The toxicity of chemicals is determined by dosage and dilution. Navigating toxic environments involves assessment of risk based on concentration rather than mere presence of toxic chemicals in the body. Toxicology tracks different vectors of exposure (inhalation, consumption through food or water, entry into the bloodstream) and the bioactivation of supposedly harmless chemicals in response to proteins in the body in order to determine whether potentially toxic materials are within a safe margin for human life. Racial belonging and chemical exposure, assimilation and dilution, bioactivation and inheritance. The biopolitics structuring our management and assessment of chemicals and chemical waste draw on the discourse of racialialization and purity, as the

toxicological assessment of risk and exposure resemble the biopolitical logic of managing populations as resources. As such, the biopolitics of toxic matter draws on colonial strategies for expanding the reach of national sovereignty and policing the boundaries of racial “contamination.”

This elision of race and contamination works differently in Echo-Hawk’s paintings, where families are able to pass along not only the latent chemical toxicity in their bodies but also the technological prosthesis to survive in these toxic environments. The children in these images are “inheriting” both the legacy of exposure and the technologies and techniques to make sense of the imperial scientific histories behind their contaminated bodies. Their contamination is no longer invisible, and by recognizing the toxicity of their land and bodies these figures are able to seek out biomedical technologies to help them adapt. They are both exposing each other to toxins and breathing together. The posthuman biomedicine which earlier united humans and animals in service of justice becomes a lifeline between generations. Environmental toxicity both caused these parents and children to merge with their technology and their environment in a toxic land-body and provided them with the medicine necessary for their survivance.

Echo-Hawk’s work transforms the immunitary discourse evoked by the image of the gas mask—with its associations with borders, national identity, and empire—into a posthuman technology bearing witness to environmental racism without pathologizing these landscapes and bodies. However, his work doesn’t tend to incorporate the queer futurity that is such a central part of Chen, Alaimo, Ahuja, and other theorists of new materialisms and biomedicine. It would be inaccurate to describe his radioactive families

as heteronormative, “nuclear” families—in fact, the family units represented in his work are more often single parents or larger communities—but the vast majority of these gas masked figures tend to be hypermasculine. They often wear suits, and are associated with sports imagery and warrior regalia, and while it is impossible to fully determine the gender of some of these figures through their bulky protective clothing, only the figure from “A Mother’s Love” seems to be singled out as anything other than male. There is something queer about the umbilical cord imagery in some of these gas masks, where masculine figures seem to be in some way birthing or biologically connected to a child, a horse, or an object like a gavel. However, the overall effect of Echo-Hawk’s paintings is intergenerational community formed around the machismo of warrior iconography. In contrast to Echo-Hawk’s masculine take on a gas masked warrior, *Red Spider White Web* imagines a more explicitly queer version of the gas masked warrior by focusing on a female artist who draws on posthuman trickster aesthetics to survive a toxic cyberpunk world.

Unmapping Toxic Bodies and Environments

Red Spider White Web was published by Métis writer Misha in 1990 at the height of the cyberpunk movement. Despite the novel’s clear ties to cyberpunk, it has often been overlooked as part of this subgenre of science fiction. The novel—and Misha’s contributions to cyberpunk as a whole—are beginning to receive more attention now, as a key text for Indigenous futurisms and forerunner to contemporary Indigenous cyberpunk. Indigenous cyberpunk has a different history and politics from the movement associated

with Sterling, Gibson, Cadigan, and other writers who consciously used that term for their forays into harder-edged science fiction about commodification, reification, and the emergence of digital posthuman technologies. Indigenous cyberpunk engages with coding and virtuality as distinctly Indigenous forms of storytelling. Cherokee scholar and author Brian K. Hudson sums this up best in his 2018 blog post, “An Indigenous Cyberpunk Manifesto”:

Gibson constructed the console cowboy, but we are the digital Natives. We are the original Natives of the web, the tech-savvy NDNs weaving in and out of discussion threads, the warriors with keyboards who carry sparks into cyberspace. We are the coders who create sovereign virtual worlds, the digital code talkers who braid Indigenous tongues into networks of resistance. We’ve navigated the webs of branching nodes since time immemorial—before *kubernētēs* became *cybernetics* and before *punk* was *ponk*. Our digital allies boost our signals. We are Indigenous cyberpunks (n.pag.).

In Hudson’s wordplay, cyberpunk predates cybernetics, and even predates Gibson or the *Mirrorshades* collection. For Indigenous cyberpunks, the web registers as much as a form of weaving or a connection to the nonhuman personhood of spiders.¹⁹ There isn’t a clear distinction here between language, code, and textile art. In part, I think this emphasis on tech-savvy trickster weavers stems from Misha’s importance as an origin point for recent Indigenous cyberpunk authors and artists. As the title indicates, *Red Spider White Web* associates Indigenous cyberpunk not with hypermasculine coders, but instead with nonhuman queerness, using webbing and weaving as an act of nonhuman creation and a playful approach to language and meaning.

¹⁹ These connections also play out in Hudson’s cyberpunk story “Digital Medicine,” published in *Lightspeed* magazine’s *People of Colo(u)r Destroy Science Fiction* special issue in 2016, about a grandmother and granddaughter learning to code together while telling stories about a spider woman.

Misha's work approaches technology, especially the disembodied technologies of cybernetics and informatics which characterize most other cyberpunk fiction, in very different ways from most late 80s and early 90s cyberpunk works. As Sherryl Vint points out in her chapter "The Mainstream Finds its Own Uses for Things': Cyberpunk and Commodification," *Red Spider White Web* is distinguished from the more familiar, often masculine version of cyberpunk in its focus on characters "materially and economically excluded from society... In contrast to [the console cowboy's] faux estrangement from power, Misha's characters live in an impoverished and bleak world, and more importantly a world in which previously uncommodified areas of experience are disappearing" (Vint 96). Significant to the bleakness of this world is the trash, toxic waste, and radiation which permeates the environment. The characters in this world are not just alienated by the commodification and dystopian capitalist domination of their world; they are also environmentally ill, disabled by pollutants and toxins.

The novel imagines a dystopian American city recently occupied by Japan, where society is divided between contained corporate dome cities run by the corporation Mickey-san, a clear analogue for Disney; the dismal Dogtown where most of the population lives and works in factories; and "Ded Tek, "the polluted outskirts of the city inhabited by a bizarre collection of gangs, cannibals, cults, and artists. The artist community is the focus of the novel, as different characters incorporate trash and discarded technologies into their work to speculate about their lives in the polluted outskirts of the city in relation to the corporate center. The stakes of living in Ded Tek become more fraught as these artists find themselves the targets of a deranged serial

killer, whose murders are scattered throughout the novel in brief interstitial first person vignettes in between longer chapters. The narrative follows three different point of view characters—Motler, a bioartist who sells out to live in the Mickey-san dome; Kumo, a genetic hybrid, part human and part wolverine, who creates holographic art shows; and Tommy, a cyborg who collects hacked surveillance drones and robots made from repurposed wire, wood, plastic, and chrome. Kumo and Tommy are both Indigenous, and they work as both salvagers and artists, leveraging biomedical technologies against what Tommy calls the “effluent affluent” (110) of the corporate consumer culture. As such, they are the characters most clearly positioned as posthuman tricksters in the world of the novel.

Echo hawk’s paintings resemble the “toxic humor” or laughing in the face of a bad situation, while Misha’s tricksters have more of the vital irony and play with simulation that characterizes the trickster in Vizenor’s work on survivance. Salvage, art, hacking and repurposing tech all become strategies for these characters to play with the toxicity of their environment. The world of *Red Spider White Web* is teeming with refuse. The novel begins with Tommy looking out over the city, by describing the city as a “world of living metal” overlooking “a river of chemicals, effluvium, and strange mailed fishes”(13) and buffeted by “sulfur wind and acid rain” (15). Misha uses poetic descriptions which create a viscerally unsettling environment. Everything is wet and fecal and toxic, a city of “spashy soshing smelt” (11). All of this grossness is linked to refuse as biomedical matter—these descriptions of waste are not of a distant slag heap observed from a position of safety, they permeate the bodies of the characters. Kumo’s

introduction is a good example of this association between refuse and the body. She wakes in an abandoned boxcar she's been using as a shelter, and the novel spends several pages describing all of the secretions and vulnerabilities of her body. She has "goggled eyes crusted with sleep, her mouth and nose with mucous." (18) Her first act, after groaning herself awake, is to blow her nose. She pulls her face mask down only to quickly scrub at her face with a handkerchief soaked in alcohol. This perfunctory cleaning ritual stings the small cuts on her face and lips. Kumo take stock of her body's pains, surveilling and assessing her risks and wounds limb by limb until she is shivering and drenched in sweat. The reader first learns about Kumo through her wounds—the ways her body excretes herself into the world around her—and through her practice of self-surveilling as a survival tactic in a dystopian world.

Kumo is a good example of a character who both draws on and subverts the techniques of self-surveillance central to Alaimo's trans-corporeality. She survives by taking stock of her wounded body, but her mere survival is different from survivance. She can continue living in this world, but these techniques of witnessing don't give her a sense of community or resistance. Instead of relying on witnessing, the way Echo-Hawk's figures do, Kumo's trickster posthumanism works to unmap the boundaries that biopolitical technologies try to assert over her body and her environment. She exemplifies the problems with simply celebrating the capacity for deviant agency to emerge from conditions of environmental precarity when many of the communities most effected by chemical waste already experience a heightened degree of surveillance over

their bodies and identities. In her article “Alterlife and Decolonial Chemical Relations,”

Michelle Murphy observes:

Technoscientific research that seeks to contest the presence of synthetic chemicals in the world tends to proceed by detecting and measuring the damage chemicals do to bodies.... Focused on collecting the data of damage, much hegemonic North American environmental biomedical research surveils and pathologizes already dispossessed communities. It is hard to perceive the infrastructures of chemical violence in the world at the same time that research attends to molecular manifestations in bodies and communities already living in hostile conditions. Despite often antiracist intentions, this damage-based research has pernicious effects, placing the focus on chemical violence by virtue of rendering lives and landscapes as pathological. Such work tends to resuscitate racist, misogynist, and homophobic portraits of poor, Black, Indigenous, female, and queer lives and communities as damaged and doomed, as inhabiting irreparable states that are not just unwanted but less than fully human (496).

While repurposing the technologies of risk assessment lends itself to certain forms of queer, disabled community, there are downsides to simply changing who gets to survey a damaged planet when the act of surveillance itself can so easily fall into a nostalgic pathologization of “lost” toxic lands.

Race both is and is not part of this discourse around chemical waste and risk assessment. As Alaimo notes, chemical exposure via toxic waste storage and factories disproportionately affects poor communities and communities of color in America, but the possible exposure to toxic chemicals through the continual consumption of new products means that “no one in industrialized culture is safe from MCS, but that affluence itself may multiply risks” (*Bodily Natures* 117). Complicating this data is the fact that white, upper-class people are the most likely to have the resources and the time to pursue a diagnosis (118). Toxic matter like chemicals and radiation are racialized through the measuring of bodies by percentages of exposure, representing bodies and populations as

at risk from within. In this way, toxic matter lends itself to the regulation of populations in a Foucauldian sense, where the state exerts the power to “the power to ‘make’ live and ‘let’ die” through “techniques of power ... centered on the body” (Foucault, *Society* 241-2). So, race may only be loosely correlated to a chemical sensitivity diagnosis, but it is nevertheless integral to the signification and biomedicalization of chemicals themselves within American culture.

Kumo’s refusal and tricksterhood are closely connected to the racialization of her toxic, posthuman body. Characters in the novel are often unsure how to understand her race because her human-animal body complicates national and ethnic markers of identity. Kumo is a biomedical posthuman because she has been subjected to medical research. She grew up on a reservation that had been converted into a space for genetic experimentation. Kumo has both human and wolverine DNA, and describes herself as wolverine-like or feral on a number of occasions. As Corinna Lenhardt argues, “In Misha’s dystopia, where all non-hybridized Native Americans re imprisoned in lab-like reservations and subjected to cruel medical experimentation, Kumo functions as a constant reminder of the precarious position of colonized peoples,” linking to “the troubling history of medical and research abuses experienced by Indigenous peoples” (346). When asked whether she is Japanese or white, Kumo laughs and identifies herself as “half breed,” as “dirty white,” and as a string of nonhuman Japanese trickster figures: “Speel-yi,” “Kw-qua-hawk-as, Tanuki, Kitsune” (94). Motler tells Kumo that this genetic illegibility means that she is “not one of them tribes,” ie, not Indigenous,, even though the novel makes it clear that she is; Motler instead describing her as “shadow-shit” (33), a

term he seems to apply to both her toxic body and her racial identity. Tommy, a fellow experimental subject who thinks of his own body as “an experiment dying from a wasting disease and cured by the city government” (13), also describes Kumo’s race through negation. As he says, “You’re not human. You’re not a man. You’re not even white” (78). These descriptions of Kumo as a shadow, as excreta, as a half-thing who is not other things, emphasize the deliberate unknowability of her body. She doesn’t just refuse to be surveilled—she is incapable of being witness or surveilled because the easy categories of percentage genetics and degrees of dilution and contamination cannot fully inscribe her.

Describing her race as a “dirty” version of whiteness is both a trickster joke and a reflection of the complicated status of Indigenous genetics, and particularly Métis genetics, within the settler state. The biomedicalization of Indigeneity works similarly to the biomedicalization of contamination. As Tallbear has observed, Native DNA is a material-semiotic substance within the settler state, alternately leveraged as a vanishing object of scientific study, a fetishized marker of “pure,” racial identity in order to reinforce the multicultural nation state, and a site where ongoing biomedical colonialization clashes with Indigenous governance (6). Native DNA, represented either through the scientific language of nucleotides and genetic markers or through metaphors of Native blood, renders Indigenous peoples in posthuman terms, as a scientific hybrid merging biological material with data-mining technologies. However, Tallbear notes that this racialization of Indigeneity as if it was a population obscures the close relationship between Indigenous peoples and land. Kumo’s animal genetics and her association with

dirt, shit, and the toxic matter of her world reinforces the ways her body is in relation with the land, including the land of her ancestors, which she no longer can live on.

This posthuman relationship with land plays out in Kumo's "dirty" human-animal genetics, which resist the categorization of Indigeneity into another ethnic minority within the nation state. Instead, she associates Indigenous genetics with dirtiness, pollution, and refuse. She is trans-corporeally hybridized with the land itself. There are ways that DNA is already linguistically linked to refuse—people colloquially discuss "garbage DNA" and "junk DNA," although these terms are in disuse.²⁰ Junk DNA refers to excess genetic material. It is "useless," but could become usefully incorporated back into the system based on its ability to produce value at a future date. Garbage DNA, on the other hand, is disadvantageous, it doesn't produce value, and in fact might be harmful to the body. Kumo's toxicity and wolverine DNA might be garbage DNA, not because it is disadvantageous or harmful to her, but because it helps her resist this system of value production, avoid being incorporated back into the factory or the Mickey-san corporation. In this way, Misha plays with the racial associations between genetic mapping and contamination in service of a trickster story which unmaps legibility within an imperial state.

Kumo's blurring of race as contamination and contamination as raced reflects the geontopolitics of land toxicity and land sovereignty. Traci Voyles uses the term "wastelanding" for this process. Writing about toxicity in Navajo country, Voyles argues

²⁰ "Garbage" and "Junk" DNA were popular terms until the discovery of single nucleotide polymorphism (SNPs) when they fell out of use. I am deliberately drawing on these as popular but scientifically defunct terms.

that “wastelanding is a racial and a spacial signifier that renders an environment and the bodies that inhabit it pollutable” (9). Wastelanding grounds racial difference and racializes land by rendering both of them pollutable, sacrificial, and impure. If biomedical management treats the self as a landscape to observe, then this landscape is necessarily caught up in the histories of colonialism and scientific racism which attempt to classify bodies and environments. Wastelanding suggests that this process of surveillance is always geontopolitical as well as biopolitical—it already entails the management of land within a settler state.

Can there be deviant, toxic agencies that don’t draw on the same paranoid imperial discourse of dread life? Murphy points to the work of Unangax scholar Eve Tuck, who writes about the importance of “suspending damage” and refusing to be the subjects of scientific research, as a possible alternative to this schema. As Murphy notes, “This refusal... marks an invitation to find other ways of shining critical light on the infernal entanglements of settler-colonial capitalism as expressed through chemical relations, and at the same time a call to direct creative energy toward decolonial possibilities” (496). This refusal to be witnessed or to witness is an interesting challenge to the ethics assessing chemical risks. I don’t think we need to entirely turn away from Chen and Alaimo’s queer scientific sensorium when reading chemical toxicity through Indigenous futurity, but it is important to take into account the limitations of such an approach. Instead, I suggest Voyles’ discussion of “unmapping” as a counterpoint to the surveillance of wastelanding. If the immunitary biopolitical discourse of risk and dread life relies on the idea that the toxic body becomes a kind of scientific instrument, then

Voyles argues we find “new ways of mapping the movement of toxins, as well as moves toward decolonizing cartographies of Native lands, suggest that territoriality, sovereignty, and ecology might work together to give us new maps of how to achieve environmental justice and decolonization in a toxic world” (Voyles 218). The merging of body, technology, and environment in Indigenous futurisms positions surveying the landscape of the self as an explicitly decolonial project, where mapping the land and mapping the medicalized body go hand in hand. Misha’s work reframes this scientific survey of the body and environment into an unmapping of bodies and environments. This unmapping draws Kumo’s trickster posthumanism together with refuse ecology, allowing the toxic self to refuse surveillance in favor of storytelling and survivance.

Kumo’s assessment of her own bodily vulnerability quickly expands to include the toxic world around her. She exist the boxcar into a “city shrouded in a brown smog... damp death moved among all of them with easy familiarity” (19). Kumo experiences this smoggy morning internally as well as externally, as “the river mist blanketed her and the lapping of the water licked the calcium straight from her bones” (19). She continues to excrete parts of herself, spitting and pissing into a pail, laughing to herself as she warms her shivering body with the exertion of a “croupy cough” (20). Everything about her introduction emphasizes that Kumo is ill, and that her constantly ill, biomedicalized body is the consequence of her toxic environment and her past as an experimental subject. Kumo is further traumatized by being raped and forcibly tattooed by a gang of “Pinkies,” affluent city-dwellers whose name and adoption of a swastika into their clothing suggests cyberpunk white supremacists, something which Lenhardt again points out connects

Kumo to the disproportionately high instances of sexual violence against native women. From the first pages of her introduction, Kumo is defined by her biomedical and physical vulnerability.

Despite these grim experiences, *Red Spider White Web* presents Kumo as someone who rejects victimhood in favor of survivance. When she's attacked by the Pinkies, she weaponizes her own effluence, flinging her pail of shit and piss at the gang leader, biting off part of his tongue and vomiting "some blood-flecked, foamy saliva in [the] nose and mouth" of another (21). Kumo's genetic hybridity extends to other strange intimacies between her body and her environment. Even though she is physically vulnerable in her toxic world, she also protects herself with layers of masks and a suit made from "living shark clone skin, bristling with denticles, yet supple enough to stretch in" (19) and "patterned and molded to the shape of exposed muscle tissue" (41). Kumo has sewn poison into the inside of her shark-skin suit, as a final defense against capture (104). This suit complicates her species and mixes up her performance of bodily interiority and exteriority—it is a trickster prosthesis which unmaps her body from a simple external assessment of her vulnerabilities and risks. Her suit both protects her from the toxic environment and invites exposure. Like Echo-Hawk's gas masks, this living technology designed to separate her body from the chemical refuse outside her ends up becoming a kind of Indigenous posthumanism formed from chemicals and biomedical prosthetics.

Similarly, Kumo, like the other characters living on the periphery and like Echo-Hawk's exposed warriors, almost always wears a mask, and her mask is part of her

artistic practice. Kumo has built several layers into her masks, so that she can show different layers of artificial face. In her case, her mask is outwardly a wolverine, then a set of wolverine paws covering the face, then a distorted and frightening human face, functioning as an artistic reflection of her own genetically “dirty” body. Tommy, who is more robotic than animalistic, although he is still described as a kind of genetic sibling or “littermate” to Kumo, has a similar series of performative inhuman masks:

In a quick graceful movement, as she watched in horror, he ripped off his mask. Underneath it was another mask, a black and white clown’s face. He ripped this off, another, a black silk mask was below that. He ripped this off, another, coppery serpent scales, shining, he reached his hand down and grasped this other mask and began to peel off the last skin-tight mask. Kumo covered her eyes. She imagined him—the man who never unmasked—horrible, disfigured, all electric wires, scarred keloid tissue (79).

Tommy is more of a scavenger prophet figure in the novel, both more sinister and less sympathetic than Kumo. When looking out over the “no man’s land of chemical death... clone vats... reject animals... derelict cars” Tommy sees “valuable scrap” that “would be used again” (108), celebrating the creative potential of this scrap and his role as a kind of creator-god. He lives in an empty, rusting chemical vat filled with this “carnage of the twentieth century” (73), slowly amassing enough refuse technologies to create a robot army to destroy the Mickey-san domes around the world. Tommy’s scrap is more mechanical and less biological than Kumo’s art, but both are framed as trickster figures and cyborgs. The masks and skin suits they wear are clearly part of this practice. Discussing toxicity and chemical waste brings up Roberto Esposito’s biopolitical discourse of *immunitas*, the need to control exposure to the other, the relationship between containment and contagion. As Esposito argues, “[b]y placing the body at the

center of politics and the potential for disease at the center of the body, [biopolitics] makes sickness, on the one hand, the outer margin from which life must continually distance itself, and, on the other, the internal fold which dialectically brings it back to itself” (15). Kumo and Tommy’s medical prosthetics play with this folding of sickness inside and outside the politicized body in a very literal way. Their salvaged posthuman medical devices do protect them from some of the pollution in their environment, but they also expose macabre reflections of their bodies, in an endless series of masks or the shark suit’s design of exposed muscles. Since they are dealing with living technology (shark skin) or technologies that ape liveliness (animal masks), this reversal of inside and outside reveals the ways toxicity also invisibly crosses boundaries, turning toxicity into a performance of their identities. Through these trickster prosthetics, Kumo and Tommy create intimate relations with the refuse of capital.

It is important that Kumo is a wolverine-woman beyond the trickster-status this gives her DNA. One of the ways Misha has talked about this novel is as a Wendigo story—the Cree cannibal monster whom many Native thinkers see as analogous to capitalism, with its insatiable, unsustainable consumption. As Misha points out in an interview, one way to defeat a Wendigo is for a wolverine to crawl down its throat and strangle it from the inside (Laidlaw). Kumo and use of refuse in her art and hybrid body models this technique for strangling capitalism. She has a particularly belligerent approach to repurposing technology. Unlike Tommy, who sees trash as his kingdom to rule over, Kumo taunts people until they throw something useful at her—she is a scavenger, but a scavenger who leverages disgust or anger to collect what she wants (44).

She doesn't just repurpose refuse that has been abandoned, but actively intervenes in the process of trash-making, goading people into gifting her trash instead of waiting for objects to become salvageable. Kumo eats "synthetic sushi" made of "glycerin and dacron" (27), she breathes in the "radiant poison" of the toxic air and bathes in the "gluey water" of chemical tanks meant for growing clone materials (86). She takes what's thrown at her (food, junk, radiation, chemicals) and transforms these materials; they become part of her simulacra art and her posthuman body. She deliberately incorporates refuse into her body and her environment in order to not just survive in this apocalyptic wasteland but to render herself queer, posthuman, and unmappable by the settler state.

Conclusion

The Biomedical Posthuman figures refuse ecologies through the medical impact of pollution, chemical waste, and toxicity on human and nonhuman bodies. Indigenous science fiction like Misha's and Echo-Hawk's work imagine futures impacted by climate change and environmental pollution, exploring the consequences of human-created environments on human and non-human communities. Toxicity is a disturbing topic for any form of futurism, but it is increasingly important to create ethical relations to an ecological future that is, at this point, unavoidably chemical, radioactive, and mutated.

When chemicals and other toxic particles are depicted in Indigenous futurism, they can become a vehicle for critiquing and repurposing these biopolitical apparatuses into trickster posthuman figures. In these texts, the government of species, objects, and peoples becomes unmanageably complex and *communitas* and *immunitas* start to break

down, replaced by Indigenous cosmologies which focus on land and sovereignty. Indigenous futurism plays with toxicity and chemical waste as a biomedical framework for understanding how human bodies are intimately connected to land. Chemicals are invisible and geographically diffuse, transforming their environments irrespective of colonial national borders, but they also have very concentrated and deadly impact on Indigenous lands. Toxicity is a place where biopolitics and geontopolitics come together within a refuse ecology, where the policing of making live and letting die reveals the structuring absence of Indigeneity in these discussions of chemical risk and exposure. The chemically sensitive posthuman body negotiates between apparatuses making it live or allowing it to die, in a biopolitical register, and the queered forms of Nonlife structuring the geontopolitical state.

Chapter Three:

Posthuman Haunting

Posthumanism is well positioned to consider the coevolution of human lives with biomedical technologies, pollutants, especially at a critical moment when it often feels like time is running out. Extending these conversations to media and cybernetics in Indigenous futurisms suggest new posthuman temporalities. N. Katherine Hayles' *How We Became Posthuman* situates the posthuman temporally at the same time she situates it in the realm of media, cyberspace, and informatics. Genealogically, Hayles' mediated posthumanism develops during and after World War II. The media, informatics, prosthetics, and other material technologies which structure this type of posthumanism draw on modernity as a temporal construct. In this chapter, I am rethinking the temporality of the posthuman in conjunction with Indigenous media to open up a different set of readings of the posthuman in relation to temporality. The question is not how we became posthuman but how we will continue to become posthuman, under these conditions of precarity, for at least seven generations into the future. Would would it mean for our discussions of posthuman virtuality in cybernetics and media if we trace the lineage of posthuman theory back not only to Hayles but also to Métis/Cree scholar and filmmaker Loretta Todd's 1996 article "Aboriginal Narratives in Cyberspace"?

I find media particularly useful for this discussion of refuse ecology and posthuman becoming because virtual reality has always reflected anxieties about polluted and biologically precarious futures. As Hayles argues, "scratch the surface of [transhumanist] rhetoric... and you will find scarcely concealed anxiety about our continued existence on

a planet despoiled by environmental poisons and decimated by AIDS. Ironically, such fantasies may be complicit in furthering the very anxieties that engender them. If we can live in computers, why worry about air pollution or protein-based viruses?" ("Embodied Virtuality" 3). The virtual has often been framed as an escape from refuse, as any form of posthumanity based in computing or informatics attempts to work through anxieties about polluted and medically precarious futures.

These concerns over digital or virtual media as an escape from a polluted planet are central to Indigenous media theory. As Loretta Todd argues, virtual technologies wouldn't prioritize disembodied escape if not for "a fear of the body, aversion to nature, a desire for salvation and transcendence of the earthly plane... the wealth of the land almost plundered, the air dense with waste, the water sick with poisons" (182) According to Todd, in the mind of the western cyberspace enthusiast, "there has to be somewhere else to go" to escape the toxic ecology of his own making (182).²¹ While Hayles associates this attitude with masculinist technophilia in the postwar period, Todd emphasizes transhumanism as a reflection of colonial ideologies of land use. Todd's intervention is a useful counterpoint to discussions of the relationship between virtual and biological worlds which replicate colonial ideologies around mourning and loss. Taking Todd alongside Hayles as the starting place for theorizing posthuman virtuality grounds this theory in the politics of land and environment, especially as these environments turn to refuse.

²¹ Todd is similarly wary of the utopianism of so many proponents of cyberspace, particularly those who try to map Indigenous traditions of shamanism, tribal culture, or connectivity onto early internet culture without engaging with the knowledges and communities behind these concepts.

Todd sets up a clear framework for how digital technologies can advance Indigenous sovereignty. Most important for Todd is the ability to think forward about how these new digital spaces will impact future generations. First, Todd emphasizes the need for “augmented versus immersive technology” (193) and suggests that even entirely virtual realities must account for the ways the virtual augments a precarious biological world. Second, Todd argues that the posthuman merging of human and machine in cyberspace must be considered for as many as seven generations forward, to gauge the potential benefits and harms of these technologies (185). Technology should not be valued for its newness, but as form of posthumanism with ongoing kin relationships with future generations. In some ways this ongoing kinship with technology is the fulfillment of transhumanist dreams that technology will extend lives, but it is the extended life of the technology itself that matters, not the posthuman life of the user.²² Todd’s emphasis on seven generations of virtual posthumanity which augment existing kin relations offers an alternative temporality for these posthumans beyond the retrospective temporality of mourning and the thoughtless progression of accelerating capital. Her work figures contemporary media creators and their creations as future ancestors.

I read Todd’s Indigenous cyberspace as a kind of cultural and technological haunting of the future by the past and present. In using the term “haunting” in the context of Indigenous media making I am both drawing on the language of spirit, trauma, and

²² While I can see versions of Todd’s multi-generational robotic kin in some non-Indigenous science fiction—particularly Ted Chiang’s *The Lifecycle of Software Objects*, where characters struggle to maintain the lives of their digital kin as the platform they’re on becomes obsolete, or Eleanor Arnason’s *To the Resurrection Station*, where giant intelligent rats provide maintenance for elderly robots they consider ancestors—Todd’s insistence on technological longevity is something that Indigenous futurism is particularly well positioned to explore.

ghostliness which many of these artists use for their work and considering how haunting relates to refusal in Indigenous theory. Haunting is a central part of the performative “Glossary of Haunting” collaboratively written by Eve Tuck and C. Ree and continued by Tuck, Angie Morrill, and the “Super Futures Haut Collective.” In their multi-part glossary, these scholars and artists consider how the politics of colonization and decolonization are caught up with ghostly presence of Indigenous peoples. As they argue:

Haunting, by contrast, is the relentless remembering and reminding that will not be appeased by settler society’s assurances of innocence and reconciliation. Haunting is both acute and general; individuals are haunted, but so are societies. The United States is permanently haunted by the slavery, genocide, and violence entwined in its first, present and future days. Haunting doesn’t hope to change people’s perceptions, nor does it hope for reconciliation. Haunting lies precisely in its refusal to stop. Alien (to settlers) and generative for (ghosts), this refusal to stop is its own form of resolving. For ghosts, the haunting is the resolving, it is not what needs to be resolved (Ree and Tuck 642).

The Collective’s definition of haunting is traumatic, but I am interested in how their “Future Ghosts” (Ree and Tuck 648, Morrill et al. 7) could work alongside Todd’s concerns over the spectral futurity of digital technologies. To explore these associations between temporality, haunting, and the posthuman in Indigenous media, I turn to two media texts. First, Archer Pechawis’ (Cree) performance *Horse* (2007), which demonstrates how Indigenous media can become a kind of landscape inhabited by posthuman beings, and then Skawennati’s (Mohawk) machinima *She Falls for Ages* (2017), which represents these posthuman beings at a moment of ecological crisis. By rethinking the temporality of extinction and environmental concepts like the Anthropocene, Pechawis and Skawennati’s art approach extinction through Indigenous temporalities, imagining technological futures that are embedded in ecological

knowledges that go back beyond a colonial past and imagine futures spanning generations of human, animal, and machine lives.

Indigenous Media Landscapes

Cree digital artist Archer Pechawis emphasizes the ghostly potential of multi-generational posthuman kinship within the traumatic experiences of colonial violence. Pechawis has worked extensively with film, performance, and new media since the mid 1980s. As a new media artist, Pechawis describes his work on his website as “‘transitional Cree culture,’ the place where Cree culture meets the onrush of millennial technology,” stating that by “using digital technologies [he attempts] to locate and query this meeting place, however fleeting.” Pechawis’ work often places digital technologies in dialogue with Plains Cree cultural productions, interrogating the role of media technologies in Indigenous life. Performances like *Memory* (1997) and *Memory_V2* (2010) are illustrative of his process. Pechawis augments traditional Cree drumming cultural practices with digital technologies. For these performances, Pechawis combined a Cree hand drum with a computer, so that he could introduce audio samples of Jimi Hendrix or Soundgarden alongside recordings of deceased elders Bill Lightbown (Kutenai) and Harriet Nahanee (Coast Salish). Later iterations of the digital hand drum also allowed Pechawis to modify his voice during the spoken word parts of his performances. Eventually, Pechawis added video backdrops to his performances to accompany the other technological effects. All of these aural effects are controlled by Pechawis’ digital drum, itself a device that blends technology and Indigenous cosmology.

As Pechawis explains:

a drum is a direct line to the spirit world... this practical application of interdimensional communication takes on new meanings when paired with digital technologies in a secular, performance setting... by replicating the metaphysical functionality of a traditional drum, I had built a device that enabled an audience to experience communication with another realm in the secular context of a performance. I had converted a spiritual medium into a digital one (“Indigenism” 41).

The drum doesn’t simply bring together mediation and spirit, it transforms media into a space inhabited or haunted by spiritual kin.

Pechawis’ digital drum communicates with a spiritual realm where the dead can continue to speak, but it doesn’t position this posthuman haunting as a space for mourning or loss. The idea that mediation can serve as a form of haunting is not exclusive to Indigenous media theory, but Western approaches to this topic become stuck between two forms of temporality which cannot offer an escape from the ecological violence of white supremacy: the nostalgic temporality of mourning and the accelerating temporality of capitalism. Many of these conversations occur at the intersections between media studies and animal studies. Of particular note is the work of Akira Mizuta Lippit. In *Electric Animal*, Lippit argues that “in supernatural terms, modernity finds animals lingering in the world undead” as biological animals are replaced by animal representations in early film and photography (1). Drawing in part on John Berger’s idea that zoos and photography operate as similar spaces for capturing and preserving animal life, Lippit claims that “the elimination of animals from the immediate environment coincided with accelerated industrialization in the late nineteenth and early twentieth centuries and the rise of the technological media. Not only were animals thematized, they

were also appropriated by the technological media for the symbolic and actual powers they represented—‘horsepower’ in engines, electrocuted animals in direct current, animated animals in early cinema” (23). Lippit expands on these examples of nineteenth century technological innovations around transportation, electricity, film, and radio to suggest that this simultaneous elimination and memorialization of animal life carries forward into our contemporary mediated relationships to animal images.

Lippit identifies two key characteristics of this transmutation of a living landscape into a technological phantom. First, animals become associated with “a pace of communication that was both more rapid and more efficient than that of language” (24), so animal affects symbolically power transportation and communication networks. Media technologies, following Lippit’s logic, are infused with the affective properties of what we could read as a colonial imaginary of the natural world. Although Lippit’s focus is on industrialization, his claims that electric animals take on symbolic properties of the accelerating engine also speak to narratives of colonial expansion and the subsequent colonial narratives of mourning for an “untouched” natural world decimated by this same expansive, accelerative drive. Consider, for example, the passengers on the transcontinental railroad who executed thousands of American bison through the windows of their train cars as they sped across the plains, and the subsequent memorialization of bison as a symbol of a lost wilderness as the plains became more densely settled through this same western expansion.

As animals become memorialized in media, Lippit argues that they are represented as “undying” such that “animals seemed to fuel the phantom thermodynamic engines that

would run perpetually” when they are preserved within media technologies (25). Once captured in a digital medium, animals and landscapes take on a kind of unchanging immortality within this western imaginary.²³ This lifeless, deathless preservation informs posthuman virtuality. While Hayles argues that we should be wary of the dangers of celebrating posthumanism as “fantasies of unlimited power and disembodied immortality,” she is attentive to the ways disembodiment and immortality feature in many scientific and science fictional narratives of posthuman futurity (5). Mediated posthumans have the capacity to haunt the physical world as conceptually deathless beings fueling science fictional imaginaries of exploration and exploitation. Indigenous media provides a necessary counterpoint to this dilemma.

For Lippit and many others, then, the posthuman hauntings of these vanishing animals are a site of both mourning and accelerated progress. Media bears a trace of the dead animal being, but the vitality and unpredictable responsiveness of the animal is entirely gone or has been sublimated into the ongoing extraction of value from nonhuman bodies and environments. According to Nicole Shukin, we cannot disconnect the undying perpetual motion of mediated animal affects from the fleshy violence upon which the material structures of media depend. In her book *Animal Capital: Rendering Life in Biopolitical Times*, Shukin proposes the term “rendering” to bring together violence and representation, as the term can refer to both “economies of representation (the ‘rendering’

²³ This idea has influenced a number of scholarly conversations around representation and artificial life. In *The Garden in the Machine: The Emerging Science of Artificial Life*, Claus Emmeche argues that “artificial life is life without death” (137). Sarah Kember suggests in *Cyberfeminism and Artificial Life* that computer generated lifeforms “may be lifelike without being fully three-dimensionally alive, they may cease to exist but never truly die” (72).

of an object on page, canvas, screen, etc.) and resource economies trafficking in animal remains (the business of recycling animal trimmings, bones, offal, and blood back into market metabolisms)” (Shukin 21-22). Her reading of this rendering of animal capital draws out the exploitative economies underpinning Lippit’s work in a more explicitly Marxist and biopolitical framework. These undying images of natural landscapes in media are not merely produced as a melancholy spectral spectacle, but are violently torn from marginalized bodies, from the recycled animal flesh and offal in early film stock or the affective telepresence of animal mascots created by communication corporations. I suggest that Shukin’s media rendering can extend beyond animal bodies to the precarious human and inhuman ecologies threatened by the petroleum products which fuel much of our media. Poisoned waterways around tar sands and pipelines are similarly spaces where media is violently rendered out of the precarious bodies it capitalizes on.

In contrast to this posthuman haunting of extinct species, rendered flesh, and colonized lands, Indigenous futurisms like Pechawis’ work situate the dead alongside the living as part of the same communities. Indigenous media is also haunted by the past, but these posthuman hauntings are spaces of survivance rather than mourning, even when they incorporate the violence of colonization. Indigenous media theory, like Western eco-media, focuses on extinction, representation, and violence, but Indigenous scholars frame virtuality as a space for thinking critically about the natural world and our responsibilities towards it. Making media is a form of making kin and enacting Indigenous cultural sovereignty. When mediated posthumans are treated as extensions of Indigenous political sovereignty and ecological science, they open up new possibilities for what it means to be

haunted through media beyond melancholy or the violence of capitalism and colonialism. Instead of serving as memorials or as phantasmagoric representations of the imaginary of capital as an undying perpetual motion machine, these haunted media spaces can create ongoing relationships with past and future posthuman kin.

This attentiveness to digital technologies as a haunted space features prominent in Pechawis's 2007 performance *Horse*, to date his most science fictional work. Pechawis imagines an alternative history of the Battle of Little Bighorn in which the environmental impact of colonization is compared to technological waste and obsolescence, particularly the obsolescence of the automobile industry. *Horse* projects a colonial past into a trashed future, rethinking posthuman ecologies through Pechawis' playful approach to history, digital media, and performance. *Horse* is an alternate history of The Battle of Little Big Horn, a ghost story, and a dream—the narrative opens with the words “this is a story that *should* be true,” situating the viewer in a world where time is playful and speculative. The film layers footage of horses in a natural environment over intermittent archival footage of battles and marching armies, visually overlapping two different time periods.

Pechawis narrates the performance from the perspective of one of the warriors preparing for the battle, who follows his horse through a vision of the battle in which Custer's overconfident invading army are defeated by their own horses, before applying his new knowledge about the horse people to his attitudes towards machines and technology. This humorous alternate history explicitly connects the ethics of human-animal relationships to colonization. By bringing together the violence of a settler colonial past with the ongoing colonial violence that impacts present Indigenous

experiences, Pechawis reveals the complicity of colonialism in the environmental destruction of past, present, and future ecologies.

Despite its emphasis on colonial violence, Pechawis's performance rejects melancholy in favor of humor.²⁴ Custer's last stand is narrated as a kind of slapstick routine. His army rides into battle with a full brass band, a tactical decision that Pechawis' narrator attributes to Custer's reputation as a "raving egomaniac." As the cavalry horses buck off their "dumbfounded" riders and start to attack, Custer triumphantly rides into the mix, mistaking the sounds of this interspecies battle for a signal to attack. The battle ends with a bewildered Custer unable to send orders to his troops as the bugler's horn is crushed by irritated horses using a "regulation US army horseshoe" to defeat the US army. Pechawis is able to play with science fiction time slippages to draw attention to the alternate historical accounts that already circulate around colonial figures like Custer. By focusing so much on Custer as a figure of ridicule, Pechawis subverts and reworks the narrative into a farce.²⁵ As the last man in his own apocalyptic narrative, Custer is positioned as a central comedic figure in a larger

²⁴Ursula Heise argues for the benefits of using alternative storytelling techniques based in a "comic rather than elegiac mode" in extinction stories, arguing that environmental narratives too often focus on "charismatic megafauna" in order to narrate their loss as a tragedy, either by figuring the species through "the story of the inevitable and partly undeserved fall of a person of high social standing" or "the meaningless and undeserved death of innocent victims" (34). Heise's argument for extinction humor is similar to Gerald Vizenor's (Anishinaabe) definition of survivance through "vital irony" and teasing. Survivance creates "an active sense of presence over absence" in part through trickster characters who refuse to behave, mocking federal agents, legal discourse, and other institutions. Survivance is often perverse, scatological, and ironic.

²⁵ The performance engages in a form of speculative play where imagining Custer as the final victim of an unsuccessful colonial conquest lays the groundwork for a "what if" scenario where being defeated by his own horse leads to public ridicule rather than his reputation as a tragic military hero. Custer is often used in Indigenous fiction precisely for this purpose. See, for instance, Vizenor's 1978 story "Custer on the Slipstream."

story about how modernity, industrialization, and western expansion negatively affect human and horse communities. The “civilizing” efforts of modernity that his battle represents are shown to be the principle causes of extinction rather than a tragic loss.

Retelling Custer’s last stand as a slapstick ghost story positions digital media as a space for cultural renewal and political sovereignty. As Faye Ginsburg argues, “Indigenous media offers a possible means—social, cultural, and political—for reproducing and transforming cultural identity among people who have experienced massive political, geographic, and economic disruption” (94), although she notes that Indigenous communities are caught in a “Faustian dilemma” where they must balance these benefits against global media that “threatens to be a final assault on culture, language, imagery, relationship between generations, and respect for traditional knowledge” (96). Beverly Singer (Dine) also sees media creation as an act of what she terms “cultural sovereignty” in the face of colonial erasure (2). If media is haunted by the posthuman beings it renders, then this haunting can become a way of maintaining continued relations with endangered or extinct parts of the natural world, not through memorializing species as lost artifacts, but by recognizing that media continues to transform and share cultural identity.

Media is a productive space for creating this visual and cultural sovereignty precisely because it imagines alternative realities. As Michelle Raheja (Seneca) argues in *Reservation Reelism*, “the ‘reelism’ of film resides in its ability to function as a placeholder: as a representational practice it does not mirror reality but can enact important cultural work as an art form with ties to the world of everyday practices and the

imaginative sphere of the possible” (xiii). This move away from realistic to speculative and imaginative forms of representation is a strategy shared by science fiction.

Indigenous futurist media is an important example of Raheja’s “reelism,” as texts which connect the grounded everyday practice of Indigenous scientific knowledge to the imaginative potential of future worlds.

Pechawis therefore is able to comment on the intersections of technology, colonialism, and futurity through his ambivalent presentation of media technologies as a form of posthuman kinship. The horses identify human attitudes toward technology as one of the primary dangers for the horse people, drawing together human and animal experiences of colonial and technological change. As they state:

Just as you are amazed by the events of this day, you will forget. Despite the sacrifice we have made for you today, you will forget. And surely as the sun will rise the time will come when you abandon us, the Horse People, for machines of your own making. And just as you abandon us for these machines, you will abandon your own selves for them. You will come to believe that these machines are your relations, and you will alter yourselves to be like them, thinking this will make you stronger. You will change your own minds so you may speak with them and they to you. On this day you will forever lose your relation to us, and to all the animal people. Hear me now, and beware. Never will your machines show you loyalty, nor love. Never will they come to your aid in time of need as the Horse People have done today. I would like for you to remember these words, but you will forget. It is the nature of your kind.

The horses warn of the danger of forming relationships with machines instead of with the environmental world, but *Horse* doesn't simply pit the Horse People against the machines that replaced them. Instead, Pechawis suggests that the narrative of machines replacing the natural world relies on a western, linear temporal perspective which overlooks the fact that the Horse People and their car counterparts are both present in the performance. The horses haven't been replaced as their affective “horsepower” forms the imaginative

basis for the car, since they are still present to comment on this process. Reflecting back on this 2007 performance in 2014, Pechawis argues:

It is easy to slip into a dystopian funk when considering the far-reaching effects of our development as a technological species. But what if our anthropocentric myopia is supplanted by a spiritual growth that catches up with and supersedes our technical prowess, a future in which the best values of traditional societies come to the fore, and a balance of spiritual and technological equality becomes the dominant paradigm? Since writing *horse* I have come to believe that it is not a warning against the adoption of technology per se, but rather an admonition to First Nations to retain our traditional world view in the face of technological adaptation, so we may offer a solution to humanity (“Indigenism” 37-38).

Reading technology as a replacement for animal life overlooks the more complex ways this performance is rejecting this affect of “dystopian funk.” The horses’ message to the humans becomes not an outright rejection of technology but an exhortation to rethink human attitudes toward all forms of non-human life. The film offers a contrast between unthinking human consumption of technological products and a more positive integration of human, animal, and technological lives, using digital media as a medium for articulating these environmental transformations. *Horse* warns about the dangers of trying to replace animals with machines, but in doing so it integrates machines and media into a posthuman media ecology that warns about the dangers of the narrative of technological progress replacing “untouched” natural life.

Horse creates immersive digital worlds which challenge the idea that vanishing biological life can be replaced with virtual technologies. Cyberspace is often a preferred medium for Indigenous artists working with the intersections between mediation and environment. As Elizabeth LaPensée suggests in her introduction to a special issue on digital media for *Transmotions*, Indigenous digital worlds “uniquely enact survivance by

passing on teachings, telling our stories, and expressing our ways of knowing through varying weavings of code, design, art, music, and audio” (i). Steven Loft similarly praises what he calls Indigenous “media cosmology” in his introduction to the collection *Coded Territories: Tracing Indigenous Pathways in New Media Art*. As he argues, “for Indigenous people the media landscape becomes just that: a landscape, replete with life and spirit, inclusive of beings, thought, prophecy, and the underlying connectedness of all things—a space that mirrors, memorializes, and points to the structure of Indigenous thought” (xvi). If, as LaPensée and Loft claim, Indigenous media cosmologies augment other forms of knowledge, then they do so through forms of connectivity which draw as much on cosmologies of spirit and haunting as the networked technologies of digital reality. For an Indigenous media cosmology, technological networks and spiritual kinship may be one and the same.

Pechawis accomplishes this merging of spirit and technology by positioning the horses as more than biological life. They are as posthuman as the machines they warn against. The samples and digital manipulation of sound, use of slow motion, color saturation, and layering of archival historical footage on top of shots of nature which make up Pechawis' performance and his video backdrop create uncanny spectacles which hybridize his “natural” footage of horses with media. Pechawis manipulates his original footage of horses running in a field during postproduction, tinting the horses muted purple, green, and blue, which starkly contrasts with the color saturated footage of bright purple and green tinted grass that begins and ends the narrator’s dreamlike vision of Custer’s last stand. Both of these effects create glowing outlines around the horses and

plants, showing them in sharp relief against the background, although the Pinto horse most prominently featured in the footage often appears to have its hide bleeding into the background as the color manipulation renders the white patches of its hide the same shade as the field behind it. The audience sees these synthetic horses as both apart from and integrated with their environment, as both “natural” and mediated images, and as both animate beings and seemingly inanimate technology. As a digital media performance, Pechawis’ work plays with these contradictions, inviting the audience to pick apart the temporal layers of his creative process in an ultimately impossible attempt to differentiate between “natural” and technological beings.

As a digital drumming performance, the visual elements of the film serve as a backdrop to Pechawis’ own acoustic performance and the solo cello performance by Cree cellist Cris Derksen. Sound becomes one of the primary ways that Pechawis marks the animal beings as technological, and it serves to invite the audience into the speculative dream world of his alternate history. Pechawis’ voice is modified throughout the entire performance, so that his storytelling becomes inflected with computerized sound effects. These synthesized sounds become more pronounced when Pechawis speaks in the “voice” of the animal characters, as he adds more reverberation and synthesized background noises when performing as one of the horses. The digital drum blurs the boundaries between the digital beings featured in the performance and the spirits of long dead warriors, horses, and technologies, linking both in a slipstream performance of apocalyptic temporality.

Digital-spiritual devices like Pechawis' digital drum invite Indigenous posthuman frameworks for thinking about digital media, aurality, performance, and embodiment. The relationship between audio and visual components in a musical performance can work at cross purposes when an audience attempts to judge the performer's "authenticity" and agency as an artist through their attention to visual information (Auslander 607). Phillip Auslander notes that musical performances based in computer technologies challenge this desire, as computers "[mask] production of sound" (605). Computer music therefore complicates a performance's sense of what Auslander calls "liveness" (608). *Horse* playfully undercuts these categories of sound production and "liveness" in digital performance. Both "authenticity" and "liveness" are fraught terms to bring in to an Indigenous digital performance. Pechawis' "authenticity" is already dynamic and adaptable in ways that would only be legible to specific audiences.

The question of the "liveness" of the performance takes on similarly complex stakes. As Candice Hopkins (Tlingit) has argued, "digital media offers a platform through which to recreate a historical event. It is an opportunity to confront historical amnesia" by using media to "implicate the viewer in the resonating blast" of sound and image (127). In *Horse*, this "resonating blast" of aural history grants voice, "liveness," and life to a posthuman ecology of living and dead humans, horses, and technologies. The temporality of transforming history into a resonating blast of digitally manipulated sound is just one way that Pechawis models how the aesthetics of Indigenous media open up space for confronting the apocalyptic temporalities of the Anthropocene.

This mix of digital, biological, and historical lives mark the Horse People as vulnerable, both to the violence of the battle and to the threat of obsolescence that haunts all media technologies. Media is rarely discussed in terms of vulnerability and obsolescence, although these concepts are important for theorizing media in the Anthropocene. Jussi Parikka suggests the term “The Antrhobscene” for these Anthropocenic temporalities in media technologies, drawing attention to the geology of media. Parikka argues that there is a “deep time” to media, an “alternative media theoretical lineage” that “writes a story of materials, metals, chemistry, and waste... an alternative materialism for the geophysical media age” (*The Anthrobscene* 5). Parikka’s geology of media is a call to include decay and obsolescence in our discussion of media, noting that the lifespan of media technologies extends beyond their uses as human tools, and acknowledging the material effects of media waste on the environment. Parikka’s alternate media temporality resonates with Todd’s call to imagine our technologies seven generations in the future, suggesting that part of this challenge involves imagining seven generations worth of technological refuse.

I have thus far presented this haunted media ecology in a positive light, as a form of cultural survivance and sovereignty, but Indigenous media is also haunted by the traumas of colonial violence, climate chaos, and refuse. Mohawk artist Jackson 2bears theorizes that Indigenous media is filled with “spirits who are seemingly determined to spectralize—those apparitions, revenants, and ghosts whose will it is to haunt the lives of the living” (14-15). In his own work, 2bears creates what he calls “sacred technologies of futures past” (14) by creating digital video and music and multimedia performance which

incorporates scratched or damaged media materials and remix practice find catharsis from colonial media representations. For 2bears, media hauntings are traumatic. They can still serve as a form of cultural sovereignty, but sometimes this sovereignty is enacted through attentiveness to the ways colonialism attempts to treat Indigenous peoples as specters or remnants of a colonial past, instead of peoples with a present and future. Indigenous eco-media creates haunted posthuman territories which negotiate between media haunted by violence and media haunted by spiritual kin by connecting both to the environmental haunting of extinction and climate change.

Pechawis' ambivalent representation of the horses as both posthuman and endangered brings together 2bears' traumatic spectrality with Todd's emphasis on augmentation, reciprocity, and seven generations of technological futurity. Even though he wishes to avoid "dystopian funk," his performance still focuses on trauma and vulnerability. One way Pechawis plays with the tension between durability, obsolescence, and decay in his performance by juxtaposing images of horses with shots of a broken down car in a field. These images appear when the Horse people warn that humans should not replace their connections to a natural world with machines, but this car is neither lively nor mobile. Instead, the car is clearly in worse shape than the horses, and the camera focuses on the cracks and rust as the car is reincorporated into the environment as a technological waste product. Making this broken-down car a prominent image of technology in the film connects the horses' warning to the deep time of Indigenous media geology by focusing on the car at the moment when it becomes part of the landscape. As the car becomes part of the geology of this space, it takes on a different relationship to the human and

nonhuman beings around it. The car still serves as an icon of the petro-economy, invoking the linear regimented time of the production line and the fantasy of technologically-enhanced movement and speed, but its state of abandonment and decay deconstruct these fantasies as short-sighted given the much longer life-span of the material technologies of the car as refuse and the complex cosmological relationships between the car and the digitally-invoked spirits of the horses. There is a rushed and frenetic speed often attributed to synthetic life that is directly overturned by Pechawis's portrayal of refuse ecologies grounded in the deep time of spirits, media, and technological waste.

Pechawis also places himself in a vulnerable, dependent relationship with media technology in the performance. When performing the piece, Pechawis projects the video footage onto a screen behind him, striking the digital hand drum to begin the film and at several moments throughout the performance to modulate his voice. As Pechawis explains on his website:

This contraption suffered from two problems, the first being it's tendency to crash when played hard (despite having the hard drive in an external case in my pocket), and the second having no way to time the video to the performance (in the performance clip as you will see the video end before the piece is finished).

The shots of the horses are edited to play in slow motion, stretching out the action of the horse's movements to a painfully slow speed. At the same time the viewer is noticing minute details of the horse's slowed down movements, Pechawis's vocal performance and the accompanying cello solo speed up in a series of increasingly frenetic scales and arpeggios, as Pechawis recounts the madcap action of the horses' battle against Custer's army. This effect disconnects the meditative, slow movements of the visual track from

the more hectic audio track. While the audio track follows the rushed speed of militarized colonial expansion and technological change, the visuals of *Horse* bring us back to the deeper time of an Indigenous media geology. By playing with time in this way, Pechawis highlights the contradictions between our cultural obsession with immediate, short lived technological gratification and an aesthetic spectacle of deep time based in Cree storytelling and musical performance.

Pechawis creates an uncanny spectacle of broken-down cars and technologically mediated animals. These juxtapositions emphasize the impact colonial structures of domination have had on our current environmental crisis, extending the temporality of extinction and climate change into the colonial past. Pechawis creates a space for rethinking extinction through Indigenous temporalities that span seven generations, in which the colonial past is intimately connected to a technological future. In doing so, Pechawis refuses the narrative of shared mass destruction common to the Anthropocene, grounding posthuman media in a speculative Indigenous cosmology where extinct and ghostly species can still act as relations to contemporary and future ecologies. Pechawis's haunted media focuses on augmented technologies, as his embodied performance is central to the transitional Cree cultural sovereignty he performs. This emphasis on augmentation is in keeping with Todd's work, and serves as a useful example of the ways Indigenous media often incorporates embodied practice and ceremony. But can Indigenous posthuman media also explore the mix of cybernetics, informatics, and virtuality central to Hayles' posthumanism? And how are these virtual worlds transformed by the spectral temporalities of Indigenous posthumanism?

Posthuman Time

I see examples of such projects in the digital worlds created through collectives like Aboriginal Territories in Cyberspace (often shortened to AbTeC). Cofounded by Skawennati and Jason Edward Lewis (Cherokee), AbTeC promises an “Aboriginally determined research-creation network whose goal is to ensure Indigenous presence in the web pages, online environments, video games, and virtual worlds that comprise cyberspace” (AbTeC). The AbTeC research network represents cyberspace and virtual worldbuilding as an extension of Indigenous sovereignty. As part of this goal, AbTeC maintains a permanent “island” on the Second Life platform, where they showcase sets and costumes from past projects and host regular meet-ups for anyone interested in discussing Indigenous futurism in virtual worlds.

Much of the work hosted at AbTeC Island was created by Skawennati and her collaborators using machinima, a media practice which records video footage captured in video game engines to create new characters, stories, and worlds. As a creative practice, machinima is similar to video game modding, as it builds on existing game software, but machinima are not interactive. Best known for *TimeTraveller*TM (2008-2013), a nine episode machinima combining cyberpunk, time travel, and Mohawk political history, Skawennati started working with virtual technologies and internet culture with the design of her 1997-2004 online chat-room and interactive gallery *CyberPowWow*. These and other projects like a set of digitally manipulated photographs of Skawennati represented as a doll, a second life avatar, and a photoshopped image explore the ways virtual

technologies can serve as extensions of identity. Skawennati's work celebrates virtual media as a space which augments Indigenous identity and sovereignty.

Although most of her projects take place entirely online, Skawennati does some artistic work in "meat space," and her work is very attentive to ecology. In a recent gallery exhibit "Teiakwanahstahsontéhrha' | We Extend the Rafters" in Montreal, Skawennati's recent machinima *The Peacemaker Returns* (2017) is projected within a structure designed as a futuristic longhouse, surrounded by displays of Mohawk beadwork. Since beadwork plays an important role within the plot of the machinima, as a technique for recording political history, including physical examples of beadwork alongside machinima beadwork art celebrates this ceremony in both forms. The difference between Skawennati's approach to media and the work of Pechawis and others is that, for Skawennati, material crafting and gallery displays augment the virtual worlds she creates, instead of the virtual world augmenting a live performance.

This celebration of virtual worlds is the centerpiece of Skawennati's 2017 machinima *She Falls for Ages*. This machinima is Skawennati's version of the Houdensaunee creation story of Sky Woman. Sky Woman stories feature both creation and destruction, as Sky Woman falls from her world in the sky to a version of Earth covered in endless oceans where she creates a new continent on the back of a turtle. Sky Woman's original home isn't necessarily destroyed in all versions of this story, but she always experiences a profound loss of world before she creates a new one. As a digital retelling of these stories, *She Falls* is haunted by the future destruction of a virtual world even before these events occur. Sky Woman's world wasn't destroyed by colonialism,

but her journey reflects concerns over sovereignty, apocalypse, and temporality which are very clearly situated in the forms of haunting that stem from colonial structures of violence.

These concerns over sovereignty and land play out in the ways Skawennati represents a non-linear temporality. The titular Sky Woman is Otsitsakaion, a woman haunted by telepathic visions of the past and future. She draws portraits of people she has not yet met and locations she has never visited, so she is telepresent across Sky World. Otsitsakaion's husband also has visions of the future, and Otsitsakaion is depicted as telepathically sharing his visions of her future journey and the destruction of their world. She is haunted by ecological destruction even as it is only beginning to happen. Otsitsakaion's collective and relational experience of time connects her with what Mark Rifkin calls "temporal sovereignty." In *Beyond Settler Time*, Mark Rifkin draws on Sarah Ahmed's work on ontology to develop a hermeneutic of Indigenous temporal sovereignty (2). This move requires understanding temporalities as orientations, envisioning time:

less as a container that holds events than as potentially divergent processes of becoming. Being temporally oriented suggests that one's experiences, sensations, and possibilities for action are shaped by the existing inclinations, itineraries, and networks in which one is immersed, turning toward some things and away from others (2).

Indigenous temporalities are oriented towards collective, relational experiences of living on and being displaced from specific territories (3). For Rifkin, temporal sovereignty is a speculative project, which opens up present and future self-determination.

Rifkin's work, to me, suggests that also at stake in this discussion are the temporalities of science and technology, especially techno-scientific perspectives on

changing climates. Part of this move entails introducing the spectral into my discussion of the speculative or scientific. One key example for Rifkin is Ghost Dance narratives. As he argues, the Ghost Dance:

operates as a site for generating Native futures not bound by the presumed givenness of settler national geographies and destinies... [they] access the potentials of prophecy as a nonsuccessive relation to time that indicates both intimacy across periods and the action of nonhuman entities as causal agents that take part in processes of becoming (131).

These Ghost Dance narratives are “cross-temporal” and have a “prophetic temporality” that draws together past and future sovereignties. The Ghost Dance is a particular type of ghostly practice and narrative, and Rifkin unpacks the ways this 19th century prophetic practice is taken up by authors like Leslie Marmon Silko and Sherman Alexie. Through Otsitsakaion’s collective visions of apocalypse, Skawennati makes the spectral or the ghostly in Indigenous futurism into cross-temporal proximities between past and future as a scientific as well as a narrative practice. Otsitsakaion experiences prophetic temporality as a reflection of both her immanent world destruction and her ability to remake the world for her future children. In this way, *She Falls For Ages* creates a form of posthuman haunting that brings together intergenerational traumas, ancestral haunting, and family legacy with the colonial violence of climate change and world destruction.

The endangered Sky World is science fictional and technological, cross-temporally situating this world as a futuristic space. As the narrator of the film states, the Sky People are “a peaceful race who have overcome most diseases and hardly know the meaning of death.” They are undying in the way that many posthuman digital lifeforms are. The Sky People “have harnessed geothermal, wind, and solar power, and are brilliant

botanists,” culminating in the creation of a “celestial tree.” The branches of the celestial tree are twisted chords and wires. The tree roots are networks, stretching across the entire world. The tree is covered in flowers made from colored lights. As a biotechnological construct, the celestial tree powers Sky World. This is a media landscape in the way Loft describes—the Celestial tree connects and invigorates this world through the wires extending from its roots, and it is the spiritual center of this community. Although these Sky people also have wind, geothermal, and solar power, the Celestial Tree, as a kind of biotechnological construct, lights and enlivens their world.

As a “sacred technology of technologies past,” the Tree is also endangered. I am interested in this image of a dying tree made from electricity because it turns an extinction event into a kind of power outage, a crisis of energy. The entire world is endangered when the celestial tree starts to flicker out. In the machinima’s elision of media with ecology, the mediated world becomes more rapidly endangered than the biological world, serving as a story which augments contemporary concerns over biological extinction and climate chaos. As I have previously argued, science fiction which compares technological obsolescence to extinction “challenges the idea that either organic or digital life could be easily replaceable... [drawing] attention to the larger geology of obsolete media, emphasizing the ways that extinction and climate change are imbricated in the technologies of global capital” (Attebery, “Losing Data Earth”). Skawennati’s work similarly uses media, particularly older, semi-obsolete media like the *Second Life* platform, as a space where the devastating futures of extinction and

Anthropogenic violence can play out at the more easily comprehensible speed of a power outage.

The death of the Celestial Tree therefore serves as a useful example of how Indigenous media can subvert the apocalyptic narratives of the Anthropocene by creating cross-temporalities. Writing “On Time,” Zoe Todd brings together Rifkin, Sylvia Wynter, and others to contrast Indigenous temporalities with the temporalities of white supremacy that are part of the ongoing violence of settler colonialism as well as the recent return of fascism in the Western world. Todd notes that white supremacy is not exclusively focused on the present or on modernity, but that it also creates cross-temporal proximities between pasts and futures. As she argues:

Through the logics of its own science, white supremacy seeks to categorize humans in such a way to stretch its spindly white fingers back through the mammals, the dinosaurs, the marine creatures, the stromatolites, the nucleated-cells... the very carbon and oxygen and hydrogen and nitrogen and atoms and electrons and quirks and quarks and energy that comprise this existence — they try to stretch that spindly finger back to the very beginning of *being* here on this planet, in the forms we understand being to take (n.pag.).

In order to oppose these spindly fingers of white supremacist science and colonial/national power, we need scientific stories of renewal that emphasize the ongoing connections between living and nonliving kin, that acknowledge the agential beingness in matter that we might see as merely a source of energy.

An early example in Todd’s essay is the material traces of dinosaur life. She cites a 2008 interview with Blackfoot scholar Leroy Little Bear and journalist Don Hill where Little Bear suggests that the dinosaurs died off because they neglected to perform their renewal ceremonies.

Todd takes this conceit a step further:

If time folds back in on itself, did they disappear because a small outpost of another order of existence, millions of years later, started to mine and hew their transformed remains and the remains of their algae and zooplankton kin into fossil fuels to burn in the name of ever expanding white supremacist imperial capitalist colonial fascist ontological claims to all existence? (n.pag.).²⁶

Both white supremacist ontologies and Indigenous ontologies work cross-temporally in these examples. Both describe a kind of ghostly process where posthuman technologies and materials are fueled by the spectral remnants of past life. In this way, the posthuman is already a cross-temporal figure—one that draws its origins from this mix of scientific origin stories as much as from the technological developments of World War II. Situating these posthuman temporalities in the context of Indigenous sovereignty allow for renewal and decolonization in the face of these problems.

The Sky People are unable to reenergize the tree, but the people living in this endangered electric world send the pregnant telepath Otsitsakaion to reenergize a new world with their knowledge and stories, which she and a collection of animals form on the back of a turtle swimming in an endless ocean. Otsitsakaion is haunted by the world she has lost, but *Sky Falls for Ages* represents Otsitsakaion as a woman with a unique experience of temporality, for whom posthuman haunting is an act of remembrance and kinship. Otsitsakaion is a telepath who experiences other people's thoughts as if they were media. As she explains, observing her own thoughts alongside her mother and brother's is "like I'm watching three movies at once." The machinima suggests that

²⁶ The announcement by the US State Department classifying fossil fuels as "freedom molecules" is a disturbing example of the ways fossils and fossil fuels are leveraged by fascist regimes to ensure the futurity of the settler state.

Otsitsakaion's telepathy began with the unusual circumstances of her birth. She was born with her amniotic sack still around her. As her mother explains, her amniotic sack "looked like a veil." I read this as another way that the machinima frames media through kinship. Describing the amniotic sack as a veil which augments the gaze represents maternity and childbirth as an experience of kinship structured around media. I am reminded once again of Sophie Lewis's discussion of the "a cyborg ecology of liquid" of what she calls "amniotechnics" in Métis and Lakota ontologies. If Otsitsakaion's first experience of mediated reality is amniotechnic then this amniotechnic mediation in turn leads her to experience the world telepathically through the eyes of her family and through the value she places on her unborn child. Amniotechnics brings the seven generations of technology and mediation together with the material, biological processes of childbirth to suggest ways that intergenerational care, trauma, and haunting are also forms of mediation.

By the end of the machinima, the celestial tree and all of the other Sky People who lived under it may be gone, but Sky Woman is haunted by their presence beyond their deaths. As Otsitsakaion's uncle says, "I will always be available to you, even in death." In contrast to deathless preservation, mourning, and acceleration, this intergenerational haunting suggests the ongoing presence of Otsitsakaion's people in her life. They are dead, but they are not lost, nor are they cut off from Otsitsakaion's futurism. As she makes a new world while honoring the previous world, Otsitsakaion shows how the machinima world itself operates as a posthuman haunting which invokes spirit beyond death.

Conclusion

Stories like *Horse* and *She Falls for Ages* imagine new forms of kinship, vitality, and temporality. The time slippages found in Pechawis and Skawennati's Indigenous futurisms refuses the narrative of the vanishing indigene which positions Indigenous ecological knowledge as an empty trace of lost biodiversity. Their refuse ecologies are not empty, but filled with lively new beings made out of technologies and trash, framing these media hauntings as a way of augmenting other precarious ecologies. Indigenous media therefore demonstrates the value in rethinking posthuman temporalities when confronting the apocalyptic futures of mass extinction. Creating a refuse ecology is a decolonization project, as it challenges settler colonial time frames that place Indigenous peoples and extinct species in the past while fetishizing the short lives of new technologies. Instead of emphasizing "authentic" environments presided over by fictionalized and idealized pre-colonial societies, these texts offer playful narratives of inauthentic, subversive, and ambiguous futures. Indigenous futurisms push beyond climate change fatigue to actively create ethical, situated, and resilient environmental futures, even when these futures are built out of refuse.

Chapter Four:

Towards a Refuse Ecology

My goal in this final chapter is to sketch out how these three forms of Indigenous posthumanism—posthuman haunting, posthuman biomedicine, and posthuman petroleum, —are coproduced as part of what I’m calling a “refuse ecology.” These figures have value for thinking about Indigenous sciences in uncertain times because together they form posthuman systems which bring together technology and trash. Refuse ecology is therefore produced by the interplay between these three posthuman figures. Indigenous posthumanism brings together technology and trash as part of the commingling of humans and nonhumans. In doing so, these figures shift ongoing conversations in posthuman theory to link with Indigenous thought, centering the posthuman on land sovereignty in post-apocalyptic spaces.

I use refuse ecology as a term for the aesthetics and political impact of stories featuring these forms of posthuman becoming. To this end, I trace refusal through Indigenous and Marxist responses to the Anthropocene, drawing together discourses on salvage with survivance and sovereignty. To explore the relationship between Indigenous posthumanisms and refuse, I turn to Anishinaabe writer Gerald Vizenor, whose work on survivance and trickster aesthetics has permeated my previous chapters. From the 1978 publication of his debut novel *Darkness in St. Louis Bearheart*, later revised in 1990 as *Bearheart: The Heirship Chronicles*, Gerald Vizenor has been at the forefront of using speculative fiction to imagine decolonial futures responding to petrochemical waste, genetic manipulation, new media, and refuse. *Bearheart* imagines strategies for

Indigenous survivance in a Native Apocalypse after peak oil. Vizenor's later forays into speculative fiction develop this focus on post-apocalyptic resurgence through a sustained investigation of settler and Indigenous sciences, particularly in Vizenor's novel *The Heirs of Columbus* (1991) and story collection *Landfill Meditation: Crossblood Stories* (1991). In these stories, Vizenor develops a scientific trickster aesthetics, drawing on humor and storytelling to imagine futures where identities and communities are structured around Indigenous posthuman kinship.

Any reading of Vizenor's fiction must engage with his own theoretical terminology. Vizenor is as well-known as a theorist as he is as a writer, and his fiction and prose both seek to develop postmodern aesthetics for contemporary Indigenous identity. Terms like "transmotion" or the "postindian" proliferate across his work as new categories for cultural simulation and ironic vitality. Chief among Vizenor's theoretical terms, and by far his most influential concept, is "survivance," a combination of "survival" and "resistance." As I've discussed earlier, survivance, for Vizenor, represents the "active repudiation of dominance, tragedy [...] and victimry" in the face of settler colonialism (*Fugitive Poses* 15). As such, survivance can be a useful concept for exploring post-apocalyptic futures, and is often discussed within Indigenous futurism. It is term with value for both science fiction and science.

Survivance is intimately associated with a trickster aesthetics. As Vizenor uses the term, survivance enables resistance through "vital irony" and teasing ("Aesthetics of Survivance" 1). Survivance is often perverse, scatological, and ironic. Survivance is also associated with nature, although not explicitly with the post-apocalyptic trashed ecologies

that I have analyzed here. Vizenor argues that survivance stories are “prompted by natural reason, by a consciousness and sense of incontestable presence that arises from experiences in the natural world,” but survivance is not “a mere romance of nature” (“Aesthetics of Survivance” 11). When it comes to defining how the natural world is represented in survivance narratives Vizenor focuses on “the presence of animals, birds, and other creatures in native literature,” emphasizing animal totems, transformations, and metaphors, but not technologies (“Aesthetics of Survivance” 12). I find it strange that Vizenor does not extend his definition of survivance aesthetics and natural reason further, simply because his fiction often depicts more science fictional scenarios: *Bearheart’s* post-apocalyptic, post-petroleum America; the posthuman genetic experiments in *Heirs of Columbus*; numerous stories about tricksters creating community with holographic projections, polyvinyl chloride, mutated fish, and other non-natural, nonhuman beings all imagine a more expansive definition of ecology. These refuse ecologies expand survivance aesthetics beyond creatures and natural lands into media, biopolitics, and waste.

Cars, Holotropes, Genes, and Pollutants

Vizenor associates the haunted posthumanism of media technologies with transit, trickster humor, and legal witnessing. The clearest example of Vizenor’s virtual trickster is Almost Browne, the central trickster character featured across a number of Vizenor’s stories. Almost also appears as a character in *The Heirs of Columbus*, presenting his newest laser show for the heirs and supporting them in a court case, but Almost’s origins

are chronicled in the most detail in the stories “Almost Browne” and “Feral Lasers,” both of which are included in the 1991 collection *Landfill Meditation*. Almost is “an instinctive mechanician... he was a bear, a crow in a birch, a mongrel, and he reached in imagination to a postbiological world” (“Feral Lasers” 13). This speculative reach to the postbiological comes to characterize Almost across all of his fictional appearances, and it links Almost to the postbiological in Indigenous ontologies which attend to the personhood of stone or machines. Like Kumo from Misha’s *Red Spider White Web*, he is a technological trickster, using his skill with computers and holograms to project his own hybrid sense of irony onto the world around him. And, like Kumo, Almost’s tricksterhood brings the virtual together with the posthumanism of petroleum and biomedicine, to the point where these three categories coproduce his creation of the “postbiological worlds” of a refuse ecology.

Almost has a close connection to cars as the source of his trickster hybridity. He was named “Almost” because he is a transitional figure—half white and half native, born in a car on the border of the White Earth Indian Reservation (“Almost Browne” 1). His birthplace is recorded by an amused doctor as “Hatchback at White Earth” (3), so Almost has a complicated claim to tribal belonging and identity. Almost has a cultural and kinship claim to the White Earth Reservation, but the medical record upholds the artificial geopolitical barrier of the border. This ostensibly clear boundary is the image of the car on the road, which implies movement and acceleration across such boundaries. Like the broken down car in *Horse*, this broken hatchback is both a common image of reservation life and a way of undercutting the association between technologies as a form

of posthuman acceleration and the material reality of technologies as a frangible part of our daily lives. The infrastructures supported by and supporting the transfer of oil as a form of energy futurity across geontopolitical borders breaks down when it reaches the Reservation, a space where technologies like the car are culturally important but often technologically obsolete and damaged.

The hatchback also impacts Almost's genetic and biological belonging. When he arrives at the hospital after birth "Almost was covered with dust, darker at birth than he has ever been since then," and the doctor laughs as she washes him, revealing almost white skin under the grime (3). Here, racial belonging is folded into and obscured by the experience of pollution. Almost is a racially mixed person whose tribal belonging is shown as much through his shared exposure to pollutants as his skin color. He is officially recorded as not quite a member of a racialized Anishinaabe population. Almost could claim his biopolitical belonging as part-car, part-technology, as easily as he could claim kinship with the reservation population or the white population of his mother. As a body artificially darkened by pollution and the dust of the road, Almost is marked as an Indigenous posthuman through these shifting associations between technology and waste as much as by his genetics.

Almost's ties to reservation car culture continue throughout his life. He claims to be "a natural polyvinyl chloride partisan" (12), he grows up in a collection of seven dead cars rather than a house, and some of his first trickster experiments involve opening a bookmobile filled with blank books. Later, he creates enormous holographic laser shows to project over the reservation. These holograms are associated with cultural sovereignty

as well as entertainment—Vizenor describes them as “postshamanic laser holotropes” (14). Through the combination of “electromagnetism, luminescence, and spectral memories” Almost has “deconstructed biological time and paraded western explorers in laser holograms” (14). The association between scientific terminology and “spectral memories” in this list transforms the technology of the hologram into a posthuman haunting, much like Archer Pechawis’ digital drum or Skawennati’s second life avatars of Mohawk ancestors. The lasers “substantiate memories, dreams, with no observe, no other, no shadows” (17). In many cases, the lasers depict figures like Columbus, haunting the reservation with the specter of colonialism. At other times, Almost creates holographic warriors in a kind of ancestral haunting. This laser light performance is posthuman in the same way that it is “postshamanic”—a way of integrating shamanism with trickster technologies which turn light itself into a spectral visitor. As a trickster figure, Almost’s version of “postbiological” worlding both is and is not framed as after or beyond biology, in the same way that the “post” of “posthuman” has a complicated and shifting relationship to the human.

Vizenor references Hans Moravec’s *Mind Children* as an example of the postbiological, but this citation of the kind of transhumanist techno-transcendence that Hayles critiques does not match how Almost actually situates his technology within a material world (20). He describes his work as “trickster simulations” (11) that combined “cold robotics and his communion with bears” (“Feral Lasers” 13). He does not produce these holographic effects from nothing—Almost explains in an interview that he needs three lasers set up together to create a particular effect and that he combines “two junkers

with sun roofs” to help position his lasers in place. The obsolete material technologies of used cars are still a part of his trickster practice, even when Almost is working with a virtual projection. There’s an emphasis on the material technologies required to produce a postbiological world, and the communion with animals necessary to enliven this world. Much like Skawennati’s second life machinimas, Almost uses virtuality as a space for mediating among human and nonhuman life.

Many of Almost’s holotropes feature nonhuman life—the “feral lasers” of the story’s title. On the reservation, Almost creates images of white explorers, but in the cities his laser shows become a kind of rewilding project, creating images of bears and crows and other animals in what he describes as “laser relocation” (17). An unnamed white character’s objection to this project reveals the issues of sovereignty and land rights at stake in this laser show: “That’s why we spend billions for interstates... to keep wild animals where they belong, in the woods, and out of harm’s way in traffic” (18). Both the tricksters and their detractors treat laser animals as real animals, sidestepping the issue of whether a virtual animal could replace or memorialize a biological animal by treating both as important forms of nonhuman life.²⁷

Almost’s exploits culminate, as Vizenor’s stories often do, in a series of court cases where he is challenged for frightening people with his creations.

²⁷ In this way I also see Vizenor complicating Akira Mizuta Lippit’s work on media as a space for memorializing the animal.

This challenge turns into a roundabout trickster dialogue between Almost and the judge, where Almost insists on the personhood of his laser holotropes:

‘Who are they?’
‘Nobody,’ he said. ‘Laser light shows.’
‘Whose lights?’
‘Laser holotropes.’
‘Indian?’ asked the judge. ‘Where’s he from then?’
‘Nowhere, laser is a light.’
‘Laser, what’s his last name again?’
‘Holotropes, but that’s not a real name.’
‘Does he shine on our reservation?’
‘Laser is an image.’
‘Not when he shines our deer,’ said the judge. (15)

In this exchange, Almost uses the posthuman haunting of the lasers as a way of extending sovereignty beyond the land. Light itself becomes a kind of being—jokingly named “Laser Holotropes” at the expense of the judge’s scientific ignorance—who exerts influence over the human and nonhuman inhabitants of the reservation, but doesn’t claim a tribally recognized identity or origin. If sovereignty can be upheld by nonliving, immaterial beings made of light, it becomes impossible for the state to govern, allowing these laser holotropes to refuse political recognition under these structures of colonial governmentality.

The refusal of a named tribal identity brings the posthuman haunting of these laser light beings together with the complicated biopolitics of posthuman biomedicine. When Almost creates a laser version of Columbus to circle the mission pond at White Earth reservation, this particular hologram becomes subject to debate over its genetics and health. One woman shouts that she “could smell white diseases” coming from the hologram’s crotch (16). Almost sidesteps the issue by claiming Columbus as a trickster

ancestor. Replicating the move Vizenor makes in *Heirs of Columbus*, where Columbus is given the ahistorical genetic status as part native, Almost's hologram Columbus is also "darker on the inside" (16). As Almost explains, "[l]aser holograms created the white man, but we set the memories and the skin colors" (16). The question of Columbus's genetics and skin color—seemingly a non-issue for a virtual, postbiological version of the man—are tied up in the narrative with this accusation that the hologram carries diseases. Refusing Almost's strange explanation that this version of Columbus is not white, a judge decrees that Almost is "accountable for accidents, diseases, and death on the reservation that summer" (16). Rather than being a purely virtual simulation of biological life, the hologram beings are declared to be genetically Indigenous and biologically diseased. It brings together posthuman biomedicine with the virtuality of posthuman haunting, emphasizing the dangers and affordances of these two Indigenous posthumanisms through the playfully subversive aesthetics of survivance.

Vizenor has a similarly playful approach to genetics and tribal belonging in his 1990 novel *The Heirs of Columbus*, which gives the most sustained treatment of a biomedical form of Indigenous posthumanism. Written to correspond with the 500th anniversary of Christopher Columbus' landing in the Americas, *The Heirs of Columbus* features a nation of tricksters who claim Columbus as an ancestor in a speculative historical revision of this history, using these ancestral ties to a white colonizer as the impetus to begin a series of genetic experiments to expand Indigeneity beyond a racialized minority population. This move is interesting because Vizenor takes the typical imperial biopolitical framework of Indigeneity as a genetic category and renders this

biomedical science into illegible, trickster terms. As he does so, Vizenor also combines posthuman biomedicine with virtuality, bringing these figures of Indigenous posthumanism together into a refuse ecology where the survivance of Indigenous peoples stems from the same biopolitical apparatuses which cause them harm.

I say that Vizenor draws on Indigeneity as a biomedical, genetic category, but in fact he takes pains to complicate a simple genetic categorization of Indigeneity. From the first few pages of the novel, DNA is associated with blood, with stories, and with stones, interchangeably. As Stone Columbus, one of the main characters who claims Columbus as an ancestor, is explaining that Columbus secretly has Mayan genes, the woman interviewing him interrupts to try to pin down a clear explanation for how this science works: “Stone, wait a minute, you leap from stones, to genes, to goldfish, to dates and places, and back again” (11). Stone avoids answering, merely saying “Columbus is ever on the move in our stories” as the interviewer cues a commercial break (11). This conflation of stone, blood, genetics, and stories is a central part of the novel’s premise, in which the genetic signature of Columbus can heal any affliction, but only when it is distributed by the Heirs of Columbus alongside their stories.

It is significant that these questions about legibility and recognition are set up through a radio interview. Stone is described as “eager to be heard on national talk show radio” but “would never speak to a camera” (8). He claims “radio is real, television is not” and “who you hear is what you see” (8). Stone may say that radio is “real,” but he seems drawn to talk radio precisely because it constructs contradictory realities through media making. As he reminisces, “His grandparents listened to talk radio late at night on

the reservation; the bold lies and arguments over the truth that he heard as a child hurried his sense of adventure imagination, and the stories in his blood” (8). Vizenor emphasizes the artifice of radio throughout Stone’s interview, as he is interrupted for three different commercial breaks over the course of a short conversation. Each commercial break becomes funnier as they continue to interrupt the narrative, to the point where the interviewer, Admiral White, starts describing the commercial as an “announcement from those wise companies that buy our time and make the truth possible in the dark” (10). The interview is a crucial scene. It sets up the relationship between the Heirs and Columbus and the healing properties of Columbus’s DNA, but at the same time Stone’s message about sovereignty and genetic science is framed as mediated through technologies which play with simulation.

Posthuman haunting serves as the backdrop to transmit Stone’s stories about biomedical advancements. There are numerous episodes throughout the novel where stones become a biomedical source of healing or injury. The sacred stones at Stone Tavern are almost described as recording devices: they “listen” and “hold the bet of water drums, and the chatter of blue puppets” and the stories the Heirs tell each other (13). This nonliving repository of knowledge is what allows the stones to “heal and remember” when they are used properly (13). However, when the stones are stolen, they turn their biomedical posthuman properties against the thieves: “Each time those who were near the stolen trickster stones lost their vision, withered, and died in a few months” (13). It is not merely the stones in and of themselves which bear healing properties, but their relationality within Indigenous stories and ceremonies. In this way, the stones are an

example of the relational, living, and emergent knowledge practices which Sarah Hunt associates with Indigenous ontologies. As nonhuman or posthuman kin, these stones establishes that the practice of medical science in this novel is intimately connected to storytelling.

This sense that the stones are a posthuman medical technology which can either heal or harm returns towards the end of the novel, where they are explicitly described as an almost electrical medical device. Vizenor once again emphasizes that the stones cannot heal without ceremony and storytelling:

Scientists are only part of the healing, as you know. The heirs, and a collection of people too incredible to describe, for instance, a former priest turned manicurist, are the paramount healers. they do this with stories and humor, and what they say becomes, in some way, the energy that heals. This story energy somehow influences the genetic codes and the children are mended in one way or another (164).

This time the stones are described as storing and releasing energy. They are still dangerous outside of this context, as the military scientists who remove the stones from the Heirs begin losing their eyesight and suffering from “bioelectrical aberrations” if they touch the stones (166). Here Vizenor retells the initial story about stones bringing disease and death using more explicitly scientific terminology, emphasizing that this process is both biological and electric, a form of posthuman biomedicine which moves through electrical signals like a media device.

Vizenor’s counterfactual Columbus is also associated with the healing properties of the stones. He is introduced as a comically injured figure, “pained by persistent erections; his enormous clubbed penis curved to the right, a disease of fibrous contracture during an erection” (31). The source of this pain stems from the fact that his penis is not

only curved, clubbed, and contracted, but that it combines the external and internal structures of both a penis and a clitoris. Introducing Columbus as a man “cursed with the twisted comic prick of a man and a woman” (32) sets him up as a queerly disabled figure who lives with chronic pain until he can be healed by his contact with Mayan handtalkers and their sacred stones.

The description of this healing process for Columbus renders him into a kind of biomedical posthuman being by physically transforming his body. Upon arriving in the Americas, Columbus was:

a bad shadow, tired and broken, because he lost most of his body parts on the way, so the old shamans heated some stones and put him back together again... Harm, the water shaman, said he dreamed a new belly for the explorer, and Shin, the bone shaman, called in a new leg from the underworld, and he got an eye from the sparrow woman, so you might say that we created this great explorer from our own stones at the tavern (19).

In the novel, Columbus is Indigenous because he secretly had Mayan ancestry, so his journey to the Americas was a return to his culture. This scene where he is healed by precursors to the novel’s “bioshamans,” as they graft his flesh together with stones and other nonhuman matter they dreamed into existence, positions Columbus as a posthuman figure. The healing properties of his genetic signature come from the combination of these two aspects of his character—his ancestry and the posthumanism of his injuries and healing.

Vizenor’s notes for this novel provide additional context for the decision to depict Columbus as injured and healed through posthuman transformations. His November 1990 notes for the novel—at the time tentatively called *Stone Columbus* or *The Heirs of Mother Columbus*—have a series of handwritten phrases like “reverse necrobiosis”

mixed in with early ideas about Columbus and the bioshamans. Vizenor's initial plan for Columbus is that he "loses an arm, shaman summoned to imagine a new one, one can lose many body parts in spirit, the loss of imagination and humor is the loss of spiritual body parts," alongside a more personal reflection "I know my body but my body does not know me, peculiar and dominant stories about my relationship with my body" (Box 1, Folder 2: Stone Columbus: The Heirs of Christopher Columbus). The notes quickly bring in genetics as a biomedical concept linking these ideas together, but even in these initial notes, Columbus's injured body reflects his spiritual and cultural loss. Physically integrating stones back into his body, as a geological prosthesis, allows Columbus to heal by reconnecting him with his ancestral stories.

Many of Vizenor's notes chronicle his research into genetic science while drafting *Heirs*. He frequently wrote down a fact or a quotation and then followed it up with a suggestion of how this scientific information would translate into an Indigenous context. For instance, when he notes that DNA consists of "four chemical letters, 3 billion code letter differences," Vizenor responds that "much nonsense retained from the past, but not the signature" (Box 1, Folder 2). After noting the physical structures of DNA, he writes in all capital letters "OUR GENES ARE HELD TOGETHER BY OPPOSITES, CHEMICAL PAIRS Here we have the primal source of humor and healing by shamans and tricksters, the turn of opposites, the imagination of the opposites" (Box 1, Folder 2). He finds a physical justification for connecting genetics with survivance by approaching DNA not as a set of data points for quantifying race but by thinking of it as a twisting physical structure of paired opposites. The novel is attentive to the biopolitical

management of populations opened up by genetics discourse, but it also sidesteps the problems with how DNA is deployed by the state by creating new stories about the material structures of DNA.

For Vizenor, genetics is part code and part language. He refers to genes interchangeably as a code and codex. There are also a number of different words he plays with for what eventually becomes the “genes of survivance” in the novel: “bear gene signature” “the genetic ghost dance” “immunogenetics” “the numen gene” “the numinous gene” and other possible terms (Box 1, Folder 2). He similarly plays with a number of terms for the novel’s bioshamans, listing them out as “biochemists, molecular biologists, bioshamanism, logoshamanism” (Box 1, Folder 2). A note on tumors demonstrates Vizenor’s process behind his wordplay. He lists and defines a word, and then plays with different suffixes to produce different meanings:

oncogenes, tumor oncogenesis, process of tumor formation
oncogenic, tending to cause the formation of tumors
oncology, study of tumors (Box 1, Folder 2).²⁸

The result is almost poetic in structure, and it mirrors through language play the genetic structures which fascinate Vizenor. He pairs together words and phrases drawn from western scientific traditions with Indigenous concepts, repeating words with slight variations in a kind of linguistic inheritance. Vizenor eventually decided to use his term survivance for Columbus’ genetic signature, but this creative process imbues the phrase

²⁸ I have replicated the formatting of Vizenor’s note here as closely as possible.

with animality, ceremony, and energy which are still a present part of the final manuscript.

The healing properties of genetics, stone, and story are linked to media and simulation throughout the novel, but they also are closely integrated with Vizenor's concerns over refuse. Making Columbus' genetics of survivance into a genetic therapy accomplishes a few related goals: it "could reverse human mutations, nurture shamanic resurrection, heal wounded children, and incite parthenogenesis in separatist women" (132). It transforms how Indigeneity registers in a biopolitical framework by turning the structures of biopolitics against the nation state. If the racialization of Indigeneity through blood quantum renders Indigenous peoples into vanishing populations, survivance as genetic therapy continually expands what "counts" as Indigenous identity, as "anyone could, with an injection of suitable genetic material, prove beyond a doubt a genetic tribal identity" (162). The other reason the heirs want to transfer the genetic signature of survivance to others is to heal those harmed by pollution. Vizenor is very clear that these "wounded children" are the victims of environmental pollution as well as abuse. There are "more and more wounded children, thousands of mutants poisoned in a chemical civilization, and those with unforgiven cancers, plastic faces, wooden hearts, heads, broken tribal minds and dreams" (147). In his notes, these mutations are specifically tied to both "chemicals, alcohol [sic], ethnic biological weapons" and to "mortal racial wounds, and mutations caused by nuclear waste and chemical pollution" (Box 1, Folder 2). Here, yet again, posthuman biomedicine, posthuman haunting, and posthuman petroleum co-mingle and co-produce each other as part of the same kinship networks.

These stories and novel bring different forms of Indigenous posthumans in relation with each other, playing with different ways these figures can relate to each other and to other forms of human and nonhuman kin. Stones can be blood, but they can also mediate stories. Media can reveal biopolitical connections. Petrochemical pollution can be cured and broken machines can be salvaged. By combining these forms of Indigenous posthumanism, Vizenor's work provides a useful counterpoint to some of the problems inherent in scientific stories around surviving and salvaging a future in the Anthropocene. I turn now to a general discussion of Anthropocene narratives as context for reading Vizenor's "Landfill Meditation," a story which again brings my three figures of the Indigenous posthuman together as an act of refusing the apocalyptic narratives implicit in terms like the Anthropocene or its offshoots.

Anthropocene Stories

The Anthropocene is a troubled term for the myriad ways in which human-created environmental changes leave a lasting impact on Earth's oceans, atmosphere, geology, and ecology,²⁹ but the debates around this term are useful because they highlight the importance of storytelling and speculative thinking for grappling with these changes. Critiques of the term "Anthropocene" based in science and technology studies, Marxism, and the environmental humanities often overlap with Indigenous climate change studies

²⁹ As Paul Cruzen expands on the term in his 2007 essay "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?" with Will Steffin and John R. McNeil: "The term Anthropocene suggests that the Earth has now left its natural geological epoch, the present interglacial state called the Holocene. Human activities have become so pervasive and profound that they rival the great forces of Nature and are pushing the Earth into planetary terra incognita. The Earth is rapidly moving into a less biologically diverse, less forested, much warmer, and probably wetter and stormier state." (614)

in their attempts to rethink the Anthropocene, although Indigenous environmental scholars are too infrequently cited in these discussions. The terminology of Anthropocene implies shared human culpability without acknowledging the global power differentials that shape the Anthropocene's causes and effects. Jason Moore rightly finds fault with the universality of *Anthropos* as a framing device for global climate change. As he notes:

The Anthropocene makes for an easy story. Easy, because it does not challenge the naturalized inequalities, alienation, and violence inscribed in modernity's strategic relations of power and production... The Mosaic of human activity in the web of life is reduced to an abstract Humanity: a homogeneous acting unit. Inequality, commodification, imperialism, patriarchy, racial formations, and much more, have been largely removed from consideration (170).

A more accurate term for how these power relations relate to climate change, for Moore, is "Capitalocene,"³⁰ a word that similarly differentiates our epoch of global environmental upheaval from the Holocene, but places the blame with human systems of capital instead of an undifferentiated unified humanity (Moore 77).

However, as Kyle Powys Whyte (Potawatomi) rightly points out, identifying climate change only with the start of capital may not be the best framework. Instead, Whyte argues that climate change is an "intensification or intensified episode of colonialism" (155). Moore does consider race and imperialism to be important to his terminology of Capitalocene, but Whyte's work suggests the centrality of colonial ideologies to this homogenization of Man and Nature in Cruzen's language of "great forces of Nature." As Daniel R. Wildcat (Creek) argues, framing the Anthropocene around Indigenous land politics connects disruptive ecological changes to two earlier forms of Indigenous

³⁰ The Term Capitalocene was coined by Andreas Malm, and popularized by Moore.

removal—the “geographic” displacement of the Trail of Tears and the reservation system, and the “social” or “psycho-cultural” removal of children into abusive boarding schools (4). For Whyte, Wildcat, and others, climate change is better understood as a continuation of this ongoing colonial violence rather than a new geological epoch.

The structuring violence of colonialism is crucial for approaching changing climates, but, as Audra Mitchell notes, there is potential danger in presenting “European colonization as a driving force of the Anthropocene” because it “[risks] equating human forms of agency with ‘natural forces,’” potentially naturalizing colonialism through the same homogenizing narratives that plague the Anthropocene (n.pag.). Instead of creating new terms for this geophysical age, Whyte argues that we need the methodologies of “Indigenous climate change studies,” which identifies the colonial influences on climate change in order to push for Indigenous self-determination and the renewal of Indigenous ecological knowledges (153-54). Studies of climate change should prioritize the ontologies and methodologies of Indigenous studies, especially when these ontologies change the ways the Anthropocene is invoked in narrative.

At its worst, the discourse around the Anthropocene reduces the complexity of global systems to a simplistic human vs. nature narrative, where pinpointing a single “golden spike” takes importance over mitigating the inequalities created through the commodification of nature in global climate change. However, the Anthropocene does productively position climate change as a problem to be approached speculatively, reimagining the present from the perspective of the future. Gerry Canavan describes this tendency in his introduction to *Green Planets: Ecology and Science Fiction*, arguing that

the Anthropocene “takes up the cosmic viewpoint native to SF to imagine the future scientists who will uncover the scant evidence of our existence on a long-deserted, post-human Earth” (x). Ursula Heise similarly argues “the notion of the Anthropocene itself... is often accompanied by the transfer of tropes and narrative strategies from science fiction to mainstream fiction and environmental nonfiction. Its particular power... its capacity to cast the present as a future that has already arrived” (Heise 203). It is difficult to create stories around the Anthropocene, since its transformations of climate, geology, and society are so vast and so strange that they defy conventional narrative forms. Speculative fiction is the genre where anthropogenic climate change can be imagined most complexly.³¹ Some speculative climate change narratives fail to reflect the complexity of human and nonhuman systems, casting the humans vs. nature framework of the Anthropocene into a story familiar to anyone who has seen any of the ecological disaster films of the last few years.³² As Moore explains, this simplistic Anthropocene story contrasts Nature with human innovation: “Capitalism—or if one prefers, modernity or industrial civilization—emerged *out of* Nature. It drew wealth *from* Nature. It disrupted, degraded, or defiled *Nature*. And now, or sometime very soon, Nature will

³¹ Colloquially, recent examples of this trend have been called “Cli-fi,” although there are numerous problems with this term. In addition to being an awkward sounding portmanteau, Cli-fi implies that climate change science fiction is a recent phenomenon, overlooking the earlier climate change fiction of J.G. Ballard (*The Drowned World*, 1962), Thomas Disch (*The Ruins of Earth: An Anthology of Stories of the Immediate Future*, 1971), and other new wave writers, as well as the cross-over between climate change science fiction and other apocalyptic near-future forms of sf, like nuclear apocalypse stories or terraforming stories. Additionally, “Cli-fi” readers tend to prioritize hard science fiction. While it may be due to the influence of Kim Stanley Robinson, this prioritization of hard science fiction over the “softer” science fictions that emphasize social commentary and the fantastic has rightly been criticized as a way of delegitimizing the work of women and writers of color. Defining “Cli-Fi” around the science in science fiction also excludes the “Global Weirding” fiction coming from writers like Jeff Vandermeer.

³² *2012* (2009), *The Day After Tomorrow* (2004), and *San Andreas* (2015), to name a few.

exact its revenge. Catastrophe is coming. Collapse is on the horizon” (5). In mainstream speculative narratives of planetary collapse, this cycle of defilement and revenge plays out with a generic white male lead³³ struggling to keep his wide-eyed children safe from a series of big budget spectacles of disaster. This staple of Anthropocene speculative fiction fits the famous quotation from Fredric Jameson’s *The Seeds of Time* that it is easier to imagine the end of the world than the end of capitalism, suggesting that it is also often easier to imagine the end of the world than to understand the complexity of the culpability of capitalism in these environmental catastrophes.

This cyclical narrative of destruction also plagues the speculative storytelling in science. These scientific narratives are central to Haraway’s objections to the term Anthropocene. In an eight point list breaking down her objections, Haraway emphasizes that “The myth system associated with the Anthropos is a setup, and the stories end badly,” and in place of these death-driven stories of Anthropogenic change are needed “geostories... Gaia stories... symchthonic stories” that create “webbed, braided, and tentacular living and dying in sympoietic multispecies string figures” (*Staying with the Trouble* 49).³⁴ However, Haraway is similarly critical of the narrative potential of “Capitalocene,” suggesting “Cthulhucene” as a replacement. As she argues, “insofar as the Capitalocene is told in the idiom of fundamentalist Marxism, with its trappings of Modernity, Progress, and History, that term is subject to the same or fiercer criticisms.

³³ Or sometimes Dwayne “The Rock” Johnson. I find it interesting that a Samoan man has taken the lead in many of these big budget action-disaster films, but his Indigeneity is largely unremarked in these films.

³⁴ Haraway’s use of “tentacularity” as a term draws on Eva Hayward’s work with tentacularity and trans-theory, particularly her articles on “FingeryEyes,” “SpiderCitySex,” and “Sensational Jellyfish.”

The stories of both the Anthropocene and the Capitalocene teeter constantly on the brink of becoming much Too Big” (50).³⁵ I find the dialectical Marxist narratives of the Capitalocene more productive than Haraway does. Although not as formally experimental as the weird fictions that Morton analyzes and Haraway creates, Capitalocene dystopias can be very productive for imagining the future stakes of present actions, following the model of a critical dystopia which can “linger in the terrors of the present even as they exemplify what is needed to transform it” (Moylan 199). However, I agree that the narrative challenges of representing global climate change invites new types of stories that draw on different ontologies, temporalities, and sciences.

These methodological challenges in resisting the apocalyptic “too big” sciences and stories of the Anthropocene are taken up by groups like the Creatures Collective, a set of Indigenous and non-Indigenous scholars and activists started by Audra Mitchell in 2015. The Collective models a practice they call “manifestings” for this work:

Instead of focusing on the presentation of theories or data, we want to share with you the process through which we gather and co-create knowledge as a group: through conversation, shared experience grounded in place, the navigation of relationships, and the constant (re)interpretation of stories, experiences, reflections, and imaginings. By consciously adopting and working with this methodology, we hope to challenge mainstream ways of doing and presenting scholarship in the Western academy, and, through each manifesting, to open up different possibilities for future co-creation within and across plural communities (2).

³⁵ Timothy Morton makes a similar point in *Dark Ecology*, arguing that global warming impacts our lives on such a massive scale, as a set of “hyperobjects,” that we have difficulty constructing narratives around these changes. Morton suggests that we need to be open to new types of “aesthetic experience and practice” that rework our understanding of time and place in relation to these challenges (24). Morton’s own work has increasingly turned toward weird fiction and similar “dark ecologies” to answer these questions, as genres that also theorize what it would be like for humans to confront an unknowable nonhuman force.

Indigenous futurisms are an important counterpoint to these discussions of Anthropocene stories, Capitalocene stories, and Cthulhucene stories. Gerald Vizenor's speculative fiction is particularly useful when rethinking Anthropocene or Capitalocene stories because his work situates futurisms in irony, simulation, transformation, and survivance. It is impossible to find the tragedy of an extinction story in Vizenor because he consciously rejects tragedy and mourning as storytelling modes.

Salvage and Refuse

Much like the discourses around the Anthropocene, discussions of surviving in trashed ecosystems are largely informed by a combination of Marxism and feminist science studies. Bringing these conversations together with survivance as an aesthetic for living within a refuse ecology adds a new dimension to the existing discourses on post-apocalyptic trash. This politicization of refuse is a frequent part of Indigenous futurisms in general and Vizenor's work in particular. He outlines stories about a woman genetic engineer who "designs HEATER FLEAS, FROST TOLERANT BLACK FLIES, and KILLER COCKROACHES...which eat plastic and generate heat" or "warriors against pollution, purist, moaist, tribalist, who strike places of pollution" (Box 2, Folder: Story Ideas: Names—Outlines 1985-1986). His story notes throughout the 1980s continually return to the idea that Indigenous peoples have a particular relationship to pollutants, either through the harms of environmental racism or through sciences and stories that reframe their relationship to trash objects.

These connections are clearest in Vizenor's "Landfill Meditation," a story that develops its trickster aesthetics of survivance around images of trash and refuse. "Landfill Meditation" is a story which very clearly plays with survivance in a trashed ecology. Part of the short story collection of the same name, "Landfill Meditation" takes place on the "Landfill Meditation Reservation," a new reservation built on a trash heap by Martin Bear Charme, a trickster welder, scavenger, and junk collector. As a scavenger, Charme occupies a particular niche within capitalist production. His occupation connects his relationship with refuse to the waste-filled futures in the proliferation of critical terminology around "salvage." There are a couple of distinct uses of "salvage" as a critical term for understanding late capitalist waste and consumption. The first comes out of salvage or salvagepunk Marxism, which outlines a pessimistic futurity based in salvaging the future from capitalist ruins. As Evan Calder Williams defined the term in *Combined and Uneven Apocalypse*, salvagepunk imagines:

the post-apocalyptic vision of a broken and dead world, strewn with both the dream residues and real junk of the world that was, and shot through with the hard work of salvaging, repurposing, detourning and scrapping. Acts of salvagepunk strive against and away from the ruins on which they cannot help but be built and through which they rummage (19-20).

Williams' post-apocalyptic junk worlds follow the same move from apocalypse to resistance that the Indigenous post-apocalyptic imagines. However, there are important differences between salvagepunk and Indigenous survivance.

The first of these differences is that salvage is a resolutely pessimistic idea. As China Miéville argues in the debut issue of the British leftist journal *Salvage*, "We need to tilt at a different tipping point, into irrevocable social change, and that requires a

different pessimism, an unflinching look at how bad things are” (The Limits of Utopia”). Indigenous futurisms leverage playfulness, pleasure, horror, and disgust to creating alternative futures, but they don’t tend to rely on pessimism. As communities that are already post-apocalyptic, there isn’t a need to look, unflinching, at how bad the world is, in the way that it may be an important shift for other fields and fictions.

An alternative critical development of “salvage” comes from Anna Tsing’s *The Mushroom at the End of the World*. As part of her discussion of what she calls “disturbance-based ecologies” in capitalist ruins, Tsing considers how salvaging is at the heart of all capitalism, rather than strategy leveraged against capitalism. As she argues:

This is what I call ‘salvage,’ that is, taking advantage of value produced without capitalist control. Many capitalist raw materials (consider coal and oil) came into existence long before capitalism. Capitalists also cannot produce human life, the prerequisite of *labor*. ‘Salvage accumulation’ is the process through which lead firms amass capital without controlling the conditions under which commodities are produced. Salvage is not an ornament on ordinary capitalist processes; it is a feature of how capitalism works (63).

Tsing’s examples are related to mushroom harvesting but extend to other wasteful matter in late capitalism like coal and oil, materials that move between these pericapitalist sites and other cultural connections between humans and polluted ecologies. Refuse is an important aspect of salvage accumulation. As Tsing points out, in a capitalist ruins “[s]alvage translates violence and pollution into profit” (64). Salvage accumulation brings together human and animal reproduction with the production of other nonhuman materials. Tsing’s materialist approach to salvage closely resembles other critical traditions like Jane Bennet’s vital materialism, Stacy Alaimo’s trans-corporeality, Mel Chen’s animacy, or Haraway’s composthuman, although Tsing is only explicitly in

dialogue with Haraway. Tsing’s attentiveness to what she calls “third nature” focuses these discussions on ruined, disturbed, and abandoned ecologies (5-6).³⁶ She argues that “in a global state of precarity, we don’t have choices other than looking for life in this ruin” (6). The benefit of turning to Tsing here is her insistence on stories and experiences situated in the very specific colonial and post-colonial pericapitalist spaces of mushroom harvesting—her methodologies resemble the “manifestings” of the Creatures Collective in its scope. However, Tsing is concerned with life, especially the strange fungal life of her mushroom examples, rather than Nonlife. Bringing her work together with Indigenous ontologies of nonliving matter suggests other forms of posthuman being might also be caught up in these ruined, precarious spaces.

Where salvagepunk Marxism allows for some measure of resistance to capitalism, salvage accumulation recognizes that “those of us caught in such translations are never fully shielded from capitalism” and that these “spaces are unlikely platforms for a safe defense and recuperation” (Tsing 65). Salvage accumulation operates in tandem with spaces that Tsing calls “pericapitalist,” or “simultaneously inside and outside capitalism” (63). It draws attention to the politics of who gets to be a salvager. Stories about salvaging can too easily neo-western stories of an apocalyptic future frontier. This neo-western aesthetic is best exemplified by the *Mad Max* films or the *Fallout* game series, but it pervades other speculative fictions which focus on lone survivors in an apocalyptic

³⁶ “Third nature” responds to William Cronon’s distinction of “first nature” and “second nature” in *Nature’s Metropolis*. As summed up by Tsing, “Imagine ‘first nature’ to mean ecological relations (including humans) and ‘second nature’ to refer to capitalist transformations of the environment... My book then offers ‘third nature,’ that is, what manages to live despite capitalism” (viii).

wasteland. Tsing's stories about pericapitalist mushroom harvester communities suggest alternative ways salvage can be deployed politically.

There are two alternative definitions for salvage here. In one, salvage allows for a pessimistic leftist reappropriation of the ruins of capitalism. This salvage pessimism refuses progress as complicit with capitalist growth, leveraging pessimistic affects as a political strategy rather than out of a sense of despair for any productive change. It produces a distinctly punk aesthetic and emphasizes leftist working class collectivity and the material techniques of scrapping. In the other, salvage is the means by which late capitalism creates polluted landscapes and then produces value out of its own material waste. Both are useful ideas, but I don't wish to simply apply this terminology to an Indigenous context without consider how Indigenous ontologies transform these ideas. Take, for instance, Tsing's differentiation of salvage accumulation from the more recognizable Marxist terminology of primitive accumulation, where she argues that the terms are related but have distinct meanings:

The term "salvage accumulation" takes off from Marx's 'primitive accumulation,' the violence through which rural people destined for industrial work are disenfranchised. As in Marx's analysis, I step outside industrial formations to see how capitalism comes into being. In contrast to primitive accumulation, salvage accumulation is never complete; accumulation always depends on it. Salvage accumulation is also required for the production of labor power. Factory workers are produced and reproduced through life processes never fully controlled by capitalists. In factories, capitalists use the abilities of workers to make goods, but they cannot produce all those abilities. To transform workers' abilities into capitalist value is salvage accumulation" (296 n.3).

I like Tsing's reading of salvage accumulation, but I think she overemphasizes the distinctions between this term and primitive accumulation. If primitive accumulation is the process which turns a pre-capitalist space into one exploitable by capital, then salvage

accumulation better reflects what happens in the ruins of “third nature.” This seems, to me, to be a useful distinction. However, I want to draw salvage accumulation more closely together with Indigenous critiques of primitive accumulation to better emphasize the relationship between salvage and sovereignty. As Glen Coulthard (Dene) has argued, primitive accumulation is intimately connected with colonization and the theft of Indigenous land. Coulthard identifies several problems with Marx’s original formulation of primitive accumulation. The first of these problems is the assumption that primitive accumulation is no longer ongoing, when in fact “the escalating onslaught of violent, state-orchestrated enclosures following neoliberalism’s ascent to hegemony has unmistakably demonstrated the persistent role that unconcealed, violent dispossession continues to play in the reproduction of colonial and capitalist social relations in both the domestic and global contexts” (*Red Skin White Masks* 9). Coulthard argues that Marxist approaches to this concept require a “grounded normativity,” “the modalities of Indigenous land-connected practices and longstanding experiential knowledge that inform and structure our ethical engagements with the world and our relationships with human and nonhuman others over time” (13). Placing Tsing’s work on pericapitalist salvage in relation with Coulthard’s Indigenous Marxism brings out the continuities and overlaps between these terms. Primitive accumulation is an ongoing process which now occurs in the salvaged spaces of reservations and stolen lands. At the same time, Indigenous ontologies of nonliving matter suggest that the act of salvaging creates intimate relationships with the land salvaged in these pericapitalist spaces.

Vizenor draws attention to the agency of salvaged matter in a couple of ways. Charme walks and speaks backwards, making him a bit like a native trickster version of Walter Benjamin's Angel of History. Moving and speaking backwards serves as both an annoyance for visitors to the landfill reservation and a practice that draws attention to the materiality of his trash heaps as one stage in a longer history of the consumption and production of these materials. Charme's backwards movement reverses the forward progression of matter into technology into technological waste and it emphasizes Tsing's point that capitalism has always relied on salvage accumulation. Situating this performance of backwards movement on a reservation connects this salvage accumulation to the politics of land sovereignty. Charme walks visitors through the history of colonialism at the same time that he walks them through the history of trash objects.

In addition to drawing attention to these lively geologies of trash and technology, Vizenor's story plays with multiple meanings of "refuse." First he links the landfill with the precarious status of Indigenous people:

On the old reservations the tribes were the refuse. We were the waste, solid and swill on the run, telling stories from a discarded culture to amuse the colonial refusers. Over here now, on the other end of the wasted world, we meditate in peace on this landfill reservation (101).

Here, Indigeneity is first defined as refuse, as an unassimilable leftover population "discarded" by the settler state. Settler colonials are the "refusers" in this equation, both refusing to confront the material reality of trash and the cultural resilience of these "discarded" cultures.

As Charme continues his lecture, he reminisces about a time when “taking out the garbage” was an important ritual connecting humans to our ecosystems. As he argues, “We are a culture bound to be clean, but being clean is a delusion, a separation from our trash and the visual energies of the earth” (104-5). It is unclear how seriously we are meant to take this speech. Charme at times speaks “with some doubt in his voice” (104), and he is constantly interrupted by visitors to the landfill, one of whom claims that Charme is a con artist, who “made [his] fortune on trash” and is now using it to make others sick (104). However, if Charme is himself delusional or a fraud, his approach to garbage even more closely connects to the work of salvaging, and the indeterminacy over whether he is a con man or a prophet in the story only serves to reinforce his refusal of legibility.

Refusal is an important concept for Indigenous methodologies, and one that directly responds to the troubled history of the word “salvage.” Audra Simpson’s “ethnographic refusal” rejects the history within Anthropology of “salvage ethnography” or “salvage anthropology,” the practice of recording the cultural traditions and artifacts of Indigenous peoples believed to be nearing extinction. Coined by Jacob Gruber in 1970, salvage ethnography positions Indigenous peoples as endangered, rather than as cultures with nuanced ideas about endangerment, and responds paternalistically to this perceived problem. While the “salvage” coming out of Marxist discussions of the capitalist apocalypse comes from a separate critical lineage, it is hard to get past the racist history attached to this term when thinking through the types of refuse ecologies I am examining.

How can we salvage a trashed world while refusing these power imbalances between salvagers and people who are being salvaged?

Salvage can be a useful concept for theorizing pericapitalist settler colonial and postcolonial spaces, but I want to take the useful parts of this idea and rework it. Unlike the posthuman, which I feel is still a productive term in critical theory, I want to reword salvage instead of redefining it. In using the term “refuse ecology,” I extend Audra Simpson’s “ethnographic refusal” into the theoretical work done by scholars working broadly in and adjacent to the critical posthumanities. For Simpson, refusal “comes with the requirement of having one’s *political* sovereignty acknowledged and upheld, and raises question of legitimacy for those who are usually in the position of recognizing” (11). While Simpson’s term refers to the refusal of recognition politics within the settler state, I am considering the potential word play between refuse (as trash) and refuse (the act of refusal).

Refuse, as a doubling of refusal and material refuse, takes the scrappy, punk aesthetics and emphasis on pericapitalist polluted communities formed out of salvage and moves it into discussions of land sovereignty, borders, and refugee populations. While survivance emphasizes cultural resurgence and trickster challenges to the settler state, there is a need for a terminology that extends these ideas into the nonhuman ecologies of waste that preoccupies salvage Marxism. In essence, I want to combine this trickster irony with the scrapper aesthetic of salvagepunk in my reading of refuse ecologies. In Vizenor’s story, trash is not merely a resource to be salvaged, but a process of becoming posthuman. Charme entreats visitors to “Come meditate on trash and swill odors and

become the waste that connects us with the earth” (105). He calls this “Refuse meditation” and argues that it “turns the mind back to the earth through the visions of real waste” (104). This is where salvage meets survivance aesthetics. Salvage can be productively expanded to reflect posthuman refuse ecologies by combining its attentiveness to the political and economic circulation of trash with the land politics of survivance.

Conclusion

In her discussion of the 2014 film *Windjarrameru: The Stealing C*nts*, Elizabeth Povinelli considers whether polluted lands can manifest a kin of “toxic sovereignty” (90).

As she argues, toxic, radioactive, and dangerously trashed lands might produce:

a form of survivance in which survival does not quite fit into the picture. Indigenous sovereignty over space is reemerging in the space of utter state abandonment and total capital despoilment... Indigenous sovereignty safely emerges in the corrupted and corroded areas of late liberal capital and governance... sovereignty now thrives where Europeans have come, destroyed, and are fearful or returning, but to which the Karrabing continue stubbornly to hold on (90-91).

This toxic sovereignty suggests, to me, that there is a kind of paradoxical protection in pollution. Refuse ecologies keep white people away from sacred lands; they maintain kinship relations between sickened humans, nonhumans, and toxic matter; they create spaces for scavenging at the margins of a deathly global capitalist economy. As a form of decolonization and resurgence, refuse ecologies are often disturbing but generative spaces for exploring science, embodiment, consciousness, and temporality where the only survivors might be posthuman.

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